SelfDecode™

Perimenopause

Summary Report

REPORT CATEGORIES

SEX HORMONES

REPRODUCTIVE HEALTH

Sample Client

Report date: 29 July 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

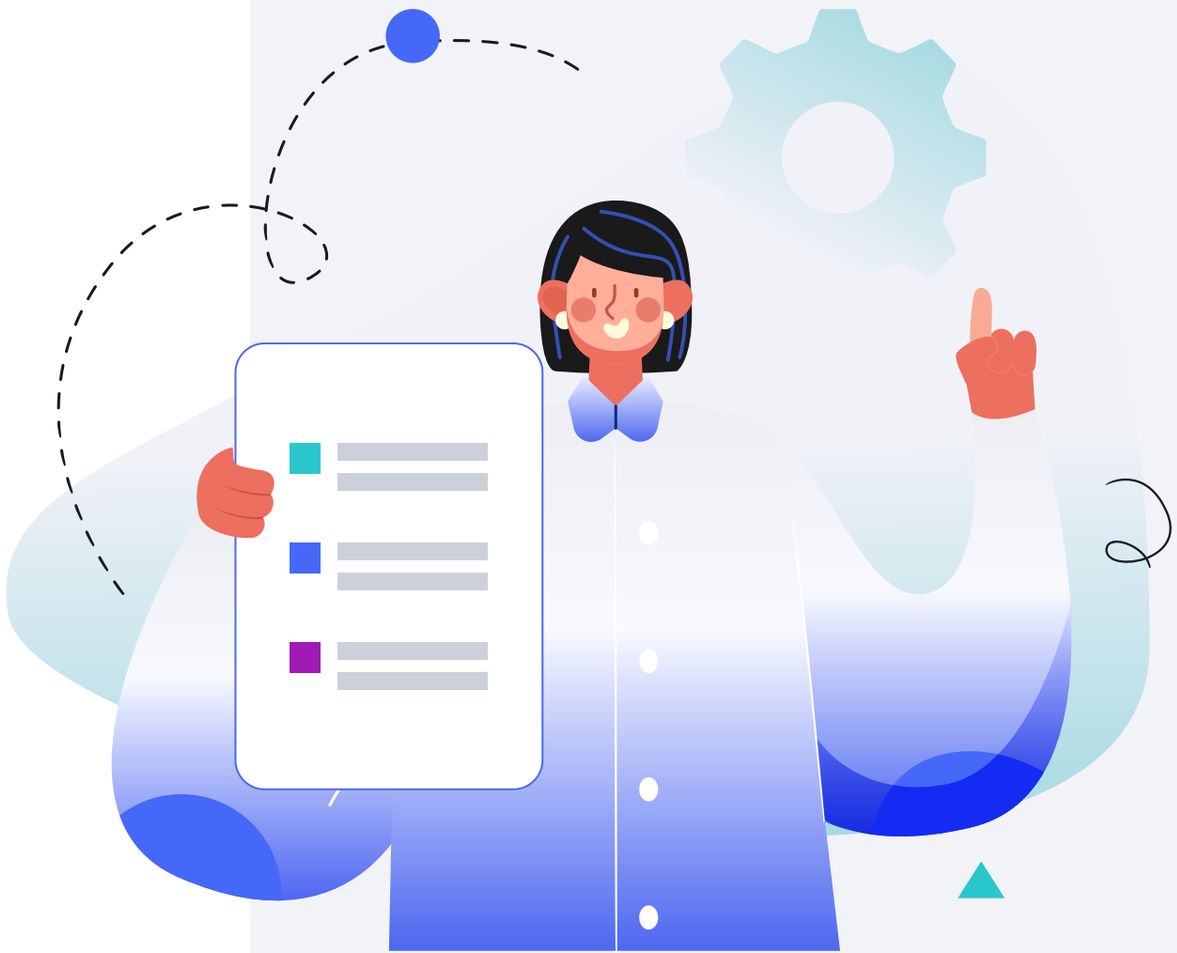
Female

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

Genetic factors significantly influence how women experience the menopausal transition, affecting both symptom severity and health risks. This comprehensive report examines genetic variants associated with common perimenopausal symptoms, increased health risks during this transition, and variations in hormonal changes as measured by key biomarkers.

This knowledge can support informed decision-making about lifestyle modifications, preventive strategies, and medical interventions in consultation with healthcare providers.

This summary report contains:

27 **Genetic Results**

50 **Recommendations**

Overview of Your Results

Symptoms & Complaints

MORE LIKELY

Menopause Symptoms

More likely to have menopause symptoms

MORE LIKELY

Sexual Dysfunction

More likely to have sexual dysfunction

MORE LIKELY

Heavy Sweating

More likely to have hyperhidrosis

HIGHER

Irritability

Predisposed to higher irritability

TYPICAL LIKELIHOOD

Irregular Periods

Typical likelihood of irregular periods

TYPICAL LIKELIHOOD

Vaginal Atrophy

Typical likelihood of vaginal atrophy

TYPICAL

Sleep Quality

Predisposed to typical sleep quality

LESS LIKELY

Cognitive Decline

Less likely to have cognitive decline

LESS LIKELY

Overweight

Less likely to be overweight or obese

Health Risks

MORE LIKELY

Low Mood

More likely to have chronically low mood

TYPICAL LIKELIHOOD

Anxiety

Typical likelihood of anxiety

TYPICAL LIKELIHOOD

Osteoporosis

Typical likelihood of osteoporosis

TYPICAL LIKELIHOOD

Cardiovascular Disease

Typical likelihood of cardiovascular disease

TYPICAL LIKELIHOOD

Type 2 Diabetes

Typical likelihood of type 2 diabetes

LESS LIKELY

Metabolic Syndrome

Less likely to have metabolic syndrome

Lab Markers

HIGHER LEVELS

FSH

Predisposed to higher FSH levels

HIGHER LEVELS

Testosterone (F)

Predisposed to higher testosterone levels

HIGHER LEVELS

Estradiol

Predisposed to higher estradiol levels

TYPICAL LEVELS

TSH

Predisposed to typical TSH levels

TYPICAL NEED

Vitamin D

Likely typical need for vitamin D

TYPICAL LEVELS

Total Cholesterol

Predisposed to typical cholesterol levels

TYPICAL LEVELS

LDL Cholesterol

Predisposed to typical levels of "bad" cholesterol

TYPICAL LEVELS

HDL Cholesterol

Predisposed to typical HDL levels

TYPICAL LEVELS

Triglycerides

Predisposed to typical triglyceride levels

TYPICAL LEVELS

Fasting Glucose

Predisposed to typical fasting glucose levels

TYPICAL LEVELS

Red Blood Cells

Predisposed to typical red blood cell count

TYPICAL NEED

Iron

Likely typical need for iron

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	Yoga	30 minutes
4	Methylfolate	400 mcg
5	Probiotics	10 billion
6	Mediterranean Diet	
7	Green Tea	400 mg
8	Coffee	
9	Avoid PAHs Exposure	
10	Tai Chi	1 hour
11	Walking	30 minutes
12	Pilates	30 minutes
13	Curcumin	500 mg
14	Extra Virgin Olive Oil (EVOO)	
15	Mindfulness-Based Stress Reduction (MBSR)	2 hours
16	Beta-Alanine	2 g
17	Zinc	10 mg
18	Dietary Iron	
19	Kundalini Yoga	1 hour
20	Dark Chocolate	
21	Glutamine	5 g
22	Plasmalogens	
23	Bifidobacterium Breve	10 billion CFU
24	Emoxypine	
25	Carnosine	1000 mg
26	High-Intensity Interval Training (HIIT)	30 minutes
27	Cherries	
28	Lion's Mane	500 mg
29	5-HTP	100 mg
30	Limit Calorie Intake	

31	Limit Manganese Exposure	
32	Meditation	30 minutes
33	Panax Ginseng	200 mg
34	Ginkgo	120 mg
35	Interpersonal Therapy	50 minutes
36	Psychodynamic Therapy	
37	Ashwagandha	120 mg
38	Mindfulness-Based Cognitive Therapy (MBCT)	2 hours
39	Resistant Starch	40 g
40	Caffeine	100 mg
41	Avoid Sugary Foods & Drinks	
42	Selenium Supplements	50 mcg
43	Tryptophan	500 mg
44	Acceptance and Commitment Therapy (ACT)	
45	Sunlight Exposure	20 minutes
46	Laughter Yoga	30 minutes
47	Morning Bright Light Therapy	20 minutes
48	Progressive Muscle Relaxation	10 minutes
49	Repetitive Transcranial Magnetic Stimulation	
50	St. John's Wort	300 mg

Your Results in Details

Symptoms & Complaints

Genetic variations can influence the type and severity of perimenopausal symptoms. This section examines genetic factors associated with vasomotor symptoms, sleep disturbances, and other transitional experiences, providing insights into individual predispositions for these menopausal manifestations.

MORE LIKELY

Menopause Symptoms

More likely to have menopause symptoms

MORE LIKELY

Sexual Dysfunction

More likely to have sexual dysfunction

MORE LIKELY

Heavy Sweating

More likely to have hyperhidrosis

HIGHER

Irritability

Predisposed to higher irritability

TYPICAL LIKELIHOOD

Irregular Periods

Typical likelihood of irregular periods

TYPICAL LIKELIHOOD

Vaginal Atrophy

Typical likelihood of vaginal atrophy

TYPICAL

Sleep Quality

Predisposed to typical sleep quality

LESS LIKELY

Cognitive Decline

Less likely to have cognitive decline

LESS LIKELY

Overweight

Less likely to be overweight or obese

Menopause Symptoms

Genetics plays a role in the age at which menopause starts and the severity of symptoms. For example, genetic variations that influence the metabolism of sex hormones are associated with the frequency and severity of hot flashes [R].

Women often follow a similar pattern as their mothers or sisters. For example, only **70%** of midlife women experience hot flashes and/or night sweats [R].

The following factors also influence the age at which you experience menopause:

- Smoking
- Surgical menopause (removal of ovaries before natural menopause)
- Chemotherapy or pelvic radiation treatments

MORE LIKELY

More likely to have menopause symptoms based on 1,096,074 genetic variants we looked at

99th

PERCENTILE

Your risk is **greater than 99% of the population** and **lower than 1% of the population.**

Sexual Dysfunction

Key Takeaways:

- About **40%** of differences in people's chances of developing sexual dysfunction may be due to genetics.
- Risk factors include getting older, hormone changes, stress, and certain health conditions. If you are experiencing symptoms, check with your doctor for possible solutions.
- If you are at high genetic risk, managing stress may help reduce your overall risk.
- Up to **77%** of men may have erectile dysfunction at some point in their lives. Similarly, as many as **32%** of women have low sexual desire.
- Click the **next steps** tab for relevant labs and lifestyle factors.

MORE LIKELY

More likely to have sexual dysfunction based on 1,671 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARHGEF18	rs6603109	AA
MPST	rs4820255	CC
EPC1	rs2370759	GG
HTR1E	rs13202860	AT
CHSY3	rs13436218	TT
PRKD1	rs225848	AA
MDGA2	rs1160351	CC
BCL11B	rs857228	AA
ANTXR2	rs71612990	TT
BIN1	rs148033183	TT
ABCC4	rs117651201	AA
EBF2	rs113716552	CC
S1PR1	rs76296920	AA
NNMT	rs145841294	GG
TREM2	rs112759925	CC
DMRT2	rs141514244	GG
MYO3A	rs181370779	AA
FNDC3A	rs78447716	AA
ABCC4	rs74915652	GG
DIP2C	rs72774565	CC

Sexual function is a common term for all aspects of sexual activity. This includes both mental and physical functions like [R, R, R]:

- Desire
- Arousal
- Orgasm
- Satisfaction
- Pleasure

Sexual dysfunction is any issue with sexual function that causes stress or relationship strain [R, R, R, R].

There is no such thing as a "normal" sexual function, because normal is a highly subjective term. However, significant and distressing changes to your sexual function may warrant a visit to the doctor. Abnormal changes may be a symptom of certain health problems. They can also have major effects on a person's self-esteem [R, R].

Sexual dysfunction is common for both men and women, especially as we get older. For example, as many as 32% of women have low sexual desire. This number tends to peak after menopause [R, R, R, R, R].

Risk factors for sexual dysfunction include [R, R, R]:

- Older age

- Hormone changes (e.g., menopause and pregnancy)
- Smoking cigarettes
- Stress
- Some medications
- Health conditions (e.g., heart disease, obesity, diabetes, and depression)

Conditions like obesity, heart disease, and diabetes are becoming increasingly common around the world. This increase may be why sexual dysfunction is also becoming more common [R, R, R, R].

To manage sexual dysfunction, a doctor looks for and tries to treat the underlying cause [R, R].

Treatment options for sexual dysfunction include [R, R, R]:

- Medication
- Counseling
- Hormone therapy

About 40% of differences in people's chances of developing sexual dysfunction may be attributed to genetics. Genes involved in sexual dysfunction may influence [R, R, R, R, R, R, R]:

- Sex hormones (*AR*, *ESR2*)
- Blood flow (*NOS3*, *ACE*, *VEGF*)
- "Feel-good" brain chemicals (*OPRM1*, *DRD4*)
- Sexual responses in the brain (*SIM1*, *MC4R*)

GENE	SNP	GENOTYPE
ATP5MK	rs113174040	GG
TAF4	rs112189530	CC
/	rs150479690	GG
GAD1	rs116136706	GG
MED13L	rs79670289	CC
MYO1B	rs114160266	AA
LRATD2	rs148856889	GG
RIOK2	rs542258286	CC
/	rs117183273	AA
SDCBP2	rs78358934	TT
SLITRK5	rs74435896	CC
/	rs71591392	CC
JMY	rs151154234	TT
CTNNA2	rs185236849	TT
/	rs114615131	CC
PAEP	rs145840432	GG
JMJD1C	rs147959008	GG
MAP2K6	rs117578689	TT
PRKAA1	rs115140914	GG

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

Heavy Sweating

Key Takeaways:

- Genes that affect excessive sweating may influence nerve function and chemical messengers.
- Excessive sweating can impact quality of life and cause undue stress and anxiety. If you are at high genetic risk, take action on your risk factors to help lower overall risk.
- Up to 5% of people in the U.S. may have hyperhidrosis. If you have symptoms, you may want to consult your doctor to rule out other conditions.
- Click the **next steps** tab for relevant lab tests.

Hyperhidrosis is the scientific term for heavy sweating [R].

It's normal to sweat a lot because of exercise, heat, or stress. In the absence of these conditions, a lot of sweat might be a sign that something is wrong [R].

Sweating turns from normal to worrisome if it [R]:

- Changes the way you live your daily life
- Causes anxiety or social problems
- Suddenly gets much worse for no apparent reason
- Suddenly starts while sleeping (night sweats) for no apparent reason

Up to 5% of people in the United States may have hyperhidrosis. Many people do not realize it is a treatable medical condition. For this reason, they often do not bring up symptoms with their doctors. **Only about 1 in 2 people who have it will be diagnosed** [R, R].

Most cases of heavy sweating are caused by a nerve problem. Simply put, the nerves that control the sweat glands are too active. This condition is called *primary focal hyperhidrosis*. It may be treated with [R, R, R, R]:

- Topical medication
- Antiperspirants
- Surgery
- Botulinum toxin therapy

MORE LIKELY

More likely to have hyperhidrosis based on 104 genetic variants we looked at

91st

PERCENTILE

Your risk is **greater than 91% of the population** and **lower than 9% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LONP2	rs6500380	GG
SLC6A16	rs149876322	CG
PPP1CB	rs56089836	CC
PPP1CB	rs1534480	CC
DLG2	rs12280544	CC
TLN2	rs139024759	AA
TUSC1	rs117093392	AA
UBLCP1	rs143772159	CC
CADM1	rs144975908	GG
FZD8	rs190252627	CC
/	rs75470475	CC
LRRC7	rs113867145	GG
SETD7	rs183414800	TT
LRRC7	rs113992293	GG
KRT72	rs61740873	GG
/	rs74837903	TT
LRRC7	rs111398942	CC
LRRC7	rs113434595	CC
HNRNPA1P48	rs117324726	CC
UBLCP1	rs77247779	TT

Heavy sweating can also be caused by another health condition. This is called *secondary hyperhidrosis*. Underlying conditions that may cause this include [R]:

- Diabetes
- Menopause
- Thyroid problems
- Low blood sugar
- Infection

Researchers suggest that genetics plays a role in the development of heavy sweating. Genes involved in heavy sweating may influence [R]:

- Chemical messenger activity (*BCHE*, *PSEN2*, *DARS*)
- Nerve function (*PPP3R1*, *PPP1CB*, *ITPR2*)

GENE	SNP	GENOTYPE
GATA3	rs80243082	GG
FBXO10	rs142695379	GG
CPNE2	rs7184935	CC
/	rs143053510	TT
ANKH	rs150150334	AA
PITPNM1	rs144939807	CC
GATA2	rs56099243	CC
QSOX1	rs142528261	CC
ADAMTS12	rs140640237	TT
EGFLAM	rs77788652	CC
TMC2	rs147782137	AA
CENPF	rs147733826	CC
/	rs115295459	CC
TBCA	rs140260005	CC
SRRM4	rs113353314	AA
GP2	rs145309364	AA
LYPD6B	rs7586963	GG
ITGA1	rs77066279	GG

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

Irritability

Everyone gets angry or upset from time to time. However, some people have more of a temper than others. *Irritability* is a tendency to get angry or lose your temper [R].

Personality is affected by both the environment and our DNA. Up to 60% of differences in irritability may be due to genetics. It's no surprise that most "personality genes" affect the way the brain works [R, R, R, R].

If you struggle with a short temper, consider talking to a therapist. The best ways to control irritability are to reduce stress and try anger management techniques [R].

HIGHER

Predisposed to higher irritability based on 529,337 genetic variants we looked at

95th

PERCENTILE

Your risk is **greater than 95% of the population** and **lower than 5% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CAMKMT	rs343949	AA
DPYD	rs4411173	AA
/	rs10905638	GC
TCF4	rs4570961	TC
AMT	rs4499638	GC
SIM1	rs9403716	AG
MSRA	rs17151565	CG
LRP12	rs4734804	AG
BBX	rs507078	GT
DPYS	rs2959025	AG
ARVCF	rs9332377	CT
CRHR1	rs2106785	CC
CRHR1	rs62055701	GG
CFAP77	rs999483	TT
MAPT	rs17650842	AA
PLEKHM1	rs62065453	CC
MEF2C	rs1422192	GG
KANSL1	rs17661015	TT
WNT3	rs70600	CC
NCOA6	rs62211616	GG

GENE	SNP	GENOTYPE
MAP1LC3A	rs6087607	GG
FOXP2	rs6969188	GG
/	rs631140	GG
NCOA6	rs7265992	GG
SIX3	rs4953152	GG
AUTS2	rs13223152	GG
ASIP	rs62212173	CC
CADM2	rs6549048	GG
ICOS	rs6711058	GG
TEF	rs4820434	GG
LYRM9	rs9630740	GG
/	rs17592462	CC
MMP16	rs16884419	GG
PANK4	rs7535528	GG
/	rs58446129	CC
/	rs1158960	CC
/	rs10905619	GG
ERCC4	rs4781534	GG
/	rs12886000	GG
TCF4	rs28758902	CC
CELF4	rs2217127	GG

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

Irregular Periods

Key Takeaways:

- Genes involved in irregular periods may influence reproductive organ growth and development as well as hormones.
- Other potential risk factors (besides normal changes during pregnancy and menopause) for irregular periods include birth control, other medications or health conditions, low body weight, extreme exercise, stress, hormone disorders, and structural problems in the reproductive system.
- About **25%** of all women experience irregular periods.
- If your genetic risk is high, taking action on factors you can change may lower your overall risk.

The menstrual cycle lasts about 28 days. On average, menstruation (the period) lasts 3-5 days of this cycle. However, periods as short as 2 days or as long as 7 days can still be normal [R, R, R, R].

In a narrow sense, irregular periods are cycles that [R, R, R]:

- Are shorter than 21 days
- Are longer than 35 days
- Vary greatly in length

In a broader sense, irregular periods can also include [R, R, R]:

- Heavy bleeding during periods
- Painful periods
- Prolonged menstrual bleeding (periods that often last more than 8 days)
- Missing three or more periods (when not pregnant)

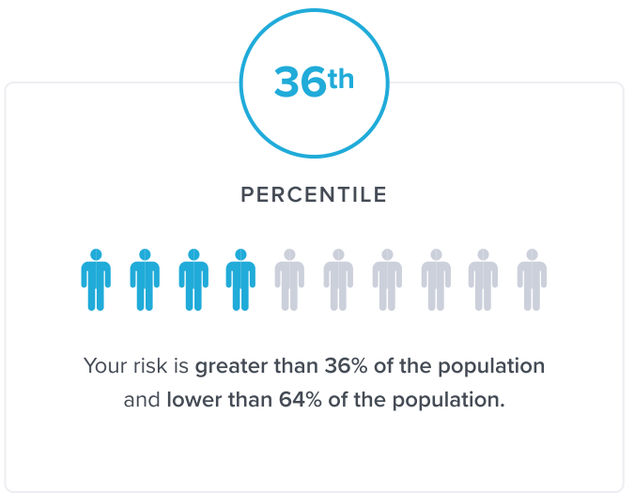
Up to 25% of women experience period irregularities [R].

Changes to the menstrual cycle normally happen during pregnancy, breastfeeding, and menopause. Other potential causes of irregular periods include [R]:

- Birth control
- Other medications
- Low body weight
- Extreme exercise

TYPICAL LIKELIHOOD

Typical likelihood of irregular periods based on 20,241 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SALL3	rs149383320	AA
ARL14EP	rs11031005	TT
ARL14EP	rs74485684	TT
BMPR1B	rs1544387	GG
BHLHE41	rs10842700	CG
BORCS7	rs78602818	GG
CCDC170	rs12173791	GG
ARMC2	rs151250757	CC
OR8S1	rs565819225	GG
MIA2	rs150673908	GG
PDE4B	rs76470828	TT
RANBP17	rs191540122	CC
TPH2	rs374833420	AA
WWOX	rs74649398	CC
SOS2	rs77037646	TT
AIG1	rs9399423	CC
MYOM2	rs188291369	CC
MYOM2	rs150346375	CC
HMG20A	rs144269166	CC
MYOM2	rs192267770	CC

- Stress
- Hormone disorders
- Structural problems in the reproductive system
- **Genetics**

Irregular periods may be caused by a health condition. If this is the case, you may also have symptoms like [R]:

- Nipple discharge
- Hair loss
- Excess facial hair growth
- Headaches
- Vision changes
- Pelvic pain
- Acne

Irregular periods are typically not dangerous. However, they may be caused by another condition that can cause complications like infertility. In such cases, a doctor will work to find and treat the underlying cause. Medication or surgery may be needed [R].

Some of the differences in the menstrual cycle may be attributed to genetics. Genes involved in irregular periods may influence [R, R]:

- Reproductive organ growth and development
- Hormones

GENE	SNP	GENOTYPE
UGT3A1	rs182422598	GG
AHNAK2	rs79210101	GG
CYP1B1	rs77272595	CC
PNPLA8	rs182790190	AA
PANX1	rs12420523	CC
GRM5	rs79575534	TT
AIG1	rs150166066	AA
ID4	rs145568696	CC
REV1	rs189498443	CC
FAM120AOS	rs75088872	CC
DLEU7	rs138243736	TT
KCNRG	rs141621233	AA
ARPP21	rs184947998	CC
MTSS1	rs80104305	TT
ARMC2	rs149145215	GG
DRD3	rs117338724	TT
DLEU7	rs17074268	TT
RBMS1	rs573492041	CC
/	rs142122930	TT
SPRY4	rs143736698	GG

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

Vaginal Atrophy

Symptoms of vaginal atrophy include vaginal dryness, itching, irritation, and discomfort during intercourse, often accompanied by a feeling of tightness. These symptoms can contribute to a decrease in sexual interest and activity, which may negatively impact intimacy and quality of life.

Furthermore, vaginal atrophy can increase the risk of vaginal infections due to changes in the balance of normal bacteria, and can cause urinary symptoms like urgency, incontinence, and increased urinary tract infections.

TYPICAL LIKELIHOOD

Typical likelihood of vaginal atrophy based on 225,029 genetic variants we looked at

67th

PERCENTILE

Your risk is **greater than 67% of the population** and **lower than 33% of the population.**

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.

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].

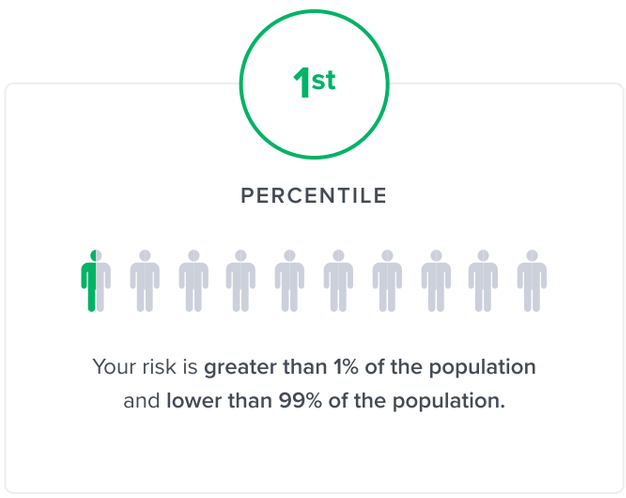
Other risk factors for cognitive decline include [R]:

- 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.

Overweight

Key Takeaways:

- Up to **70%** of people's differences in weight may be due to genetics.
- Up to **42% of adults** and **19% of children** in the US meet the medical criteria for obesity.
- Weight gain affects conditions like high blood sugar and heart disease. However, it is highly modifiable by diet and exercise. So, even if your genetic risk is high, there's a lot you can do to reduce its impact.
- Click the **Recommendations** tab for useful weight control tips and **next steps** for relevant labs.

People are finding it harder than ever to manage their weight. **Global obesity rates have skyrocketed** [R, R, R].

Some health experts even say we're in an "obesity epidemic." **Up to 42% of adults and 19% of children in the US meet the medical criteria for obesity** [R, R, R].

Doctors can use *body mass index* (BMI) to tell if someone is obese. To calculate your BMI, divide your weight by the square of your height (kg/m^2). There are many online calculators that can help you do this [R, R].

In Western countries, people with a **BMI of 25 and over** are considered **overweight**. A **BMI of 30 or greater** is considered **obese**. In some Asian countries, a BMI of 25 and over is considered obese [R, R, R].

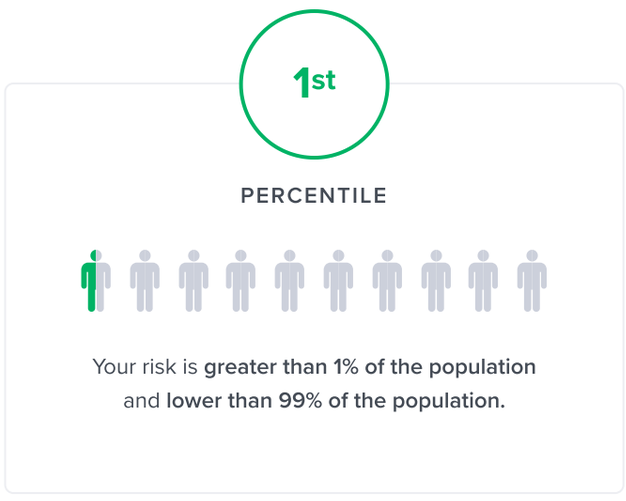
BMI isn't the only important measure of healthy weight, however. Body composition is also important because muscle is more dense than fat. Thus, a muscular athlete and an obese person can have similar BMIs [R, R].

For this reason, doctors and researchers often use other body weight measurements, including [R, R]:

- Waist circumference (WC)
- Waist-to-hip ratio (WHR)

LESS LIKELY

Less likely to be overweight or obese based on 455,505 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LEPR	rs1805096	GG
MC4R	rs2229616	CC
TCF7L2	rs7903146	CT
LPCAT2	rs2285053	CC
LEPR	rs1137101	AG
SEC16B	rs591120	CC
NPY	rs16147	TT
POMC	rs6713532	TT
NEGR1	rs3101336	CC
ADRB2	rs1042713	GA
PEX11A	rs894160	CT
CLOCK	rs1801260	AG
UCP1	rs1800592	TC
UCP2	rs659366	CT
ANKK1	rs1800497	GA
NEGR1	rs2815752	AA
GIPR	rs2287019	CC
CDKAL1	rs2206734	CC
GP2	rs12597579	CC
KLF9	rs11142387	CC

- Percentage of body fat (%BF)
- Lean (muscle) mass

Some people worry about body weight because they value how they look. However, **body weight impacts both mental and physical health**. Obesity may increase the risk of [R, R]:

- High blood pressure
- High cholesterol
- Heart disease
- High blood sugar
- Reproductive issues and erectile dysfunction
- Breathing problems during sleep
- Joint and bone disorders
- Some cancers

In theory, you gain weight when you consume more calories than you burn. Your body stores the extra energy as fat [R, R, R].

In reality, it's more complicated than that. To stick to a healthy weight, you'll need to manage many factors, including [R, R, R]:

- **Diet**. Pay attention to the amount and type of food you eat, meal timing, and portion size.
- **Lifestyle**. It's better to live an "active" lifestyle than a "sedentary" one and to allow your body to get the sleep it needs.
- **Environment**. What are your family habits? Do you have social support? What is your stress level? These things have a surprising effect on weight management.
- **Medical conditions**. Anything that changes your metabolism or ability to exercise can also affect body weight.
- **Genetics**. Some gene variants may make it easier or harder to manage your weight.

Doctors may recommend a variety of strategies to help reach and maintain a healthy weight. These include [R]:

- Reducing how much food you eat
- Choosing low-calorie foods
- Choosing more plant-based foods
- Exercising
- Counseling or support groups

Your genes may help determine how well you respond to these strategies.

Rarely, obesity can become a serious health problem. In these cases, doctors may prescribe weight loss drugs or surgery [R].

GENE	SNP	GENOTYPE
RFC4	rs17300539	GG
TAS1R2	rs35874116	TT
NPC1	rs1808579	CT
MTCH2	rs10838738	AG
NPC1	rs1805081	TC
KCTD15	rs29941	AG
SH3YL1	rs6548238	TC
LEPR	rs1137100	AG
ADRB2	rs1042714	GC
GNB3	rs5443	CT
IL6R	rs4845623	GG
IL6R	rs2228145	CC
LEPR	rs11208659	TT
LEP	rs2167270	AA
LEP	rs3828942	GG
LEP	rs10244329	TT
SOCS3	rs9892622	AA
CRP	rs1205	CC
STEAP1B	rs10242595	GA
STAT3	rs9891119	AA
PYY	rs162431	GG
PGS1	rs4969170	GA
TMC8	rs4969168	GA
UCP2	rs2075577	GA
GNPDA2	rs16858082	TT
UCP2	rs647126	AG
RFC4	rs266729	GC
UCP2	rs660339	GA
STMN4	rs140901272	CC
IL1B	rs1143634	GG

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

Up to 70% of differences in weight may be attributed to genetics. Genes that may contribute to body weight influence [R, R, R, R, R, R, R, R, R]:

- Food choices (*FTO*, *IRX4*)
- Appetite (*LEP*, *POMC*, *MC4R*, *NPY*)
- Meal timing (*CLOCK*)
- Fat and sugar metabolism (*FTO*, *UCP2*, *TCF7L2*)

Genetically high bioavailable testosterone may be causally associated with a high risk of obesity (in women). In contrast, genetically high choline, omega-3 fatty acids, and DHA may be causally associated with a lower risk of obesity [R, R].

Health Risks

The interaction between genetic predispositions and hormonal changes during menopause can affect disease susceptibility. This section explores genetic variants linked to increased risks of cardiovascular, metabolic, mental, and bone health conditions during this transition, supporting personalized preventive strategies.

MORE LIKELY

Low Mood

More likely to have chronically low mood

TYPICAL LIKELIHOOD

Anxiety

Typical likelihood of anxiety

TYPICAL LIKELIHOOD

Osteoporosis

Typical likelihood of osteoporosis

TYPICAL LIKELIHOOD

Cardiovascular Disease

Typical likelihood of cardiovascular disease

TYPICAL LIKELIHOOD

Type 2 Diabetes

Typical likelihood of type 2 diabetes

LESS LIKELY

Metabolic Syndrome

Less likely to have metabolic syndrome

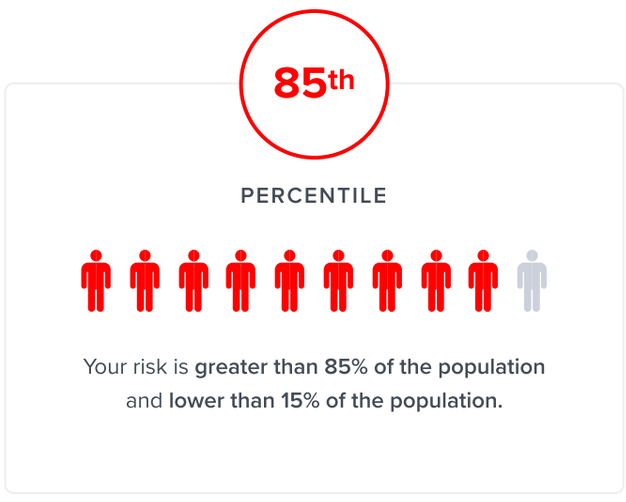
Low Mood

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.

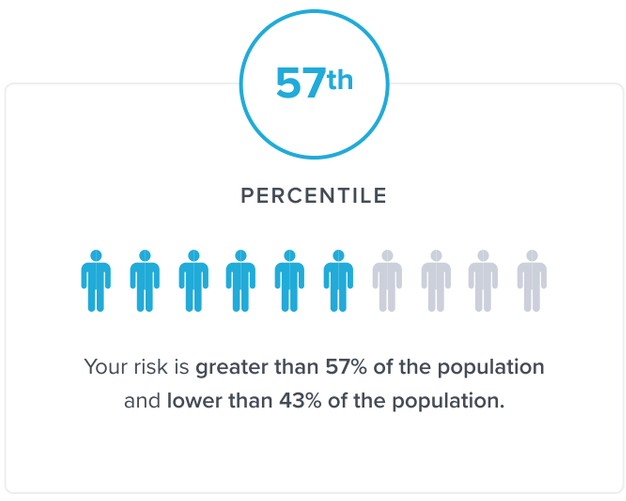
Anxiety

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.

Osteoporosis

Key Takeaways:

- Up to **65%** of differences in people's BMD may be attributed to genetics.
- Other risk factors for osteoporosis include: age, menopause, underweight, steroid use, smoking, and alcohol abuse.
- Over **200 million** people have osteoporosis. If your genetic risk is high or you are getting older, you may want to take precautions.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Bone health is most often measured through **bone mineral density** (**BMD**). This is the amount of calcium and other minerals in your bones [R, R, R].

Higher BMD tends to mean stronger, healthier bones. BMD peaks between the ages of 25 and 30 and then decreases as we age. Lower BMD for your age may put you at risk of fractures and *osteoporosis* [R, R].

Osteoporosis is a disease that develops when BMD is dangerously low. Its name means *porous bones*. As the name implies, the structure of the bones changes in people with this condition. Their bones lose mass and strength, leaving gaps and holes [R, R, R].

People with osteoporosis are much more likely to break their bones. They may even be at risk of fracture from doing normal day-to-day activities [R].

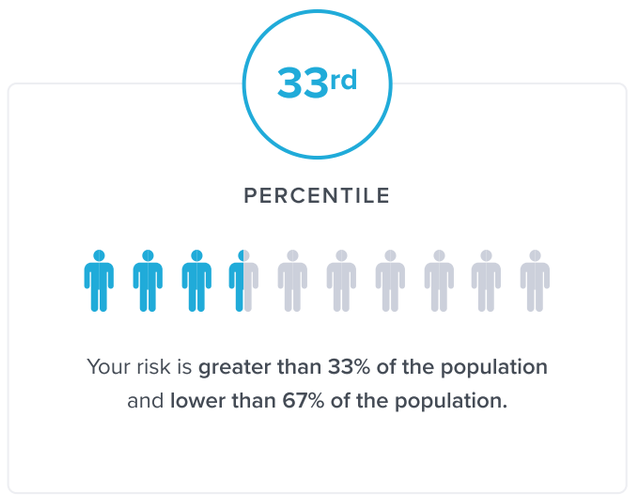
According to one estimate, **over 200 million people currently have osteoporosis**. **About 1 in 3 women and 1 in 5 men over 50 will break a bone due to this condition** [R].

Risk factors for weak bones include [R, R]:

- Older age
- Menopause
- Low body weight

TYPICAL LIKELIHOOD

Typical likelihood of osteoporosis based on 1,031,189 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MARCO	rs115242848	CC
COPB1	rs10741657	GG
CPNE1	rs143383	AA
COL1A1	rs1800012	AC
VDR	rs2228570	GA
HLA-DQA1	rs2071805	CC
VARS2	rs9262558	CC
SP7	rs144680237	CC
CPED1	rs3779381	AA
ZBTB40	rs34414754	AA
WLS	rs2566755	TT
CPED1	rs10242100	AA
VDR	rs1544410	CT
VDR	rs731236	AG
MRPL20	rs12408050	GA
FKBP11	rs3741619	GA
ETS2	rs11088458	AG
HBZ	rs10794639	GA
SMOC1	rs3742909	AG
HOXC6	rs7308105	TC

- Steroid medications
- Cigarette smoking
- High alcohol intake
- **Genetics**

It's impossible to tell if you have low BMD without a doctor's help. This is because low BMD on its own doesn't have any obvious symptoms. Many people have no idea they have osteoporosis until they break a bone [R].

To support bone health and prevent fractures, your doctor may recommend [R]:

- Exercising
- Getting more calcium and vitamin D
- Avoiding cigarettes
- Limiting alcohol

Once osteoporosis is diagnosed, treatment may also include medication [R, R, R].

Up to 65% of differences in people's BMD may be attributed to genetics. Genes involved in BMD may influence [R, R, R]:

- Bone formation and repair (*DAAM2*, *BICC1*, *LGR4*, *NPR3*)
- Gene activity (*HMGA2*)
- Vitamin D activity (*VDR*)

Genetically high IGF-1, free testosterone (in men), and alpha-linolenic acid may be causally associated with higher bone density. In contrast, genetically high total testosterone may be causally associated with lower bone density and a higher risk of osteoporosis [R, R, R, R].

GENE	SNP	GENOTYPE
DIO2	rs225014	TT
MN1	rs139959245	CC
SPP1	rs33983260	II
GAL	rs880610	GG
GAL	rs56154705	CC
CTNNB1	rs389264	CC
RSPO3	rs9482772	CC
CCDC170	rs4869744	TT

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

Cardiovascular Disease

Cardiovascular disease is influenced by a combination of genetic, lifestyle, and environmental factors. Understanding these causes and risk factors is essential for prevention and effective management.

Genetic factors play a significant role in the development of cardiovascular disease. About 40-60% of differences in people's odds of heart disease may be due to genetics [R].

A family history of heart disease increases an individual's risk, as certain genetic mutations can affect cholesterol metabolism, blood pressure regulation, and the function of heart and blood vessels. For example, mutations in genes such as LDLR (low-density lipoprotein receptor) can lead to familial hypercholesterolemia, a condition characterized by high cholesterol levels and an increased risk of coronary artery disease.

Several lifestyle choices can significantly impact cardiovascular health:

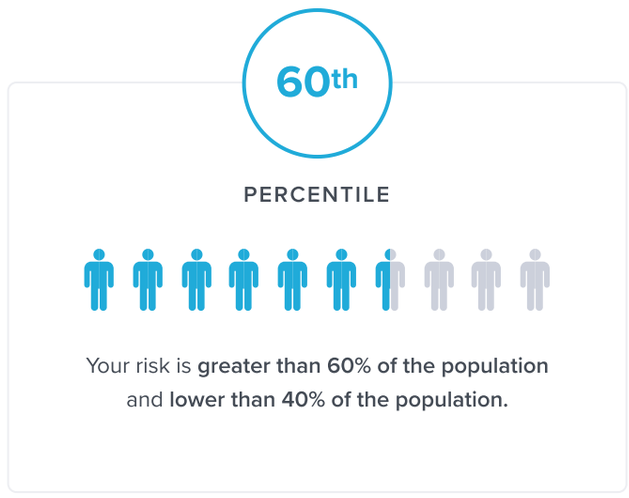
- **Unhealthy Diet**: Diets high in saturated fats, trans fats, salt, and sugar can contribute to the development of atherosclerosis and hypertension.
- **Physical Inactivity**: A sedentary lifestyle increases the risk of obesity, hypertension, and diabetes, all of which are risk factors for CVD.
- **Smoking**: Tobacco use damages blood vessels, reduces oxygen in the blood, and raises blood pressure, significantly increasing the risk of heart disease.
- **Excessive Alcohol Consumption**: Drinking too much alcohol can lead to high blood pressure, heart failure, and stroke.

Other Risk Factors

- **Age**: The risk of cardiovascular disease increases with age, particularly after the age of 65.
- **Gender**: Men are generally at higher risk of developing CVD earlier in life compared to women, although post-menopausal women's risk increases.
- **High Blood Pressure**: Hypertension is a major risk factor as it puts extra strain on the heart and blood vessels.
- **High Cholesterol**: Elevated levels of LDL cholesterol contribute to the buildup of fatty deposits in arteries.

TYPICAL LIKELIHOOD

Typical likelihood of cardiovascular disease based on 1,049,427 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NOS3	rs2070744	TC
PEMT	rs12936587	GA
COMT	rs4680	AG
PCSK9	rs11591147	GG
ATG16L1	rs10210302	TT
NKX2-3	rs10883365	GG
FHL3	rs190569784	GG
SERPINA1	rs112635299	GG
ANGPTL4	rs116843064	GG
APOE	rs7412	CC
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

- **Diabetes**: Diabetes significantly increases the risk of CVD as high blood glucose levels can damage blood vessels.
- **Obesity**: Excess body weight, particularly around the abdomen, is associated with higher risk factors for CVD.

GENE	SNP	GENOTYPE
MCTP2	rs28607113	TT
PHOSPHO1	rs191896574	TC
FAM177B	rs17465982	AA
NOS3	rs3918226	CT
MRPS6	rs28451064	AG
LPA	rs73596816	AG
PEMT	rs7946	CT
TWIST1	rs2107595	AG
EDNRA	rs17612693	TA
TCF21	rs1966248	AT
DDI1	rs2128739	AC
FGD5	rs148880716	GG
LPA	rs140570886	TT
LPA	rs147555597	GG
PTGER4	rs17234657	TT
LPA	rs55730499	CC
SEH1L	rs2542151	TT
NOD2	rs17221417	CC
BSN	rs9858542	GG
MAP3K4	rs145099029	AA
CDKN2B	rs145542470	GG
NBEAL1	rs72934535	TT
SCAF11	rs1291621	GG
MTRNR2L7	rs4934855	AA
LPL	rs7011846	GG
SOX11	rs79576311	GG
SMIM11A	rs149487184	CC
BMP1	rs73225842	CC
BAG2	rs223290	CC
LRRC25	rs11670056	CC

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

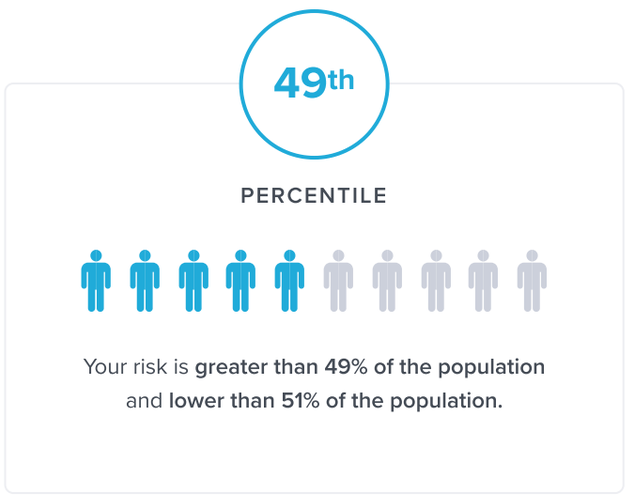
Type 2 Diabetes

Key Takeaways:

- Almost **1 in 3 Americans** are at risk of developing type 2 diabetes.
- Up to **80%** of the differences in people's risk for getting type 2 diabetes may be due to genetics.
- Even with high genetic risk, blood sugar issues are highly modifiable through diet, exercise, and lifestyle changes.
- Risk factors include: obesity, high sugar diet, lack of exercise, age over 45, smoking, and family history. Even with low genetic risk, these factors can raise your overall risk, so take action now!
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

TYPICAL LIKELIHOOD

Typical likelihood of type 2 diabetes based on 1,048,858 genetic variants we looked at



You've probably heard about the dangers of high blood sugar (glucose). It puts **almost 1 in 3 Americans at risk of developing type 2 diabetes** [R].

Type 2 diabetes is a common and dangerous disease. In older adults, it can cause heart disease, stroke, kidney damage, and more. If diabetes isn't treated, it can be fatal [R].

If you're at risk of diabetes, your doctor may recommend weight loss and diet changes. **Eating less sugar is usually the first step.** If your blood sugar (glucose) is very high, your doctor may also prescribe medications [R, R].

To understand how blood sugar rises and falls, we first need to understand how insulin works.

When blood sugar is high, the pancreas releases insulin. Insulin is responsible for lowering blood sugar. It signals your liver and muscles to store sugar [R, R].

Insulin levels rise when you eat sugary foods. If insulin stays high for a long time, your body can stop responding to it. This is called insulin resistance [R].

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
SLC30A8	rs13266634	CC
GCKR	rs780093	CC
CDKN2A	rs10811661	TT
ADCY5	rs11708067	AA
BCL2	rs12454712	TT
HMGA2	rs2261181	TC
IMPDH1	rs791595	AG
TNF	rs2857605	TC
SLC38A11	rs10195252	TC
TSPAN3	rs7177055	GA
DGKB	rs2191349	GT
IGF2BP2	rs1470579	AC
CCND2	rs76895963	TT
TCF7L2	rs4506565	AT
PEMT	rs12325817	CC
WSB2	rs7973260	AG
IGF2BP2	rs11927381	TC
IGF2BP2	rs11705701	GA
MC4R	rs12970134	GG

Insulin resistance often leads to higher than normal blood sugar levels, or *prediabetes*. **If you don't take steps to fix it, prediabetes can develop into type 2 diabetes** [R].

Prediabetes is hard to spot because it doesn't have obvious symptoms. However, blood tests can help diagnose it [R].

A doctor might order blood sugar tests if any of the following risk factors apply to you [R]:

- Obesity
- A diet high in sugar and refined carbs
- Lack of exercise
- Age over 45
- Polycystic ovary syndrome (PCOS)
- Smoking
- Family history of diabetes
- Black, Hispanic, Asian, or Native American ethnicity

Up to 80% of the differences in people's chances of getting type 2 diabetes can be attributed to genetics. Genes that may contribute to high blood sugar influence [R]:

- Sensitivity to insulin (*TCF7L2*, *FTO*, *PPARG*)
- Insulin production & release (*KCNJ11*, *SLC30A8*)
- Liver function (*HNF4A*)

Genetically high levels of the following markers may be causally associated with a higher risk of type 2 diabetes [R, R, R, R, R]:

- IGF-1
- Neutrophils
- Leucine

In contrast, genetic predisposition to the following high markers may be causally linked to a lower risk of type 2 diabetes [R, R, R, R, R, R]:

- Testosterone (in men)
- Betaine
- Choline
- Alpha-linolenic acid

GENE	SNP	GENOTYPE
JAZF1	rs1635852	CC
TAP2	rs2071479	CC
GIPR	rs10423928	TT
KCNJ11	rs5215	TT
CDKAL1	rs7756992	AA
/	rs184660829	TT
/	rs569511541	AA
/	rs562386202	AA
/	rs543786825	CC
/	rs759111467	GG
CCDC68	rs76197067	AA
RNASEH2A	rs755734872	CC
NEDD1	rs557027608	GG
/	rs533172266	CC
CDKAL1	rs9465871	TT
QSER1	rs528122639	GG
BPTF	rs558308082	GG
ZC3H11B	rs553014999	TT
ABCC8	rs67254669	AA
INS	rs571342427	TT
FAM13A	rs576406049	CC
/	rs745903616	GG
FTO	rs9939609	TT

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

Metabolic Syndrome

Factors that might increase the risk of developing metabolic syndrome include:

- Age: Risk increases with age.
- Obesity, particularly abdominal obesity.
- Insulin resistance.
- A history of diabetes in one's family.
- A history of gestational diabetes or having given birth to a baby weighing more than 9 pounds.
- Other diseases: A history of nonalcoholic fatty liver disease, polycystic ovary syndrome, or having had a cardiovascular disease or stroke.
- Hormonal imbalance, like low testosterone in men.
- Lack of physical activity.
- An unhealthy diet high in fats and sugars.
- Genetics

Genetics plays a significant role in metabolic syndrome. Specific genetic factors might make certain individuals more susceptible to the conditions that contribute to metabolic syndrome. Family history, particularly if parents or siblings have had diabetes, heart disease, or a stroke, can be an indicator of increased risk.

LESS LIKELY

Less likely to have metabolic syndrome based on 636,870 genetic variants we looked at

1st

PERCENTILE

Your risk is **greater than 1% of the population** and **lower than 99% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
MTNR1B	rs10830963	CG
LPL	rs328	CC
WSB2	rs7973260	AG
MLXIPL	rs12056034	AG
TRIB1	rs2980888	TC
CLPTM1	rs483082	TG
GALNT2	rs2281721	CT
INO80E	rs3814883	TT
GSR	rs10954772	TT
VEGFA	rs998584	CA
C1QTNF4	rs7124681	AC
GCKR	rs1260326	TC
ATP1B2	rs1143015	AG
HLA-C	rs9378248	AG
NAT2	rs4921913	CT
HLA-DQA2	rs5021727	GA
NCKAP5L	rs7138803	GA
ADRB3	rs4994	AA
MC4R	rs17782313	TT

GENE	SNP	GENOTYPE
SIDT2	rs964184	CC
CD300LG	rs72836561	CC
PCSK7	rs662799	AA
SIDT2	rs651821	TT
ADAL	rs139974673	TT
ARAP2	rs73123462	CC
ZDHHC18	rs114165349	GG
HNF4A	rs1800961	CC
RSPO3	rs577721086	TT
ILRUN	rs11754773	AA
PPP1R3B	rs9987289	GG
HMGA1	rs76376137	TT
FADS2	rs1535	AA
SLC39A8	rs13107325	CC
FTO	rs56094641	AA
MC4R	rs66922415	AA
PABPC4	rs11206374	GG
PLG	rs11751347	CC
CMIP	rs2925979	CC
KLF14	rs10260148	CC
SEC16B	rs10913469	TT
BPTF	rs11871285	GG
SNX15	rs35661464	CC
TUBG2	rs12945575	CC
LIN7C	rs56133711	GG
SNX10	rs1534696	AA
RPL17	rs1105654	AA
TRPS1	rs3808439	GG
GAD1	rs12472667	CC
MLLT10	rs9971210	CC

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

Lab Markers

Genetic factors can influence hormonal patterns and metabolic responses during menopause. This section examines genetic variants affecting key biomarkers, from hormone levels to metabolic indicators, helping understand individual variations in the menopausal transition process.

HIGHER LEVELS

FSH

Predisposed to higher FSH levels

HIGHER LEVELS

Testosterone (F)

Predisposed to higher testosterone levels

HIGHER LEVELS

Estradiol

Predisposed to higher estradiol levels

TYPICAL LEVELS

TSH

Predisposed to typical TSH levels

TYPICAL NEED

Vitamin D

Likely typical need for vitamin D

TYPICAL LEVELS

Total Cholesterol

Predisposed to typical cholesterol levels

TYPICAL LEVELS

LDL Cholesterol

Predisposed to typical levels of "bad" cholesterol

TYPICAL LEVELS

HDL Cholesterol

Predisposed to typical HDL levels

TYPICAL LEVELS

Triglycerides

Predisposed to typical triglyceride levels

TYPICAL LEVELS

Fasting Glucose

Predisposed to typical fasting glucose levels

TYPICAL LEVELS

Red Blood Cells

Predisposed to typical red blood cell count

TYPICAL NEED

Iron

Likely typical need for iron

FSH

Follicle-stimulating hormone or FSH is a crucial hormone for reproduction, released by the pituitary gland.

Low FSH levels may be caused by issues with the pituitary or the hypothalamus.

High FSH levels may be caused by issues with the ovaries or testes [R, R].

In women, FSH increases during the first half of the menstrual cycle and then decreases after ovulation. Levels also increase in menopause. In adult men, FSH levels don't tend to change [R].

Up to **80%** of the differences in people's FSH levels may be due to **genetics**. **However, genetic predisposition to lower or higher FSH doesn't imply a health issue** [R].

Interestingly, people with **genetically higher FSH levels** may be more prone to conditions affecting the **esophagus** [R].

HIGHER LEVELS

Predisposed to higher FSH levels based on 725,000 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FSHR	rs2300441	GA
OR2B6	rs140386588	CC
/	rs11803159	GG
UBE3A	rs4109610	TT
ARL14EP	rs11031005	TT
ARL14EP	rs11031006	GG
CYP19A1	rs2414095	GG
GAD2	rs8190595	CC
ZNF438	rs187634935	GG
PTER	rs116990127	CC
PFKFB3	rs12269260	TT
KLF6	rs183217426	CC
CACNB2	rs138339030	GG
AKR1E2	rs144252918	CC
ASB13	rs185593246	AA
NEBL	rs114697026	CC
GATA3	rs185495652	TT
ECHDC3	rs142442083	GG
ADARB2	rs17156880	TT
UCN3	rs61857160	AA
MAP3K8	rs138348879	TT
MYO3A	rs140374720	GG
CELF2	rs145712896	GG
ANKRD26	rs145806286	CC
KLF6	rs117498907	GG
PLXDC2	rs112852013	AA
MASTL	rs138431023	AA

GENE	SNP	GENOTYPE
CCNY	rs147373897	CC
SLC39A12	rs188192645	GG
/	rs117942091	GG
MLLT10	rs183996836	TT
PRKCQ	rs142326554	CC
DIP2C	rs552137948	CC
PITRM1	rs117186526	TT
KIAA1217	rs12251731	GG
BAMBI	rs79400426	CC
ARMC3	rs183475100	TT
GATA3	rs374631780	GG
MASTL	rs544678990	GG
ATP5F1C	rs146381068	CC

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

Testosterone (F)

Testosterone is the major male sex hormone. However, normal testosterone levels are important for maintaining bone health, sex drive, and more **in all people**.

In women, problems linked with high testosterone include acne, high blood pressure and cholesterol, mood changes, and fertility issues [R, R].

Up to 60% of differences in people's testosterone levels may be due to genetics. Genes involved may influence testosterone metabolism [R, R, R, R].

Testosterone levels are also influenced by your environment and lifestyle habits. Ways to balance your testosterone include [R, R, R, R]:

- Exercising
- Maintaining a healthy weight
- Improving your sleep quality
- Eating a diet with healthy fats. Testosterone is made from cholesterol, and low-fat diets have been linked to low testosterone levels

HIGHER LEVELS

Predisposed to higher testosterone levels based on 1,655 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP3A7	rs45446698	TT
PRLR	rs112694713	AA
FKBP4	rs56196860	CC
TYK2	rs8111359	CC
NUDT2	rs61237993	AA
AKR1C3	rs36032941	AC
ABCA8	rs34931250	CT
MCM9	rs1032388	CT
SLC51A	rs5855544	IT
MLXIPL	rs13229619	GA
REEP3	rs10740131	TA
SDC1	rs3771243	GA
CNDP2	rs117327231	CC
C4A	rs184265581	GG
CMIP	rs58072681	TT
SLC22A10	rs1939769	GG
LRP12	rs11774829	TT
S1PR1	rs6684361	TT
ZNF799	rs4804181	AA
/	rs2824138	TT
SRP14	rs11638521	CC
TNFSF12	rs62059839	CC
/	rs12436785	TT

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

Estradiol

Estradiol is a type of estrogen. Estrogens are sex hormones that maintain sexual and reproductive health. In females estradiol is needed for breast development, menstruation, and pregnancy. Ovaries make most of the estradiol in women, but some of it is also made in the adrenal glands and fat tissue [R, R, R, R, R].

Your estradiol levels partially depend on your genetics, but factors other than genetics also influence your hormones [R].

The following lifestyle changes can help balance your estradiol [R]:

- **Getting enough sleep**
- **Managing your stress**
- **Exercise**
- **Limiting alcohol**
- **Eating a diet low in sugar and processed foods, and high in healthy fats and fiber**

Estradiol levels that are consistently low or consistently high can signal an underlying condition that may need medical attention. If you are concerned about your hormone levels, talk to your doctor.

HIGHER LEVELS

Predisposed to higher estradiol levels based on 86 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ESR1	rs728524	AA
MCM8	rs16991615	AG
ESR1	rs9340799	GA
ESR1	rs2234693	CT
ESR1	rs2077647	CT
UIMC1	rs2454949	AA
SYCP2L	rs72823349	TA
NSUN4	rs2145409	TC
PIWIL1	rs35997018	CT
DTNB	rs199630126	AA
RHNO1	rs28990703	AG
CYP19A1	rs727479	AA
HELB	rs75770066	AA
TNP1	rs13387042	GG
ESR2	rs1256049	CC
EIF4EBP1	rs28807105	AA
EHMT2	rs34929649	TT
SRD5A2	rs9282858	CC
SRD5A2	rs112881196	CC
SRD5A2	rs76712439	CC
SPAST	rs72796853	CC
XDH	rs113923480	GG
FKBP4	rs56196860	CC
NLRC4	rs72796891	AA
FREM3	rs115870916	CC
FBXL17	rs150638752	AA
DTNB	rs144450473	CC

GENE	SNP	GENOTYPE
SPPL2A	rs143588983	GG
TNFAIP8L3	rs142484019	GG
ACTR3B	rs146761942	AA
TNFAIP8L3	rs149463881	CC
AP4E1	rs142122955	AA
AP4E1	rs150387952	TT
FREM3	rs115271535	CC
TRIM4	rs80218044	GG
SPPL2A	rs76018581	GG
CYP19A1	rs11853261	GG
CYP19A1	rs535411395	TT
XDH	rs72790679	GG
AP4E1	rs189169125	GG
AP4E1	rs189302421	CC
ZKSCAN5	rs139380031	CC

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

TSH

Thyroid-stimulating hormone (TSH), also known as thyrotropin, is a hormone produced by the pituitary gland — a small gland at the base of the brain. **TSH stimulates the thyroid gland** to produce thyroid hormones (T3 and T4). These hormones affect several processes, including energy production, heart function, and reproductive health [R].

Around **65%** of people's differences in TSH levels may be due to genetics [R, R, R].

Even though higher TSH levels may indicate an underactive thyroid, **genetically higher TSH** levels are linked to [R, R, R, R, R, R, R, R, R, R]:

- Reduce mortality, especially from respiratory infections
- Reduce the rate of some types of heart disease and stroke
- Reduce diabetes rates
- Fractures in men
- Alzheimer's in certain groups
- Reduce blood pressure

On the other hand, genetically lower TSH levels are linked to lower cholesterol, gaining weight [R, R, R, R].

TYPICAL LEVELS

Predisposed to typical TSH levels based on 92 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LRRC6	rs117764941	GG
LRRC6	rs118039499	AA
NKX2-1	rs116909374	CC
NFIA	rs334725	AA
PDE8B	rs2928167	AA
NR3C2	rs11732089	TT
TBX2	rs1157994	GG
CERS6	rs62174422	TT
PDE8B	rs1479567	AG
FAM227B	rs17477923	TT
VEGFA	rs1317983	CT
TNP1	rs13020935	GA
CDK17	rs10735341	GG
MAF	rs58722186	TC
VEGFC	rs4571283	AA
VEGFA	rs9381266	CT
CAPZB	rs12027702	TG
/	rs3104389	AC
FOXA2	rs1203949	TC
INSR	rs4804416	GT
GATA3	rs11592436	GC
C6ORF163	rs2242602	AT
/	rs121908872	GG
CEP128	rs141751376	TT
B4GALNT3	rs145153320	CC
CCDC77	rs546738875	CC
LTA4H	rs61938844	GG

GENE	SNP	GENOTYPE
PDE10A	rs2983511	CC
VAV3	rs17020122	CC
ASXL2	rs6721104	AA
ITPK1	rs6575306	AA
VEGFA	rs34046483	GG
DPH6	rs74888443	CC
TRMO	rs925488	GG
HLA-B	rs1265091	CC
SOX9	rs1042678	GG
ARL17A	rs116956554	GG
THAP4	rs6717283	AA
GNG7	rs72978712	TT
MAL2	rs72682433	TT

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

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

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]

- 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.

Total Cholesterol

If your doctor has ever told you that you have high cholesterol, they were either referring to [R]:

- LDL cholesterol
- Total cholesterol (LDL, HDL, and VLDL)

Some risk factors for high cholesterol include [R, R]:

- A diet high in saturated fat
- Obesity
- Lack of exercise
- Older age
- **Genetics**

If your cholesterol levels rise, your doctor will recommend strategies for lowering them. These may include [R]:

- A diet low in saturated fat (such as the Mediterranean diet)
- Exercise
- Losing excess weight
- Cholesterol-lowering medication

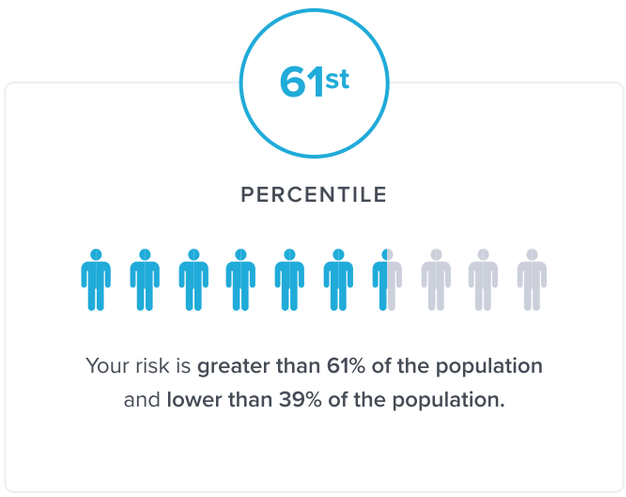
How well you respond to these strategies may, in part, depend on your genes.

Up to 65% of differences in cholesterol levels may be attributed to genetics. Genes that may contribute to high cholesterol influence [R, R, R, R, R, R, R]:

- Cholesterol production (*HMGCR*)
- Cholesterol transport (*APOB*)
- HDL and LDL cholesterol balance (*CETP*, *LIPC*, *LPL*)

TYPICAL LEVELS

Predisposed to typical cholesterol levels based on 1,290,924 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs7412	CC
PCSK9	rs11591147	GG
CETP	rs708272	AA
SIDT2	rs651821	TT
SLC16A11	rs186021206	GG
SMARCA4	rs142158911	GG
DNAJB14	rs140280172	CC
CETP	rs5882	AG
MINK1	rs79202680	GG
SORT1	rs12740374	GG
HNF4A	rs1800961	CC
APOB	rs562338	GG
FLT3	rs76428106	TT
PPP1R3B	rs9987289	GG
KIF13B	rs117139027	GG
ABO	rs2519093	TT
ABCA1	rs2740488	AA
CD300LG	rs72836561	CC
NLRC5	rs56156922	CC
SEZ6	rs72817635	CC

GENE	SNP	GENOTYPE
SLC39A8	rs13107325	CC
GATA6	rs79120103	AA
LCAT	rs4986970	AA
HMGCR	rs12916	CT
APOH	rs149394327	CG
HAVCR2	rs12657266	CT
IRF2BP2	rs508293	AG
APOE	rs429358	TT
LPL	rs328	CC
PCSK7	rs662799	AA
PCSK7	rs5128	CC
MICB	rs361525	GG
IL6	rs1800795	GG
FABP2	rs1799883	CC
LIPG	rs77960347	AA
SNX8	rs144787122	AA
/	rs145030841	CC
ABCA6	rs77542162	AA
MAFB	rs1883711	GG
FGB	rs6054	CC
SLC33A1	rs76440173	CC
LPA	rs55730499	CC
ADAM10	rs1800588	CC
SGMS1	rs80276949	GG
HP	rs34042070	CC
HLA-DQA2	rs6689	AA
NPC1L1	rs10260606	GG

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

LDL Cholesterol

Cholesterol in the blood is carried by proteins, mainly LDL, HDL, and VLDL. We call cholesterol carried by LDL “bad” cholesterol because it can stick to your blood vessels. This can cause heart problems [R, R].

Some risk factors for high LDL cholesterol include [R, R]:

- A diet high in saturated fat
- Obesity
- Lack of exercise
- Older age
- **Genetics**

If your cholesterol levels rise, your doctor will recommend strategies for lowering them. These may include [R]:

- A diet low in saturated fat (such as the Mediterranean diet)
- Exercise
- Losing excess weight
- Cholesterol-lowering medication

How well you respond to these strategies may depend on your genes.

Genetically higher LDL cholesterol levels may play a role in:

- Heart Health [R, R, R, R, R, R, R, R, R, R, R, R, R, R]
- High Blood Sugar [R, R, R, R, R, R, R, R]
- Stroke [R, R, R, R, R]
- Kidney Health/eGFR/Artery Hardening [R].
- Bone Health [R, R, R]
- Joint Pain [R]
- Parkinson’s Disease [R]
- Longevity [R, R, R, R]
- High Blood Pressure [R]

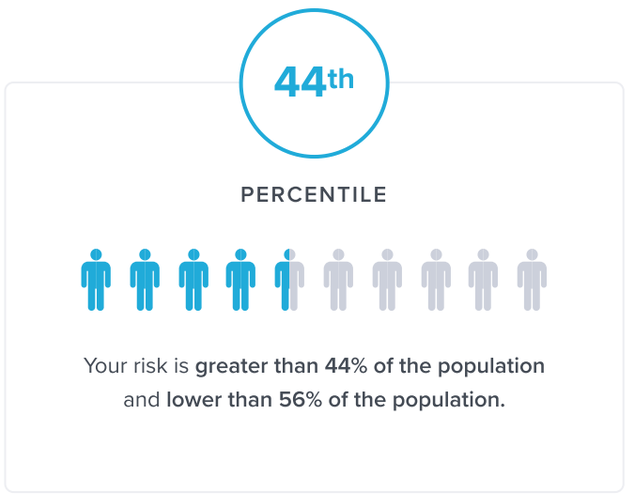
Up to 65% of differences in cholesterol levels may be attributed to genetics. Genes that may contribute to high cholesterol influence [R, R, R, R, R, R]:

- Cholesterol production (*HMGCR*)
- Cholesterol transport (*APOB*)
- HDL and LDL cholesterol balance (*CETP*, *LPL*, *LIPC*)

Genetically high testosterone levels may be causally associated with a high risk of increased LDL-cholesterol [R].

TYPICAL LEVELS

Predisposed to typical levels of "bad" cholesterol based on 1,366,051 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs7412	CC
APOE	rs141622900	GG
APOE	rs7254892	GG
PCSK9	rs11591147	GG
APOE	rs12721109	GG
APOE	rs62117160	GG
CEACAM20	rs200628672	GG
BCAM	rs28399654	GG
APOB	rs693	AG
LDLR	rs688	TC
CETP	rs5882	AG
LDLR	rs6511720	GG
NECTIN2	rs365653	AA
USP24	rs72660594	TT
NECTIN2	rs11668327	GG
LDLR	rs72658867	GA
SLCO1B1	rs4149056	TC
SIDT2	rs964184	CC
NLRC5	rs1800775	AA
/	rs12713559	GG

GENE	SNP	GENOTYPE
/	rs151135411	GG
APOC4	rs140526515	AA
NECTIN2	rs138914864	CC
NECTIN2	rs117310449	CC
APOE	rs769449	GG
/	rs150401285	AA
NECTIN2	rs144261139	CC
NECTIN2	rs76366838	GG
CLPTM1	rs490243	CC
APOE	rs4420638	AA
ABCG5	rs141828689	CC
CLPTM1	rs12691088	GG
APOB	rs5742904	CC
OLR1	rs12316150	AA
APOE	rs429358	TT
NECTIN2	rs34095326	GG
TOMM40	rs394819	GG
NECTIN2	rs41289512	CC
NECTIN2	rs138607350	TT
SNX8	rs144787122	AA
SLC22A3	rs3918291	TT
APOC1	rs389261	GG
LPA	rs3798220	TT
PVR	rs139267469	CC
LDLR	rs73015030	GG
MAFB	rs2207132	GG
APOC1	rs60049679	GG
BCL3	rs114036675	GG

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

HDL Cholesterol

Cholesterol in the blood is carried by proteins, mainly LDL, HDL, and VLDL. We call cholesterol carried by HDL “good” cholesterol because it helps your liver get rid of excess cholesterol [R, R].

Normal to high levels of HDL cholesterol are linked to a lower risk of heart disease. Causes of low HDL cholesterol include [R, R, R]

- Being overweight or obese
- Smoking
- Metabolic syndrome
- A diet rich in trans fats
- Low physical activity

However, research has shown that medications that increase HDL cholesterol don't necessarily decrease one's risk of heart disease. In addition, genetic studies suggest that low HDL cholesterol levels probably don't cause heart disease on their own [R, R, R, R, R, R, R, R].

This is why doctors will often suggest lifestyle and diet strategies that can improve both your “good” and your “bad” cholesterol, as well as your heart health. These strategies include [R, R]:

- A healthy diet rich in fiber, and low in saturated fat and trans fat
- Exercise
- Losing weight
- Stopping tobacco use

Up to 65% of differences in cholesterol levels may be attributed to genetics. Genes that may affect HDL cholesterol influence [R, R, R, R, R, R]:

- Cholesterol production (*LPL*, *LIPC*, *HMGCR*)
- Cholesterol transport (*APOB*)
- HDL and LDL cholesterol balance (*CETP*)

Genetically high fasting insulin and total, bioavailable, and free testosterone may be causally associated with low HDL cholesterol [R, R, R].

TYPICAL LEVELS

Predisposed to typical HDL levels based on 916,929 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOB	rs2678379	GG
/	rs200748895	TT
SCARB1	rs921919	AA
/	rs71926466	GG
WDR11	rs10886863	CC
PLTP	rs6073958	TC
ABCA8	rs112001035	GA
IRS1	rs2138161	TC
GPAM	rs2792751	CT
UBE2L3	rs12158299	TC
VEGFA	rs998584	CA
ETV5	rs57912727	CA
CD300LG	rs72836561	CC
LPL	rs328	CC
ADAM10	rs2070895	GG
MCUB	rs189866430	TT
HNF4A	rs1800961	CC
ACAD10	rs11066015	GG
ADAL	rs150844304	AA
ARID1A	rs193084249	AA
SLC39A8	rs13107325	CC
APOE	rs429358	TT
ABCA1	rs2740488	AA
CYP27A1	rs17572799	AA
BTNL8	rs188238483	TT
ALPK2	rs41292412	CC
FLT3	rs76428106	TT

GENE	SNP	GENOTYPE
FADS1	rs174567	AA
PLG	rs571848809	GG
TCF15	rs151235402	CC
ZNF653	rs737338	CC
/	rs56271783	GG
RSPO3	rs72959041	GG
NELFCD	rs76602912	TT
PABPC4	rs17513135	CC
PPARG	rs12485478	AA
TSC22D2	rs9844972	GG
CNIH4	rs56105022	GG
KANSL1	rs117499775	TT
DGAT2	rs1219550	TT
ST3GAL4	rs112771035	CC

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

Triglycerides

Triglycerides are the most common type of fat in the body. Some triglycerides are needed for the body to function. However, high levels can lead to health problems like artery hardening, stroke, heart disease, and pancreas inflammation [R, R, R, R, R].

About 1 in 3 adults in the US may have high triglycerides. This estimate is slightly higher in older adults. Over 4 in 10 people over 60 may be affected [R].

Many health conditions can lead to high triglycerides. These include [R, R]:

- Overweight or obesity
- Low thyroid hormones (*hypothyroidism*)
- Metabolic syndrome
- Diabetes
- Chronic kidney disease
- Autoimmune diseases like lupus
- HIV infection

To help lower triglycerides, doctors may recommend [R, R]:

- Diet changes
- Avoiding alcohol
- Exercise
- Weight loss
- Omega-3s
- Medication

Genetically higher triglyceride levels are likely causally associated with:

- Heart health [R, R, R, R]
- High blood pressure [R]
- Heart attack [R]
- Low mood [R, R]
- Gout [R]
- Kidney Health [R, R, R]
- Parkinson's (lower risk) [R]
- Bone health [R]
- Pancreas inflammation [R, R]
- Fatty liver [R]
- Age-related macular degeneration (lower risk) [R, R]
- Joint pain [R]
- Psoriasis [R]

TYPICAL LEVELS

Predisposed to typical triglyceride levels based on 17,845 genetic variants we looked at

16th

PERCENTILE

Your risk is **greater than 16% of the population** and **lower than 84% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOC3	rs147210663	GG
CETP	rs5882	AG
ACACB	rs149793040	AA
ANGPTL4	rs116843064	GG
APOA4	rs12721043	CC
PAFAH1B2	rs186808413	CC
LPL	rs75218485	CC
LPL	rs17091905	GG
LPL	rs117604010	GG
MAU2	rs58542926	CC
MLXIPL	rs113296769	AA
APOB	rs533617	TT
DNAJC30	rs13242693	CC
WSB2	rs7973260	AG
MLXIPL	rs71556711	CT
LPL	rs17489373	GA
CLPTM1	rs483082	TG
SIDT2	rs964184	CC
PCSK7	rs662799	AA
NLRC5	rs1800775	AA

Up to 45% of differences in people's triglyceride levels may be attributed to genetics. Genes involved in high triglycerides may influence fat metabolism. They include [R, R]:

- *BUD13*
- *APOC3*
- *APOA5*
- *GCKR*
- *LPL*
- *ZPR1*

Genetically higher fasting insulin may be causally associated with high triglycerides [R].

GENE	SNP	GENOTYPE
/	rs201079485	GG
/	rs149808404	GG
/	rs118204057	GG
PCSK7	rs5128	CC
FADS2	rs174546	CC
LPL	rs268	AA
APOA5	rs3135506	GG
PLA2G12A	rs41278045	AA
APOA4	rs12721041	CC
BACE1	rs116987336	GG
LPL	rs1801177	GG
MAP1A	rs55707100	CC
LPL	rs186868868	CC
BUD13	rs117794084	GG
APOE	rs141622900	GG
A1CF	rs41274050	CC
APOE	rs7412	CC
EIF3J	rs151291132	AA
APOE	rs7254892	GG
SOST	rs76868109	AA
SLC30A3	rs116170113	GG
GTF3C2	rs149117895	CC
BUD13	rs114594921	TT
NECTIN2	rs138607350	TT
APOE	rs429358	TT

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

Fasting Glucose

Glucose is a type of sugar. **Fasting glucose –or fasting blood sugar – is the measurement of one's blood sugar level after 8-12 hours of avoiding food and drinks**. Fasting glucose levels help show how your body deals with dietary sugar. Doctors may order a fasting glucose test to check if someone is diabetic [R, R].

Your fasting glucose levels are partly dependent on your genes! Up to 65% of differences in people's fasting glucose levels may be attributed to genetics. Genes involved in fasting glucose may influence [R, R]:

- Pancreas development and function
- Insulin activity
- Glucose breakdown

Genetically high bioavailable testosterone levels may be causally associated with lower fasting glucose in men [R].

However, keep in mind that your diet and lifestyle may also contribute to your fasting glucose levels. If you have a genetic predisposition for higher fasting glucose levels, the following lifestyle changes may help [R]:

- Exercising
- Maintaining a healthy weight
- Avoiding cigarette smoke and alcohol
- Following a healthy diet

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

- Glaucoma
- Gum disease
- High blood sugar
- Heart health
- Heart attack
- Alzheimer's

TYPICAL LEVELS

Predisposed to typical fasting glucose levels based on 959,749 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
SLC30A8	rs13266634	CC
GCKR	rs780093	CC
CDKN2A	rs10811661	TT
CETP	rs708272	AA
FOXO3	rs2802292	GG
PPARG	rs1801282	CC
PPARA	rs1800206	CC
RFC4	rs17300539	GG
MRPS31	rs10507486	GG
ADCY5	rs11708067	AA
BCL2	rs12454712	TT
HMGA2	rs2261181	TC
IMPDH1	rs791595	AG
TNF	rs2857605	TC
SLC38A11	rs10195252	TC
TSPAN3	rs7177055	GA
DGKB	rs2191349	GT
PPARGC1A	rs8192678	TC
UCP2	rs659366	CT
ADRB2	rs1042714	GC
ADRB2	rs1042713	GA
CRY2	rs11605924	AC
IGF2BP2	rs1470579	AC
CCND2	rs76895963	TT
CDKAL1	rs7756992	AA
FTO	rs9939609	TT

GENE	SNP	GENOTYPE
MC4R	rs12970134	GG
JAZF1	rs1635852	CC
TAP2	rs2071479	CC
SLC2A2	rs5400	GG
FCER1G	rs5082	AA
IRS1	rs2943641	TC
DIO2	rs225014	TT
IRS1	rs1801278	CC
TNF	rs1800629	GG
FABP2	rs1799883	CC
GIPR	rs10423928	TT
KCNJ11	rs5215	TT
/	rs184660829	TT
/	rs569511541	AA
/	rs562386202	AA
/	rs543786825	CC
/	rs759111467	GG
CCDC68	rs76197067	AA
RNASEH2A	rs755734872	CC
NEDD1	rs557027608	GG
/	rs533172266	CC
QSER1	rs528122639	GG
BPTF	rs558308082	GG

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

Red Blood Cells

Red blood cells help carry oxygen from your lungs to all parts of the body. Tissues can't function properly without enough oxygen. **Your red blood cell count measures the number of red blood cells in your blood.** Red blood cell count is usually measured as part of a complete blood count [R, R, R].

Causes of low red blood cell count include: [R, R]:

- Nutrient deficiency (iron, folate, vitamin B12)
- Blood loss
- Some health conditions

A low red blood cell count is also known as **anemia**. Symptoms of anemia include [R]:

- Fatigue and weakness
- Pale or yellowed skin
- Shortness of breath
- Dizziness
- Cold hands and feet

If you have anemia, it's important to work with your doctor and address the root cause.

A high red blood cell count can be caused by several factors, but it doesn't necessarily mean that you have a health condition. Causes of high red blood cell count include [R, R]:

- Smoking
- Heart disease or lung disease
- Living at a high altitude
- Dehydration

High red blood cell counts can cause [R]:

- Fatigue
- Itchy skin
- Nosebleeds
- Headaches
- Shortness of breath
- Blood clots

Talk to your doctor if your red blood cell count is high and you are experiencing any of these symptoms.

Your genes play a role in your red blood cell count! Up to **65%**

TYPICAL LEVELS

Predisposed to typical red blood cell count based on 20,485 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs774469934	GG
HBS1L	rs35786788	AA
/	rs145910606	TT
EPAS1	rs10168349	CC
FARSA	rs8110787	TT
LMF2	rs140522	CC
PTPRC	rs1434282	TT
MOSPD3	rs2075672	GA
TMEM72	rs2281841	CC
ATP2B4	rs4951074	GG
THRB	rs1505307	CC
FADS2	rs174574	CC
TBX2	rs11657044	CC
PRKAG2	rs6464165	TC
CD164	rs1546723	AG
SH2B3	rs3184504	TC
SBF2	rs368417629	TG
/	rs3059421	TI
PIEZO1	rs837763	TC
KIT	rs218265	TT
PPRC1	rs149687130	AA
TTC1	rs148871069	AA
EGLN2	rs184088518	GG
SLC9A3R2	rs139491786	CC
BCL2	rs17758695	CC
HCRTR2	rs4715517	CC
BCL2L11	rs62160676	TT

of differences in people's red blood cell count may be due to genetics [R, R].

Genetically predicted higher fasting insulin and high blood pressure (diastolic) may be associated with a higher red cell count [R, R].

GENE	SNP	GENOTYPE
NCOA4	rs74877435	CC
PGLYRP2	rs146213062	AA
IKZF1	rs6592965	GG
HLA-DQA2	rs9272626	AA
ZNF800	rs72607741	GG
BET1L	rs11245997	GG
MAP4K5	rs12881869	CC
FOXE3	rs11583750	GG
XPO7	rs76008177	CC
C11ORF21	rs16928078	CC
GPRC5A	rs11055134	TT

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

Iron

Key Takeaways:

- Iron is an essential mineral that your body needs to make hemoglobin, which is used by red blood cells. Women and vegetarians are more likely to be deficient.
- Iron-rich foods include meat, seafood, dark leafy greens, legumes, and fortified foods. You need about 18mg of iron per day.
- If your need is likely higher, you may want to make dietary changes to help ensure adequate intake. Speak to your doctor about supplementation, as high levels of iron can be toxic.
- Click the **next steps** tab for relevant labs.

TYPICAL NEED

Likely typical need for iron based on 446,739 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TMPRSS6	rs228916	TT
ZDHHC14	rs181143083	TT
TMPRSS6	rs4820268	GA
TMPRSS6	rs855791	AG
MAPRE1	rs146680938	CC
CDH19	rs181670562	CC
MOSPD3	rs7385804	AC
TF	rs3811647	AG
CLDN11	rs113286612	GG
DTWD2	rs2442120	CC
SLC24A2	rs142401741	GG
IRX2	rs62330869	AA
ERG	rs117910189	TT
ZFAT	rs2315834	CC
HFE	rs1799945	CC
SCGN	rs115809796	AA
NOTCH4	rs41270472	AA
CNTN5	rs1398168	GA
GK2	rs12641027	TC
PLAAT1	rs9849045	TT
NCKAP5	rs7588567	TT
CARMIL1	rs111722075	TC
H3C6	rs113507773	AG
TF	rs8177240	GT
IGLV4-60	rs987710	GG
SHISA9	rs78138925	GG
ESM1	rs150548770	TT

Iron (Fe) is an essential mineral. It helps make hemoglobin, a protein that red blood cells need to carry oxygen throughout the body. In this way, iron supports energy production and fights fatigue[R, R, R,R].

When iron levels are low, the body can't make enough red blood cells. This is called **iron-deficiency anemia**. Although mild cases may not lead to any signs or symptoms, people with more advanced iron-deficiency anemia may experience [R]:

- Weakness and fatigue
- Pale skin
- Shortness of breath
- Dizziness
- Cold hands or feet
- Brittle nails

The following groups may be at a higher risk of iron deficiency [R, R]:

- Women
- Children
- Routine blood donors
- Vegetarians

Iron from plant sources is harder to absorb than iron from animal sources. This makes vegetarians more prone to iron deficiency [R].

Iron-deficiency anemia can often be detected with a blood test. After it is diagnosed, your doctor may recommend supplementing with iron. Keep in mind that it may take several months of supplementation to help correct iron deficiency [R, R].

Genetically higher iron may be causally associated with:

- Varicose veins [R, R]
- Deep vein thrombosis [R]
- Anemia (lower risk) [R, R]
- Low Mood (lower risk) [R]
- High Blood Sugar [R]
- Fatty liver [R, R]
- Back Pain [R]
- Total Cholesterol [R]
- LDL Cholesterol [R, R]
- Parkinson's Disease (lower risk) [R]
- Painful Periods (lower risk) [R]
- eGFR [R]
- Joint Pain (lower risk) [R]
- Heart Health (lower risk) [R]
- Artery Hardening (lower risk) [R]
- Atrial Fibrillation [R]
- Lung Health (improved function) [R]
- Longevity (reduced) [R]
- Gout/Uric acid [R]
- Joint Inflammation (lower risk) [R]

Note that it is best to get iron from food. A high dose of iron can lead to stomach pain and other unwanted gut issues. It can also be toxic. Talk to your doctor before taking iron supplements [R].

GENE	SNP	GENOTYPE
FIG4	rs143130997	GG
TMC5	rs4780797	GG
PROC	rs116946164	TT
RAD18	rs113839317	TT
PLCG2	rs9934030	AA
HFE	rs1800562	GG
BMP4	rs210368	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 | Menopause Symptoms

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].

Menopause Symptoms

IMPACT 1 / 5

EVIDENCE 2 / 5

A meta-analysis of 12 trials (452 participants) suggests resistance training (up to 16 weeks) may improve postmenopausal symptoms, functional capacity, and bone density while reducing hot flashes and fat mass. However, the evidence quality was low [R].

Strength training can help mitigate bone density loss and muscle mass decreases that occur during menopause.

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 | Irritability | Sexual Dysfunction

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].

Irritability

IMPACT 0 / 5

EVIDENCE 0 / 5

Getting at least 7 hours of sleep is crucial for reducing irritability. Adequate sleep helps in repairing the body and mind, improving mood, and enhancing cognitive function, which can all decrease feelings of irritability.

Sexual Dysfunction

IMPACT 2 / 5

EVIDENCE 3 / 5

Poor sleep may be linked to sexual dysfunction in both men and women. Potential risk factors include [R, R, R, R, R, R]:

- Poor sleep quality
- Getting too much or too little sleep
- Shift work, especially working the night shift

Obstructive sleep apnea is a condition that causes interrupted breathing during sleep. It may also increase the odds of sexual dysfunction. Getting treatment for sleep apnea may help with erectile dysfunction [R, R, R].

Poor sleep may contribute to erectile dysfunction by [R, R, R]:

- Worsening mental health
- Damaging the blood vessels
- Lowering testosterone levels

3 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 | Heavy Sweating | Irritability | Menopause Symptoms | Sexual Dysfunction

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	

Heavy Sweating

IMPACT 1 / 5

EVIDENCE 1 / 5

Stress may contribute to heavy sweating. In turn, sweating a lot may impact mental health by harming self-esteem and affecting social interactions [R, R, R, R, R].

Practicing yoga may help with night sweats and other symptoms in postmenopausal women [R].

Irritability

IMPACT 2 / 5

EVIDENCE 2 / 5

Yoga practice may reduce irritability in different populations such as stressed medical students, children with autistic spectrum disorder, and breast cancer survivors [R, R, R].

Yoga combines physical postures, breathing exercises, and meditation which together help reduce stress, improve mood, and decrease irritability.

Menopause Symptoms

IMPACT 3 / 5

EVIDENCE 3 / 5

Yoga may reduce psychological, somatic, vasomotor, and urogenital symptoms while improving quality of life in menopausal women [R, R].

Yoga may help through its combination of physical postures, breathing exercises, and meditation.

Sexual Dysfunction

IMPACT 2 / 5

EVIDENCE 2 / 5

Stress and anxiety may contribute to sexual dysfunction in men and women. Managing stress may help [R, R, R, R, R, R, R, R].

Relaxation techniques that may help include:

- Yoga [R, R]
- Mindfulness [R, R, R]
- Autogenic training (training your body to relax in response to verbal commands) [R, R]

4

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 | Sexual Dysfunction

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	●●

Sexual Dysfunction

IMPACT 3 / 5

EVIDENCE 2 / 5

People with erectile dysfunction tend to have lower levels of folate. This may be particularly true for young men and those with severe dysfunction [R].

Supplementing with folate may improve erectile dysfunction and boost the effectiveness of medication. It may also help in combination with myo-inositol [R, R, R].

Folate may help by supporting normal blood vessel function [R].

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

PERSONALIZED TO YOUR GENES

Your *MTHFR* gene variant may be linked to erectile dysfunction. This variant likely reduces the amount of active folate [R, R]. **Folate supplements may help make up for this effect.**

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
MTHFR	**rs1801133**	AA	●●●●

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

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	

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 | Menopause Symptoms | Sexual Dysfunction

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].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
SELENBP1	**rs4971040**	CC	

Menopause Symptoms

IMPACT 2 / 5 EVIDENCE 2 / 5

High adherence to a Mediterranean diet may reduce the risk of menopausal symptoms. Fruits may reduce vasomotor symptoms, vegetables and legumes may reduce overall symptom severity and improve health scores, and olive oil may reduce psychological symptoms [R, R, R, R].

Sexual Dysfunction

IMPACT 2 / 5 EVIDENCE 3 / 5

A healthy diet may benefit both men's and women's sexual health [R, R, R, R].

An example of a healthy diet is the Mediterranean diet. In men and women with chronic health conditions such as metabolic syndrome or diabetes, following this diet may support sexual function [R, R, R, R, R, R].

The Mediterranean diet is rich in fruits and vegetables, which contain antioxidants called *flavonoids*. Eating more foods rich in flavonoids, especially fruit, may reduce the odds of erectile dysfunction [R, R, R, R].

In fact, each additional serving of fruit or vegetables may reduce the odds by **10%** [R].

Healthy eating may help with sexual dysfunction by [R, R, R]:

- Decreasing oxidative stress
- Increasing arginine, a compound that helps improve blood flow

7 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

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].

8 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

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.*

9 Avoid PAHs Exposure

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

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

Fat Loss | Focus | Longevity | Mood | Strength

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

A meta-analysis of 16 studies associated prenatal exposure to PAHs with a 48% higher risk of adult depression [R].

10 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 | Menopause Symptoms

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].

Menopause Symptoms

IMPACT 0 / 5

EVIDENCE 0 / 5

Tai Chi can contribute to stress reduction and improve physical stability, decreasing the risk of falls.

11 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
- Menopause Symptoms

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].

Menopause Symptoms

IMPACT 0 / 5

EVIDENCE 0 / 5

Walking is a gentle form of exercise that can help manage weight, improve mood, and promote better sleep. It also helps reduce hot flashes by regulating body temperature.

12 Pilates

Engage in Pilates exercises for at least 20-30 minutes, 3 times a week. Focus on core strength, flexibility, and mindful breathing. It is suitable for both beginners and advanced individuals, adjusting the difficulty of exercises as necessary.

TYPICAL STARTING DOSE

30 minutes

Helps with these Symptoms & Conditions:

- Cognitive Decline

Helps with these Goals:

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

Helps with these DNA Risks:

- ⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

A meta-analysis of 8 trials concluded that Pilates improves anxiety and depression. A trial of 63 overweight and obese participants found that 8 weeks of Pilates improved quality of life, depression, and trait anxiety. Similarly, 60 elderly women participating in an 8-week Pilates program experienced reduced depression scores. In 110 postmenopausal women, a 12-week Pilates intervention led to improvements in anxiety, depression, and quality of life. In 80 patients with multiple sclerosis, an 8-week Pilates regimen also improved anxiety, depression, and fatigue symptoms. In a study of 75 inactive women, 12 weeks of Pilates was more effective than aerobic exercise in reducing depression. Additionally, a 12-week Pilates program resulted in reduced depression and increased quality of life in 105 healthy volunteers [R, R, R, R, R, R, R].

Pilates may help by promoting the release of endorphins. Additionally, the focus and concentration required in Pilates can offer a form of mental distraction, reducing stress and promoting relaxation.

13 Curcumin

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline | Food Allergies

Helps with these Goals:

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

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 3 / 5 EVIDENCE 3 / 5

Curcumin (500-1,000 mg/day for 6-8 weeks) may improve mood. However, the evidence is limited and additional research is required [R, R, R, R].

Curcumin may help by **increasing brain levels of serotonin and dopamine**, which help you feel happy, positive, and energetic. Curcumin may also support brain health [R, R].

Note that curcumin is hard to absorb. Look for supplements with *bioavailable* curcumin, which is easier to absorb. Combining it with piperine (a compound in black pepper) may also help [R, R].

Please note: *curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements* [R, R, R].

PERSONALIZED TO YOUR GENES

TMEM18 helps new neurons get to where they are needed in the brain [R].

Your **rs6548238** genotype is associated with increased risk of mood problems [R].

One of the best supplements for your genotype is **bioavailable curcumin**, which stimulates the creation and activity of neural stem cells throughout the brain [R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
SH3YL1	**rs6548238**	TC	

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 Mindfulness-Based Stress Reduction (MBSR)

Enroll in an 8-week MBSR course, which includes a weekly 2.5-hour class, one all-day class after the sixth week, and 45 minutes of daily home practice guided by assignments and instructional recordings.

TYPICAL STARTING DOSE
2 hours

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

Focus | Mood

Helps with these DNA Risks:

Low Mood | Irritability | Menopause Symptoms

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].

Two meta-analyses found mindfulness-based therapy effective at reducing depression and anxiety in cancer patients, although they warned about the high heterogeneity of the included studies [R, R].

People who practice mindfulness tend to have **lower levels of the stress hormone *cortisol*** [R, R].

Irritability

IMPACT 0 / 5

EVIDENCE 0 / 5

MBSR is a structured program that teaches mindfulness meditation to alleviate stress, anxiety and mood disorders. It helps individuals respond more calmly to situations that may cause irritability.

Menopause Symptoms

IMPACT 0 / 5

EVIDENCE 0 / 5

MBSR is shown to decrease stress and can potentially improve mood and well-being in menopausal women.

16

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].

17

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 | Sexual Dysfunction

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].

Sexual Dysfunction

IMPACT 3 / 5 EVIDENCE 2 / 5

Oral zinc therapy in hemodialysis men may result in increased levels of testosterone and luteinizing hormone, suggesting a possible improvement in sexual function in some aspects. However, another study found that zinc had no significant effect on any aspect of sexual function [R, R].

Zinc supplementation in postmenopausal women may improve testosterone levels and various aspects of sexual function [R].

18

Dietary Iron

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

Helps with these Symptoms & Conditions:

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

Helps with these Goals:

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

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 a meta-analysis. The pooled RRs for the highest versus lowest dietary iron intake were 0.57, corresponding to a 75% lower risk of depression [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].

19

Kundalini Yoga

Participate in a Kundalini yoga class or follow an online session for 60 to 90 minutes, at least three times per week. Ensure the practice includes a combination of dynamic movements, specific postures, breathing techniques, meditation, and the chanting of mantras.

TYPICAL STARTING DOSE

1 hour

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 2 / 5

EVIDENCE 2 / 5

Non-placebo-controlled trials suggest that Kundalini yoga can have positive effects on mood. In patients with hypertension, a 12-week Kundalini yoga program did not lower blood pressure but improved anxiety and depression scores. In those with mild cognitive impairment, Kundalini yoga improved depressed mood, resilience, and executive function over a 12-week intervention [R, R].

Kundalini yoga can help to increase energy levels and uplift your mood. Regular practice can help with depression by boosting serotonin levels and reducing stress hormones.

PERSONALIZED TO YOUR GENES

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
OXTR	**rs2254298**	GA	

20 Dark Chocolate

Eat dark chocolate with a cocoa content of at least 70-85%, limiting intake to about 1-2 ounces (28-56 grams) a day to gain cardiovascular and mood-related benefits without excessive calorie intake.

Helps with these Symptoms & Conditions:

Artery Hardening | Cognitive Decline

Helps with these Goals:

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

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 1 / 5

EVIDENCE 2 / 5

A meta-analysis of 9 studies concluded that cocoa-rich products such as dark chocolate have moderate effects on mood and affect in the short term. However, the authors warned about the lack of long-term studies and the small size of the included studies [R].

Dark chocolate is known to release endorphins in the brain that can enhance mood.

21 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*.

22 Plasmalogens

Follow the dosage instructions provided on the product label or as directed by your healthcare provider. Typically, these supplements come in capsule form and are taken once daily with water, ideally with a meal to enhance absorption. Consistency is key, so taking them at the same time each day is recommended. Always consult a healthcare professional before starting plasmalogen supplements, especially if you are pregnant, nursing, or have any medical conditions.

Helps with these Symptoms & Conditions:

Cognitive Decline

Helps with these Goals:

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

Helps with these DNA Risks:

⚠ Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

In a placebo-controlled trial of 40 healthy college students, supplementation with plasmalogens (2 mg/day) for 4 weeks improved concentration while decreasing mood disturbances, insomnia, anger, and fatigue [R].

23

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

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].

24 Emoxypine

Emoxypine is typically available in oral capsules, tablets, or injectable forms, with the dosage depending on the condition being treated. For general antioxidant or neuroprotective purposes, the oral dose ranges from 125–250 mg taken 2–3 times daily, while more intensive treatments may require higher doses or injectable administration under medical supervision. It is usually recommended to take Emoxypine with meals to minimize gastrointestinal discomfort. Treatment duration can vary from a few weeks to several months, depending on the therapeutic goal.

Helps with these Symptoms & Conditions:

Artery Hardening

Cognitive Decline

Helps with these Goals:

Focus

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 1 / 5

EVIDENCE 2 / 5

Emoxypine administration improved depressive symptoms in people with the following conditions:

- Diabetes [R, R]
- Rheumatoid arthritis [R]
- Disc herniation [R]
- Alcohol addiction [R]

25 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].

26 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

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].

27 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].

28 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].

29 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 | Irritability

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	

Irritability

IMPACT 0 / 5

EVIDENCE 0 / 5

5-HTP can increase the production of serotonin, which may help improve mood and reduce irritability.

30 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

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].

31 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.

32 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

Heavy Sweating

Irritability

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.

Heavy Sweating

IMPACT 1 / 5

EVIDENCE 2 / 5

Stress may contribute to heavy sweating. In turn, sweating a lot may impact mental health by harming self-esteem and affecting social interactions [R, R, R, R, R, R].

Some relaxation techniques may help people who sweat heavily. They include [R, R, R]:

- Mindfulness
- Meditation
- Yoga
- Biofeedback

Irritability

IMPACT 0 / 5

EVIDENCE 0 / 5

Meditation promotes relaxation and helps in managing stress, which can lower irritability. It enables individuals to focus on the present and reduce negative emotions.

33

Panax Ginseng

Take 200-400 mg of Panax ginseng extract daily, ideally in the morning or early afternoon to avoid potential interference with sleep. It is recommended to follow a cycle of taking it for 2-3 weeks followed by a 1-week break to prevent tolerance. Ensure the supplement is standardized to contain at least 2-3% ginsenosides.

TYPICAL STARTING DOSE

200 mg

Helps with these Symptoms & Conditions:

Artery Hardening

Helps with these Goals:

Cognitive Function | Energy | Focus | Libido | Mood

Helps with these DNA Risks:

Low Mood | Menopause Symptoms | Sexual Dysfunction

How it helps

Low Mood

IMPACT 2 / 5 | EVIDENCE 2 / 5

Ginseng extract (2-3 g/day for 8 weeks) may help with depression symptoms [R, R, R].
Ginseng may help by lowering inflammation and increasing the levels of [R, R, R, R]:

- Dopamine
- Serotonin
- BDNF

Menopause Symptoms

IMPACT 1 / 5 | EVIDENCE 2 / 5

In 15 randomized controlled trials (RCTs), ginseng showed some benefits for menopausal symptoms and hot flashes but did not significantly improve sexual function, vaginal maturation index, or endometrial thickness. Ginseng also had a positive impact on the quality of life score in three of these studies. [R]

Ten randomized controlled trials (RCTs) were reviewed. One RCT found no difference in hot flashes between Korean red ginseng (KRG) and placebo. Another reported positive effects of KRG on menopausal symptoms. A third found Ginseng beneficial for depression and well-being. Four RCTs found no significant hormone differences except dehydroepiandrosterone with KRG. Two RCTs showed no KRG effects on endometrial thickness. One RCT found no impact of American ginseng on oxidative stress markers and antioxidants. [R]

Sexual Dysfunction

IMPACT 2 / 5 | EVIDENCE 3 / 5

Korean red ginseng (1800-3000 mg/day) may improve erectile dysfunction. However, one review notes the effects may be limited [R, R, R, R, R, R, R].

Korean red ginseng may improve sexual desire, arousal, or satisfaction in women. It may help alone or combined with other supplements. However, not all studies found significant effects [R, R, R, R].

Ginseng may improve sexual function by [R, R, R, R]:

- Improving blood flow
- Increasing testosterone levels
- Relaxing genital muscles
- Improving energy levels

34 Ginkgo

Take 120 mg of Ginkgo supplement daily, preferably with meals to aid absorption. This dosage is typically split into two 60 mg doses taken in the morning and evening for best results.

TYPICAL STARTING DOSE

120 mg

Helps with these Symptoms & Conditions:

- Cognitive Decline

Helps with these Goals:

- Cognitive Function
- Focus
- Libido
- Memory

Helps with these DNA Risks:

- Sexual Dysfunction

How it helps

Sexual Dysfunction

IMPACT 2 / 5

EVIDENCE 2 / 5

Ginkgo biloba extract (40-300 mg/day for up to 12 weeks) may support sexual health in both men and women. It may improve sexual desire and orgasm when used alone or combined with other ingredients. However, not all studies found gingko to be beneficial [R, R, R, R, R, R, R].

Ginkgo may help by improving blood flow to the genitals [R, R].

Please note: ***Do not consume ginkgo seeds or unprocessed ginkgo leaves. They are poisonous.*** *Ginkgo may also interact with blood thinners. Consult your doctor before taking ginkgo supplements* [R, R, R, R].

35 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].

36 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].

37

Ashwagandha

Take 250-600 mg of ashwagandha supplement daily. It can be consumed with water or a meal, depending on your preference or as advised by a healthcare provider.

TYPICAL STARTING DOSE

120 mg

Helps with these Symptoms & Conditions:

Hair Loss | Underactive Thyroid

Helps with these Goals:

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

Helps with these DNA Risks:

Low Mood | Menopause Symptoms | Sexual Dysfunction

How it helps

Low Mood

IMPACT 1 / 5 | EVIDENCE 1 / 5

In a placebo-controlled trial of 66 patients with schizophrenia who also had depressive symptoms, supplementation with ashwagandha extract (1000 mg/day for 12 weeks) had medium-sized effects on depression [R].

Ashwagandha is known for its stress-reducing effects, which can in turn improve mood.

Menopause Symptoms

IMPACT 1 / 5 | EVIDENCE 1 / 5

In a placebo-controlled trial of 91 perimenopausal women with climacteric symptoms, supplementation with ashwagandha (300 mg, 2x/day) for 8 weeks reduced psychological, somato-vegetative, and urogenital symptoms, increased estradiol, and lowered FSH and LH [R].

Sexual Dysfunction

IMPACT 2 / 5 | EVIDENCE 1 / 5

In a study of 50 healthy women, taking ashwagandha (300 mg, 2x/day for 8 weeks) improved self-reported measures of sexual function such as arousal, lubrication, orgasm, and satisfaction [R].

38

Mindfulness-Based Cognitive Therapy (MBCT)

Participate in an 8-week course of Mindfulness-Based Cognitive Therapy (MBCT), which typically includes weekly group sessions (each lasting about 2 hours), daily homework practices (about 1 hour per day), and one all-day session after the fifth week. Sessions are led by trained instructors and focus on mindfulness meditation practices and cognitive behavioral exercises.

TYPICAL STARTING DOSE

2 hours

Helps with these Goals:

Focus

Mood

Helps with these DNA Risks:

Low Mood

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].

Two meta-analyses found mindfulness-based therapy effective at reducing depression and anxiety in cancer patients, although they warned about the high heterogeneity of the included studies [R, R].

People who practice mindfulness tend to have **lower levels of the stress hormone *cortisol*** [R, R].

39

Resistant Starch

Incorporate 40g of Jo's resistant starch into your daily diet. This can be done by adding it to smoothies, yogurt, or baked goods. Ensure to spread the intake throughout the day for better tolerance.

TYPICAL STARTING DOSE

40 g

Helps with these Symptoms & Conditions:

Food Allergies

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

In a placebo-controlled trial of 38 healthy volunteers, eating rye bread with resistant starch for 3 consecutive days improved mood [R].

40

Caffeine

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

TYPICAL STARTING DOSE

100 mg

Helps with these Goals:

Cognitive Function

Energy

Fat Loss

Focus

Memory

Mood

Short Term Memory

Strength

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 2 / 5

EVIDENCE 3 / 5

Caffeine acts as a stimulant by blocking the neurotransmitter adenosine, hence gives a mood lift by increasing dopamine activity. It can improve mood temporarily, reduce perception of effort, and boost cognition.

In a meta-analysis of 38,223 participants across eight studies, caffeine consumption was associated with a reduced risk of depression, with significance observed at 68-509 mg/day intake levels [R].

Please note: *Too much caffeine (over 400 mg per day) may lead to sleep problems, high blood pressure and cholesterol, fast heart rate, and dependence. If you're pregnant, try to avoid caffeine or limit it to 200 mg per day* [R, R].

41 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
- Heavy Sweating

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].

Heavy Sweating

IMPACT 0 / 5

EVIDENCE 0 / 5

Sugar can cause spikes in energy that increase metabolic heat and sweating, so limiting sugar intake may help reduce sweat production.

42 Selenium Supplements

Take 50 mcg of selenium supplements once daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

50 mcg

Helps with these Symptoms & Conditions:

Cognitive Decline | Food Allergies | Hashimoto's Disease | Underactive Thyroid

Helps with these Goals:

Longevity | Mood

Helps with these DNA Risks:

⚠ Low Mood

How it helps

⚠ Low Mood

IMPACT 1 / 5

EVIDENCE 1 / 5

Genetically higher selenium levels may be causally associated with a higher risk of low mood. However, a systematic review and meta-analysis of 20 studies found no significant differences in selenium levels between depressed and healthy people [R, R].

High selenium intake was associated with reduced postpartum depression risk and supplementation decreased depressive symptoms [R].

Selenium may help by modulating the activity of certain neurotransmitters.

43 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.

44 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 | Menopause Symptoms

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.

Menopause Symptoms

IMPACT 0 / 5

EVIDENCE 0 / 5

ACT can help cope with the psychological challenges of menopause by improving psychological flexibility and teaching techniques to deal with stress and negative thoughts.

45

Sunlight Exposure

Expose your skin to direct sunlight for about 10-30 minutes several times per week, preferably during midday when the sun is strongest. Adjust duration based on your skin sensitivity and local climate to avoid sunburn.

TYPICAL STARTING DOSE

20 minutes

Helps with these Symptoms & Conditions:

Food Allergies

Helps with these Goals:

Energy | Longevity | Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 5 / 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].

The sun's UV rays also help you produce vitamin D. People with mood problems tend to have low levels of this vitamin, which is crucial for mental health [R, R, R].

PERSONALIZED TO YOUR GENES

In people with your *DGKB* gene variant, the lack of light exposure may cause mood problems [R, R]. Make sure to get enough sunlight, or consider trying light therapy.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
DGKB	**rs190675597**	GA	

46

Laughter Yoga

Attend a laughter yoga session for at least 30 minutes, three times a week. These sessions can be found in local community centers or online classes tailored for various ages and physical abilities.

TYPICAL STARTING DOSE

30 minutes

Helps with these Goals:

Fat Loss

Mood

Helps with these DNA Risks:

Low Mood

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

In multiple non-placebo-controlled trials, laughter yoga consistently demonstrated positive effects on mood. In retired women, practicing laughter yoga twice a week for 8 weeks decreased anxiety and depression scores. Among older adults, laughter yoga practiced twice a week for 4 weeks improved loneliness, psychological resilience, and overall quality of life. In early depressed women, laughter yoga was found as effective as group exercise in improving depression and life satisfaction. Additionally, a laughter yoga intervention comprising 8 sessions over 4 weeks reduced depression scores and improved quality of life in patients with depression [R, R, R, R].

Laughter yoga can stimulate the production of endorphins, the body's natural mood lifters, helping to alleviate low mood. It also reduces stress hormones, promoting a sense of relaxation and positivity.

PERSONALIZED TO YOUR GENES

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
OXTR	**rs2254298**	GA	

47 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].

48 Progressive Muscle Relaxation

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

TYPICAL STARTING DOSE

10 minutes

Helps with these Goals:

Energy | Fat Loss | Focus | Mood

Helps with these DNA Risks:

Low Mood | Menopause Symptoms

How it helps

Low Mood

IMPACT 3 / 5

EVIDENCE 3 / 5

In a non-placebo-controlled trial of 60 patients with major depressive disorder, practicing 30 sessions of 30-45 min comprising movement therapy followed by 15-20 min of progressive muscle relaxation decreased depression scores. Both progressive muscle relaxation and auricular acupuncture were equally effective at improving tension, anxiety, and anger/aggression in a non-placebo-controlled trial of 162 patients with a primary diagnosis of anxiety disorder or major depressive disorder [R, R].

A meta-analysis of 12 trials and 1147 cancer patients found that progressive muscle relaxation improves depression and other health-related outcomes. Another meta-analysis (4 studies and 224 patients) found that progressive muscle relaxation improves depression in patients with COVID-19 [R, R].

Progressive muscle relaxation also reduced depressive symptoms in several non-placebo-controlled trials of 68 periodontal patients with anxiety, 141 women undergoing in vitro fertilization, 70 patients with epilepsy, 154 caregivers of stroke patients, 70 primiparous women, 42 patient with HIV, 83 patients with chronic breathing disorder, and 152 patients with obstructive sleep apnea [R, R, R, R, R, R, R, R, R].

Progressive muscle relaxation may help by inducing a state of deep relaxation, which can trigger the brain to release endorphins.

Menopause Symptoms

IMPACT 1 / 5

EVIDENCE 1 / 5

In a non-placebo-controlled trial of 108 perimenopausal women, progressive muscle relaxation improved hot flushes and night sweats. This technique was more effective in combination with health education [R].

49

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

50

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 | Menopause Symptoms

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	

GENE	SNP	GENOTYPE	EVIDENCE
CYP2C19	**rs4244285**	GG	

Menopause Symptoms

IMPACT 4 / 5

EVIDENCE 3 / 5

Hypericum perforatum L. extracts and herbal combinations were more effective than placebo in treating menopause (effect size -1.08). Side effects were slightly higher in the Hypericum group (17.4%) compared to placebo (15.4%) [R].

In a study with 80 women, H. perforatum (St. John's Wort) reduced hot flashes and depression significantly compared to a placebo over two months [R].

PERSONALIZED TO YOUR GENES

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
CYP2C19	**rs4244285**	GG	