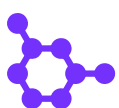


Maternal Genomics Institute

Summary Report



REPORT CATEGORIES —



SEX HORMONES



SEXUAL HEALTH



REPRODUCTIVE HEALTH

This report offers wellness-based genomic insights to help you understand how your unique biology may prefer to be supported during the maternal journey. These insights are not diagnostic.

C J Test

Report date: 23 January 2026

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Recommendations Details

Personal information

NAME

C J Test

SEX AT BIRTH

Female

HEIGHT

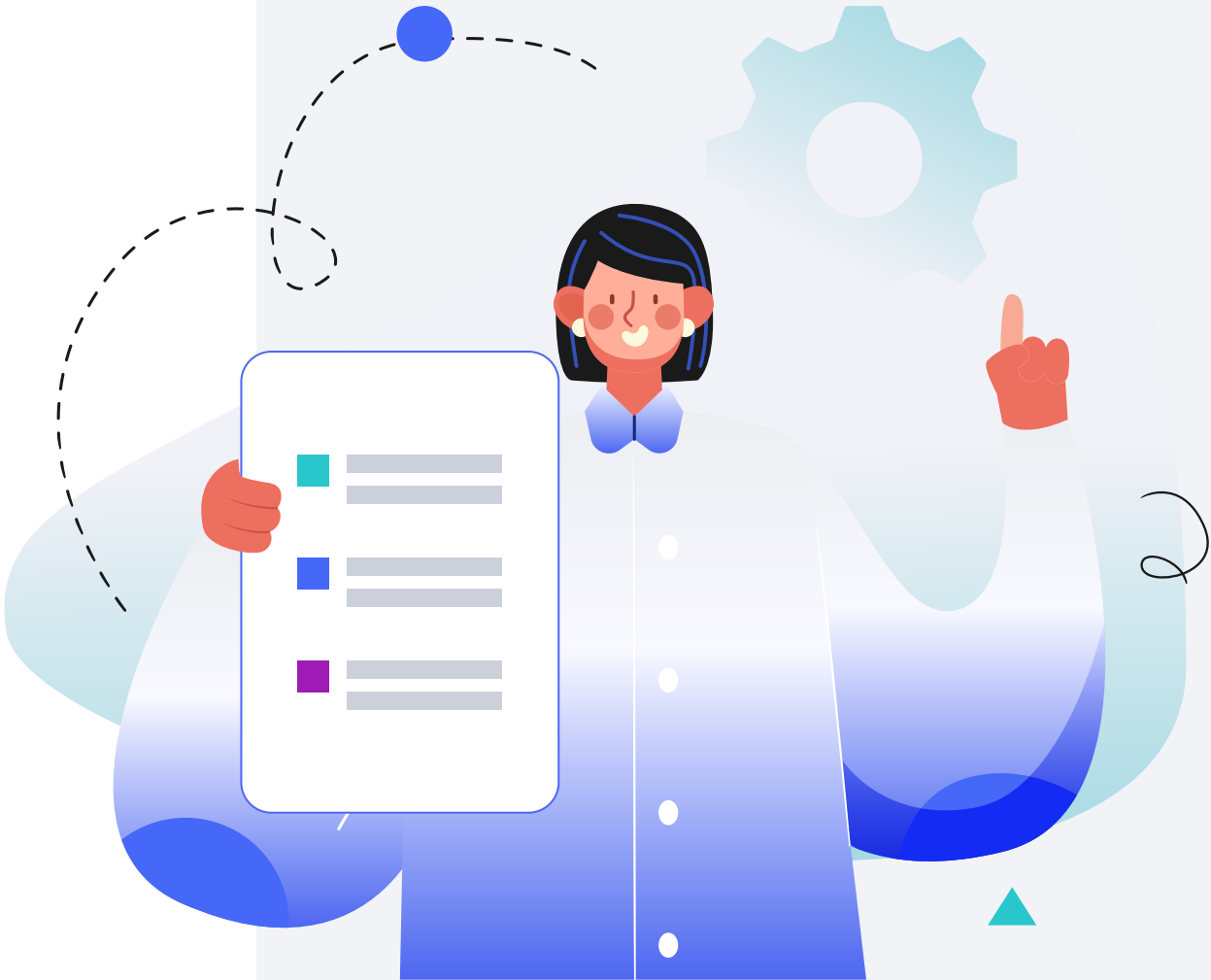
5ft 5"165cm

WEIGHT

132lb60kg

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

This report provides a maternal-centered interpretation of genetic data, offering insight into how inherited patterns may influence hormonal health, fertility, pregnancy, birth, and postpartum recovery across the reproductive lifespan.

This summary report contains:

188 Genetic Results

15 Recommendations

Overview of Your Results

Cycle Health And Fertility

 MORE LIKELY Irregular Periods More likely to have irregular periods	 MORE LIKELY Painful Periods More likely to have painful periods	 MORE LIKELY PCOS More likely to have PCOS
 MORE LIKELY Ovarian Cysts More likely to have ovarian cysts	 MORE LIKELY Miscarriage More likely to have a miscarriage	 MORE LIKELY Abnormal Vaginal Bleeding More likely to have abnormal vaginal bleeding
 MORE LIKELY Yeast Infection More likely to have yeast infections	 LOWER LEVELS Testosterone (F) Predisposed to lower testosterone levels	 MORE LIKELY Histamine Intolerance More likely to be histamine intolerant
 MORE LIKELY Low Energy (Chronic Fatigue) More likely to have fatigue	 MORE LIKELY Low Blood Sugar More likely to have low blood sugar	 LOWER ACTIVITY MTR (Methylation) Likely lower MTR activity
 WORSE BHMT (Methylation) Likely worse BHMT genetics	 WORSE GENETICS FOLH1 (Folate/ Methylation) Likely worse FOLH1 genetics	 LOWER ACTIVITY MAT1A (Methylation) Likely lower MAT1A activity



LOWER ACTIVITY

MTHFD1 (Folate/
Methylation)

Likely lower MTHFD1 activity



WORSE GENETICS

SLC19A1 (Methylation)

Likely worse SLC19A1 genetics



HIGHER ACTIVITY

FOXE1 (Thyroid)

Predisposed to a higher FOXE1 activity



LOWER ACTIVITY

DAO (Histamine)

Likely lower DAO activity



HIGHER ACTIVITY

HLA-DQ (Inflammation)

Likely higher HLA-DQ activity



TYPICAL LIKELIHOOD

Ovarian Insufficiency

Typical likelihood of ovarian insufficiency



TYPICAL LIKELIHOOD

Ectopic Pregnancy

Typical likelihood of ectopic pregnancy



TYPICAL LIKELIHOOD

Underactive Thyroid

Typical likelihood of hypothyroidism



TYPICAL LIKELIHOOD

Muscle Cramps

Typical likelihood of having muscle cramps



TYPICAL LIKELIHOOD

Painful Intercourse

Typical likelihood of painful intercourse



TYPICAL LIKELIHOOD

Headache

Typical likelihood of headaches



TYPICAL LIKELIHOOD

Uterine Fibroids

Typical likelihood of uterine fibroids



TYPICAL ACTIVITY

MTHFR

Likely typical MTHFR activity



TYPICAL ACTIVITY

MTRR (Methylation)

Likely typical MTRR activity



LOWER ACTIVITY

DHFR (Folate/
Methylation)

Likely lower DHFR activity



TYPICAL ACTIVITY

MTHFD1L (Folate/
Methylation)

Likely typical MTHFD1L activity



TYPICAL GENETICS

TYMS (Methylation)

Likely typical TYMS genetics



TYPICAL ACTIVITY

CYP11A1 (Sex
Hormones)

Predisposed to typical CYP11A1 genetics

 TYPICAL ACTIVITY CYP17A1 (Sex Hormones) Predisposed to a typical CYP17A1 activity	 LOWER ACTIVITY ESR1 (Estrogen) Likely lower ESR1 activity	 TYPICAL ACTIVITY PGR (Sex Hormones) Predisposed to a typical PGR activity
 TYPICAL GENETICS LHCGR (Sex Hormones) Predisposed to typical LHCGR genetics	 SLIGHTLY LOWER ACTIVITY DIO2 (Thyroid) Slightly lower DIO2 activity	 TYPICAL ACTIVITY IL6 Gene (Inflammation) Likely typical IL6 activity
 TYPICAL ACTIVITY IL10 Gene (Autoimmunity) Predisposed to typical IL10 activity	 TYPICAL ACTIVITY CRP Gene Predisposed to typical CRP gene activity	 TYPICAL ACTIVITY TNF Gene (Inflammation) Likely typical TNF activity
 TYPICAL ACTIVITY CTLA4 (Autoimmunity) Likely typical CTLA4 activity	 LESS LIKELY Heavy Periods Less likely to have heavy periods	 LESS LIKELY PMS Less likely to have PMS
 LESS LIKELY Endometriosis Less likely to have endometriosis	 LESS LIKELY Female Infertility Less likely to have fertility problems	 LESS LIKELY Thyroid Inflammation Less likely to have thyroid inflammation
 LESS LIKELY Acne Less likely to have acne	 BETTER GENETICS DNMT3B (Methylation) Likely better DNMT3B genetics	 LOWER ACTIVITY GNMT (Methylation) Likely lower GNMT activity

 BETTER GENETICS MTHFS (Folate/ Methylation) Likely better MTHFS genetics	 BETTER GENETICS SHMT1 (Folate/ Methylation) Likely better SHMT1 genetics	 HIGHER ACTIVITY DIO1 (Thyroid) Likely higher DIO1 activity



Pregnancy Optimization And Birth Preparation

 HIGHER Gestational Weight Gain Predisposed to higher gestational weight gain	 HIGHER LEVELS Total Cholesterol in Pregnancy Predisposed to higher cholesterol levels in pregnancy	 HIGHER LEVELS LDL Cholesterol in Pregnancy Predisposed to higher LDL cholesterol levels in pregnancy
 MORE LIKELY Stillbirth More likely to suffer a stillbirth	 MORE LIKELY Abnormal Vaginal Bleeding More likely to have abnormal vaginal bleeding	 MORE LIKELY Acid Reflux More likely to have GERD
 HIGHER ACTIVITY AGTR1 (Blood Pressure) Predisposed to higher AGTR1 activity	 HIGHER ACTIVITY ITGB3 (Cardiovascular) Predisposed to higher ITGB3 activity	 LOWER ACTIVITY KDR (Heart Disease, Drug Response) Predisposed to a lower KDR activity
 LOWER ACTIVITY OXTR (Oxytocin) Likely lower OXTR activity	 TYPICAL LEVELS HDL Cholesterol in Pregnancy Predisposed to typical HDL cholesterol levels in pregnancy	 TYPICAL LEVELS Triglycerides in Pregnancy Predisposed to typical triglyceride levels in pregnancy



TYPICAL LIKELIHOOD

Hypertensive Disorders of Pregnancy

Typical likelihood of hypertensive disorders of pregnancy



TYPICAL LIKELIHOOD

Preterm Labor

Typical likelihood of preterm labor



TYPICAL LIKELIHOOD

Swelling

Typical likelihood of having edema



TYPICAL LIKELIHOOD

Vomiting

Typical likelihood of vomiting



TYPICAL LIKELIHOOD

Stretch Marks

Typical likelihood of stretch marks



TYPICAL LIKELIHOOD

Hemorrhoids

Typical likelihood of hemorrhoids



TYPICAL LIKELIHOOD

Constipation

Typical likelihood of constipation



TYPICAL

Gut Microbiome Diversity

Predisposed to typical gut microbiome diversity



TYPICAL LEVELS

VEGFA

Predisposed to typical VEGFA levels



TYPICAL ACTIVITY

VWF (Bleeding Disorders)

Predisposed to typical VWF activity



TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity



TYPICAL ACTIVITY

IL10 Gene (Autoimmunity)

Predisposed to typical IL10 activity



TYPICAL ACTIVITY

IL8 (Inflammation)

Likely typical IL8 activity



TYPICAL ACTIVITY

CRP Gene

Predisposed to typical CRP gene activity



TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity



TYPICAL ACTIVITY

NLRP3 (Gut Inflammation)

Likely typical NLRP3 activity



LOWER ACTIVITY

STAT3 (Th1/Th17)

Likely lower STAT3 activity



LESS LIKELY

Preterm Birth

Less likely to give preterm birth

 LESS LIKELY Nausea Less likely to have nausea	 LESS LIKELY Blood Clotting Less likely to have thrombosis	 LESS LIKELY Cavities Less likely to have cavities
 BETTER Overactive Bladder Less likely to have urinary incontinence	 LOWER ACTIVITY EDN1 (Blood Pressure) Predisposed to a lower EDN1 activity	 HIGHER ACTIVITY NOS3 (Cardiovascular) Likely higher NOS3 activity
 LOWER ACTIVITY SERPINE1/PAI-1 (Blood Clots) Predisposed to lower SERPINE1 activity		

Postpartum Recovery And Breastfeeding Support

 INCREASED NEED Iron Likely increased need for iron	 MORE LIKELY Anemia More likely to have anemia	 MORE LIKELY Low Energy (Chronic Fatigue) More likely to have fatigue
 MORE LIKELY Back Pain More likely to have back pain	 MORE LIKELY Anger More likely to feel angry	 MORE LIKELY Pelvic Organ Prolapse More likely to have pelvic organ prolapse
 TYPICAL LIKELIHOOD Postpartum Hemorrhage Typical likelihood of postpartum hemorrhage	 TYPICAL LIKELIHOOD Hair Loss Typical	 TYPICAL Muscle Recovery Predisposed to typical muscle recovery



TYPICAL LIKELIHOOD

Muscle Cramps

Typical likelihood of having muscle cramps



TYPICAL LIKELIHOOD

Breast Pain

Typical likelihood of breast pain



TYPICAL LIKELIHOOD

Breast Infection

Typical likelihood of mastitis



TYPICAL

Sleep Quality

Predisposed to typical sleep quality



TYPICAL

Insulin Resistance

Predisposed to typical insulin resistance



TYPICAL LIKELIHOOD

Psychological Trauma

Typical likelihood of PTSD



TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity



TYPICAL ACTIVITY

IL10 Gene (Autoimmunity)

Predisposed to typical IL10 activity



TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity



TYPICAL ACTIVITY

CRP Gene

Predisposed to typical CRP gene activity



TYPICAL GENETICS

ARNTL (Circadian Rhythm)

Predisposed to typical ARNTL genetics



TYPICAL ACTIVITY

BHLHE41 (Sleep)

Predisposed to typical BHLHE41 activity



TYPICAL GENETICS

AANAT (Circadian Rhythm)

Predisposed to typical AANAT genetics



TYPICAL ACTIVITY

MTNR1A (Melatonin)

Likely typical MTNR1A activity



HIGHER

Skin Elasticity

Predisposed to higher skin elasticity



LESS LIKELY

Joint Pain

Less likely to have osteoarthritis



LOWER ACTIVITY

CLOCK (Sleep & Weight)

Likely lower CLOCK activity



LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity

Hormones And Maternal Mental Health

 MORE LIKELY Insomnia More likely to have insomnia	 MORE LIKELY Stress More likely to feel stressed	 MORE LIKELY Anxiety More likely to have anxiety
 MORE LIKELY Anger More likely to feel angry	 MORE LIKELY Brain Fog More likely to have brain fog	 MORE LIKELY Suicidal Ideation More likely to have suicidal thoughts
 MORE LIKELY Agoraphobia More likely to have agoraphobia	 MORE LIKELY Caffeine-Related Anxiety More likely to experience caffeine-related anxiety	 HIGHER Caffeine Sensitivity Predisposed to higher caffeine sensitivity
 MORE LIKELY Sleep Apnea More likely to have sleep apnea	 HIGHER RISK Attention More likely to have ADHD	 LOWER ACTIVITY CRHR2 (Stress/HPA Axis) Likely lower CRHR2 activity
 HIGHER ACTIVITY FOXE1 (Thyroid) Predisposed to a higher FOXE1 activity	 LOWER ACTIVITY GC (Vitamin D) Likely lower GC activity	 HIGHER ACTIVITY TMPRSS6 (Iron) Predisposed to higher TMPRSS6 activity
 HIGHER ACTIVITY TFR2 (Iron) Predisposed to a higher TFR2 activity	 LOWER ACTIVITY AHR (Detox) Likely lower AHR activity	 LOWER ACTIVITY CYP2D6 (Mental Health, Detox) Predisposed to a lower CYP2D6 activity

LOWER ACTIVITY

CYP3A4 (Detox)

Likely lower CYP3A4 activity

LOWER ACTIVITY

SOD1 (Oxidative Stress)

Predisposed to lower SOD1 activity

TYPICAL LIKELIHOOD

Panic Attacks

Typical likelihood of having panic attacks

TYPICAL LIKELIHOOD

Burnout

Typical likelihood of burnout

TYPICAL LIKELIHOOD

Worrying

Typical likelihood of worrying

TYPICAL

Aggression

Predisposed to typical aggression

TYPICAL LIKELIHOOD

Cognitive Decline

Typical likelihood of cognitive decline

TYPICAL

Memory Performance

Predisposed to typical memory performance

TYPICAL LIKELIHOOD

Short-Term Memory Impairment

Typical likelihood of short-term memory impairment

TYPICAL

Episodic Memory

Predisposed to typical episodic memory

TYPICAL LIKELIHOOD

Emotional Blindness

Typical likelihood of alexithymia

TYPICAL LIKELIHOOD

Phobias

Typical likelihood of having a phobia

TYPICAL

Sleep Quality

Predisposed to typical sleep quality

TYPICAL

Deep Sleep (ADA)

Likely a typical sleeper

TYPICAL LIKELIHOOD

Daytime Sleepiness

Typical likelihood of daytime sleepiness

TYPICAL

Sleep Duration

Predisposed to typical sleep duration

INTERMEDIATE ACTIVITY

NR3C1 (Fatigue)

Likely intermediate NR3C1 activity

LOWER ACTIVITY

FKBP5 (Stress/ HPA Axis)

Likely lower FKBP5 activity



TYPICAL ACTIVITY

CRHR1 (Stress/HPA Axis)

Likely typical CRHR1 activity



TYPICAL GENETICS

ARNTL (Circadian Rhythm)

Predisposed to typical ARNTL genetics



TYPICAL GENETICS

AANAT (Circadian Rhythm)

Predisposed to typical AANAT genetics



TYPICAL ACTIVITY

MTNR1A (Melatonin)

Likely typical MTNR1A activity



SLIGHTLY LOWER ACTIVITY

DIO2 (Thyroid)

Slightly lower DIO2 activity



TYPICAL ACTIVITY

VDR (Vitamin D)

Likely typical VDR activity



TYPICAL ACTIVITY

TRPM6 (Magnesium & Calcium)

Predisposed to typical TRPM6 activity



TYPICAL ACTIVITY

CYP1A1 (Detox)

Likely typical CYP1A1 activity



TYPICAL ACTIVITY

CYP1B1 (Detox/ Skin Health)

Predisposed to typical CYP1B1 activity



TYPICAL ACTIVITY

GCLC (Glutathione & Detox)

Predisposed to typical GCLC activity



TYPICAL ACTIVITY

GCLM (Glutathione & Detox)

Predisposed to a typical GCLM activity



TYPICAL ACTIVITY

GSTP1 (Detox)

Likely typical GSTP1 activity



TYPICAL ACTIVITY

SOD2 (Oxidative Stress)

Likely typical SOD2 activity



HIGHER ACTIVITY

PON1 (Detox)

Likely higher PON1 activity



TYPICAL ACTIVITY

UGT1A1 (Detox)

Likely typical UGT1A1 activity



TYPICAL GENETICS

UGT2B15 (Sex Hormones)

Likely typical UGT2B15 genetics



LESS LIKELY

Borderline Personality

Less likely to have BPD



LESS LIKELY

Obsessive-Compulsive Tendencies

Less likely to have OCD



LOWER

Irritability

Predisposed to lower irritability



LESS LIKELY

Hallucinations

Less likely to have hallucinations



LESS LIKELY

Psychosis

Less likely to have psychosis



LESS LIKELY

Mania

Less likely to experience mania



LESS LIKELY

Social Anxiety

Less likely to have social anxiety



LESS LIKELY

Caffeine-Related Sleep Problems

Less likely to have caffeine-related sleep problems



LESS LIKELY

Sleep Movement

Less likely to move during sleep



LOWER ACTIVITY

CLOCK (Sleep & Weight)

Likely lower CLOCK activity



HIGHER ACTIVITY

PER2 (Dieting)

Likely higher PER2 activity



HIGHER ACTIVITY

ASMT (Mood, Neurodivergence)

Predisposed to a higher ASMT activity



LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity



BETTER

TPO (Thyroid)

Likely better TPO genetics



HIGHER ACTIVITY

DIO1 (Thyroid)

Likely higher DIO1 activity



EXTENSIVE METABOLIZER

CYP2C19 (Detox)

Likely an extensive metabolizer



HIGHER ACTIVITY

GSTA1 (Detox/ Glutathione)

Predisposed to higher GSTA1 activity



HIGHER ACTIVITY

UGT (Detox)

Likely higher UGT activity

Recommendations Overview

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE			
1	Aerobic Exercise (Cardio)	1 hour	2	Exercise At Least One Hour a Day	1 hour
3	Yoga	30 minutes	4	Cognitive-Behavioral Therapy (CBT)	
5	Meditation	30 minutes	6	Mindfulness Meditation	30 minutes
7	Progressive Muscle Relaxation	10 minutes	8	Magnesium	250 mg
9	Mindfulness	30 minutes	10	Melatonin	500 mcg
11	Mindfulness-Based Stress Reduction (MBSR)	2 hours	12	Massage	30 minutes
13	Maintain Optimal Vitamin D Levels	1000 iu	14	Omega-3 (Fish Oil)	500 mg
15	Tai Chi	1 hour			

Your Results in Details



Cycle Health and Fertility

This section explores genetic patterns that influence ovulation, hormone signaling, cycle regularity, and reproductive readiness, offering insight into how the body prepares for conception over time.

 MORE LIKELY Irregular Periods More likely to have irregular periods	 MORE LIKELY Painful Periods More likely to have painful periods	 MORE LIKELY PCOS More likely to have PCOS
 MORE LIKELY Ovarian Cysts More likely to have ovarian cysts	 MORE LIKELY Miscarriage More likely to have a miscarriage	 MORE LIKELY Abnormal Vaginal Bleeding More likely to have abnormal vaginal bleeding
 MORE LIKELY Yeast Infection More likely to have yeast infections	 LOWER LEVELS Testosterone (F) Predisposed to lower testosterone levels	 MORE LIKELY Histamine Intolerance More likely to be histamine intolerant
 MORE LIKELY Low Energy (Chronic Fatigue) More likely to have fatigue	 MORE LIKELY Low Blood Sugar More likely to have low blood sugar	 LOWER ACTIVITY MTR (Methylation) Likely lower MTR activity



WORSE

BHMT (Methylation)

Likely worse BHMT genetics



WORSE GENETICS

FOLH1 (Folate/
Methylation)

Likely worse FOLH1 genetics



LOWER ACTIVITY

MAT1A (Methylation)

Likely lower MAT1A activity



LOWER ACTIVITY

MTHFD1 (Folate/
Methylation)

Likely lower MTHFD1 activity



WORSE GENETICS

SLC19A1 (Methylation)

Likely worse SLC19A1 genetics



HIGHER ACTIVITY

FOXE1 (Thyroid)

Predisposed to a higher FOXE1 activity



LOWER ACTIVITY

DAO (Histamine)

Likely lower DAO activity



HIGHER ACTIVITY

HLA-DQ (Inflammation)

Likely higher HLA-DQ activity



TYPICAL LIKELIHOOD

Ovarian Insufficiency

Typical likelihood of ovarian insufficiency



TYPICAL LIKELIHOOD

Ectopic Pregnancy

Typical likelihood of ectopic pregnancy



TYPICAL LIKELIHOOD

Underactive Thyroid

Typical likelihood of hypothyroidism



TYPICAL LIKELIHOOD

Muscle Cramps

Typical likelihood of having muscle cramps



TYPICAL LIKELIHOOD

Painful Intercourse

Typical likelihood of painful intercourse



TYPICAL LIKELIHOOD

Headache

Typical likelihood of headaches



TYPICAL LIKELIHOOD

Uterine Fibroids

Typical likelihood of uterine fibroids



TYPICAL ACTIVITY

MTHFR

Likely typical MTHFR activity



TYPICAL ACTIVITY

MTRR (Methylation)

Likely typical MTRR activity



LOWER ACTIVITY

DHFR (Folate/
Methylation)

Likely lower DHFR activity

 TYPICAL ACTIVITY MTHFD1L (Folate/ Methylation) Likely typical MTHFD1L activity	 TYPICAL GENETICS TYMS (Methylation) Likely typical TYMS genetics	 TYPICAL ACTIVITY CYP11A1 (Sex Hormones) Predisposed to typical CYP11A1 genetics
 TYPICAL ACTIVITY CYP17A1 (Sex Hormones) Predisposed to a typical CYP17A1 activity	 LOWER ACTIVITY ESR1 (Estrogen) Likely lower ESR1 activity	 TYPICAL ACTIVITY PGR (Sex Hormones) Predisposed to a typical PGR activity
 TYPICAL GENETICS LHCGR (Sex Hormones) Predisposed to typical LHCGR genetics	 SLIGHTLY LOWER ACTIVITY DIO2 (Thyroid) Slightly lower DIO2 activity	 TYPICAL ACTIVITY IL6 Gene (Inflammation) Likely typical IL6 activity
 TYPICAL ACTIVITY IL10 Gene (Autoimmunity) Predisposed to typical IL10 activity	 TYPICAL ACTIVITY CRP Gene Predisposed to typical CRP gene activity	 TYPICAL ACTIVITY TNF Gene (Inflammation) Likely typical TNF activity
 TYPICAL ACTIVITY CTLA4 (Autoimmunity) Likely typical CTLA4 activity	 LESS LIKELY Heavy Periods Less likely to have heavy periods	 LESS LIKELY PMS Less likely to have PMS
 LESS LIKELY Endometriosis Less likely to have endometriosis	 LESS LIKELY Female Infertility Less likely to have fertility problems	 LESS LIKELY Thyroid Inflammation Less likely to have thyroid inflammation



LESS LIKELY

Acne

Less likely to have acne



BETTER GENETICS

DNMT3B (Methylation)

Likely better DNMT3B genetics



LOWER ACTIVITY

GNMT (Methylation)

Likely lower GNMT activity



BETTER GENETICS

MTHFS (Folate/
Methylation)

Likely better MTHFS genetics



BETTER GENETICS

SHMT1 (Folate/
Methylation)

Likely better SHMT1 genetics



HIGHER ACTIVITY

DIO1 (Thyroid)

Likely higher DIO1 activity

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
- 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



MORE LIKELY

More likely to have irregular periods based on 20,241 genetic variants we looked at

98th

PERCENTILE



Your risk is greater than 98% of the population and lower than 2% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SALL3	rs149383320	AA
ARL14EP	rs11031005	TT
ARL14EP	rs74485684	TT
BHLHE41	rs10842700	CC
BORCS7	rs78602818	GG
CCDC170	rs12173791	GG
BMPR1B	rs1544387	TT
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
UGT3A1	rs182422598	GG

influence [\[R\]](#), [\[R\]](#):

- Reproductive organ growth and development
- Hormones

GENE	SNP	GENOTYPE
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.

Painful Periods

Key Takeaways:

- Genetics involved in painful periods influence pain, inflammation, and hormones.
- Other risk factors include age, starting puberty young, periods with heavy bleeding, irregular periods, and stress.
- If you are at high genetic risk, taking action on factors you can change may lower your overall risk.
- If you experience symptoms, talk to a healthcare professional to rule out other health conditions and/or to manage pain.
- About **8 in 10** women experience cramping during their periods, with half of those experiencing pain.

During menstruation, the uterus contracts strongly in order to shed its lining. Very strong contractions can block blood flow to the uterus and cause painful cramps [R, R].

Period cramps usually present as pain in the lower abdomen. Some people also have pain in their back and legs. The pain can start a few days before a period begins and usually tapers off in 2-3 days [R].

Additional symptoms can include [R]:

- Dizziness or headache
- Nausea
- Diarrhea

Over 8 out of 10 women have had period cramps at some point. About half of these have pain during every period [R].

However, some people's cramps go beyond discomfort. Painful periods can disrupt daily life and may indicate a serious underlying health problem [R].

Risk factors for painful periods include [R, R]:

- Being under 30
- Starting puberty at 11 or younger
- Heavy bleeding during periods
- Irregular periods
- High stress
- Genetics**

If you often have very painful periods, talk to your doctor to check for potential underlying causes [R].

Some ways to help manage painful periods include [R, R]:

- A diet rich in vitamins and minerals
- Exercise
- Applying heat to the lower abdomen
- Painkillers
- Hormone-based therapies (e.g., birth control pills)
- Surgery (if cramps are caused by certain underlying conditions)

Genetics may play a role in painful periods. Involved genes may influence [R, R, R, R]:

- Pain sensitivity
- Breakdown of hormones and other chemicals
- Inflammation



MORE LIKELY

More likely to have painful periods based on 72,683 genetic variants we looked at

99th

PERCENTILE



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NGF	rs12030576	GT
IL36B	rs11123155	TT
NGF	rs6657049	GA
NGF	rs7523086	GA
NGF	rs2982742	GG
IL1A	rs11676014	AA
IL1B	rs13382217	GG
IL1A	rs80111889	GG
IL1A	rs10167914	GG
ADGRL4	rs116496586	CC
ADGRL4	rs115793949	CC
ADGRL4	rs115154104	TT
LHPP	rs184824667	GG
PLA2G4A	rs114519942	TT
ADGRL4	rs114808492	CC
MTOR	rs143962722	GG
CAPZB	rs147828806	GG
/	rs148299740	CC
NGF	rs143507891	TT
MGMT	rs141275838	AA
/	rs114962213	TT

GENE	SNP	GENOTYPE
PDGFD	rs140927358	CC
UBIAD1	rs115436094	CC
DISP3	rs567394569	TT
TTC39A	rs189849222	AA
ST6GALNA C3	rs115096197	CC
ADGRL4	rs143086661	GG
GRHL3	rs145084321	GG
MGMT	rs139388619	GG
MGMT	rs140986287	TT
C1ORF185	rs141334516	CC
PDGFD	rs141061439	CC
MGMT	rs150920712	CC
MGMT	rs148855642	GG
LGR6	rs16849842	GG
FAF1	rs557716233	CC
C1ORF100	rs185975740	TT
NTM	rs141205464	CC
USP54	rs181841393	CC
LCE3D	rs142817119	CC

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

PCOS

Risk factors for PCOS include [\[R\]](#), [\[R\]](#):

- [Insulin resistance](#) and diabetes
- Early puberty
- Obesity
- Genetics

As many as 70% of women with PCOS may also have insulin resistance. More than half of them develop type 2 diabetes before they turn 40. In turn, high levels of insulin may increase male sex hormones and contribute to PCOS symptoms [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In addition, fat tissue releases insulin. This may help explain how obesity can worsen the signs and symptoms of PCOS [\[R\]](#).

There is currently no cure for PCOS. However, its symptoms can be managed with oral contraceptives. Lifestyle changes, such as regular exercise, may also help. Women who want to have children may need fertility treatments [\[R\]](#), [\[R\]](#).

Up to **70%** of differences in people's chances of developing PCOS may be attributed to genetics. Genes involved in PCOS may influence [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Ovary function
- Sex hormones
- Metabolism

Genetically predicted high fasting insulin and testosterone may be associated with a higher risk of PCOS [\[R\]](#), [\[R\]](#), [\[R\]](#).

Consumer Summary

- PCOS is a common condition that affects 6-9% of women of childbearing age. It's caused by hormonal imbalances that can lead to symptoms like irregular periods, acne, weight gain, excess facial or body hair, and hair loss on the scalp.
- PCOS can make it harder to get pregnant and may lead to long-term health issues like type 2 diabetes and insulin resistance.
- You're more likely to develop PCOS if you have insulin resistance, obesity, early puberty, or a family history of the condition. Genetics plays a big role, influencing your ovaries, hormones, and metabolism.
- While there's no cure for PCOS, symptoms can often be managed with treatments like birth control pills, regular exercise, and a healthy diet. If you're trying to conceive, you may need fertility treatments.
- It's important to work with your healthcare provider to create a plan that helps you manage your symptoms and lower your risk of future health problems.



MORE LIKELY

More likely to have PCOS based on 1,124 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NNMT	rs1784692	TT
DENND1A	rs10986105	TT
PLEKHH2	rs13429458	AA
HMGA2	rs2272046	AA
DENND1A	rs2479106	GG
LHCGR	rs13405728	AA
CTSB	rs804279	AT
AOPEP	rs3802457	GG
DENND1A	rs9696009	GA
SLC22A5	rs13164856	TC
AOPEP	rs10993397	CT
INSR	rs2059807	GG
PLGRKT	rs10739076	AC
GLIPR1L2	rs1275468	CC
ERBB3	rs2271194	TA
AOPEP	rs7864171	GA
LHX2	rs10760321	AA
ERBB3	rs7312770	TC
WWTR1	rs144248326	TT
YAP1	rs11225154	GG
ERBB4	rs113168128	GG

GENE	SNP	GENOTYPE
ARL14EP	rs11031006	GG
ERBB4	rs2178575	GG
ARL14EP	rs11031005	TT
WTAP	rs17186366	TT
TOX3	rs8043701	AA
RPS26	rs705702	AA
YAP1	rs1894116	AA
PPP1R1B	rs7218361	GG
CNTNAP5	rs7574059	GG
ERBB4	rs1351592	CC
TOX3	rs4784165	TT
FSHR	rs2268361	TT
CCDC91	rs1355471	GG
ZNF217	rs6022786	GG

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

Ovarian Cysts

Factors that might increase the risk of developing ovarian cysts include:

- Hormonal imbalances, like those caused by polycystic ovary syndrome (PCOS).
- Endometriosis.
- Previous ovarian cysts.
- Early menstruation onset, typically before age 11.
- Infertility treatments.
- Pregnancy.
- Pelvic infections that spread to the ovaries.
- Genetics

Genetics can play a role in an individual's susceptibility to certain conditions associated with ovarian cysts. For example, polycystic ovary syndrome (PCOS), which increases the risk of developing cysts, has a genetic component. A family history of certain conditions, like endometriosis or PCOS, can increase an individual's risk of developing cysts.



MORE LIKELY

More likely to have ovarian cysts based on 1,670 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PAK4	rs12979860	CC
TERT	rs6897196	AG
TTC28	rs62237617	CC
ARL14EP	rs11031005	TT
GREB1	rs10200851	TT

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

Miscarriage

The causes of miscarriage can vary, but the most common one is chromosomal abnormalities in the fetus that make the pregnancy nonviable. Other potential causes include:

- Hormonal problems: Insufficiencies in hormones necessary to sustain the pregnancy.
- Immune system responses: Some miscarriages occur because the body mistakenly treats the pregnancy as an unwanted foreign presence.
- Uterine abnormalities and incompetent cervix: Physical problems with the uterus or cervix can prevent a pregnancy from developing normally.
- Infections: Certain infections can increase the risk of miscarriage.
- Lifestyle factors: Smoking, excessive alcohol use, drug use, and extreme levels of caffeine consumption can contribute to the risk.
- Age: Women over the age of 35 have a higher risk of miscarriage.
- Underlying health conditions: Conditions like uncontrolled diabetes, thyroid disease, and high blood pressure can increase the risk.

Diagnosing a miscarriage usually involves a physical exam, an ultrasound, and sometimes blood tests to measure hormone levels. Treatment depends on the stage of the pregnancy and the severity of the symptoms. Options may include:

- Expectant management: Waiting for the body to expel pregnancy tissue naturally.
- Medical management: Using medication to trigger the expulsion of pregnancy tissue.
- Surgical management: Procedures like dilation and curettage (D&C) to remove the pregnancy tissue from the uterus.

The emotional impact of a miscarriage can be profound and can include feelings of loss, grief, guilt, and depression. It's important for those affected to seek support from friends, family, or professional counselors. Physically recovery from a miscarriage can vary, but most women feel better within a few weeks. However, hormonal adjustments and bleeding may last several weeks.

For couples looking to conceive again, doctors generally recommend waiting until it's emotionally and physically safe. It's often advised to have at least one normal menstrual cycle before trying to become pregnant again, but guidance can vary based on individual circumstances.



MORE LIKELY

More likely to have a miscarriage based on 109,574 genetic variants we looked at



Abnormal Vaginal Bleeding

The assessment of abnormal vaginal bleeding typically involves a detailed personal medical history and a physical examination, including pelvic examination. Further diagnostic procedures might include ultrasounds, blood tests to check hormone levels, and sometimes a biopsy to rule out endometrial pathology.

Treatment options vary based on the cause and may include hormonal therapies, such as birth control pills or intrauterine devices (IUDs), medications to control bleeding, or surgical treatments. Addressing the symptom promptly is crucial as it can impact the individual's quality of life and, in some cases, may signal serious health concerns.



MORE LIKELY

More likely to have abnormal vaginal bleeding based on 66,937 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WNT16	rs73717494	GA
ZFP69	rs4660438	AG

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

Yeast Infection

Candida albicans is a fungus that normally lives in and on the body. If its environment changes and promotes its growth, *Candida* can multiply and lead to an infection. This is called a **yeast infection** or **candidiasis** [R].

A yeast infection usually happens in the [R, R, R]:

- Mouth (oral thrush)
- Vagina (vaginal yeast infection)

Vaginal yeast infections are a common problem. They affect up to **3 out of 4 women** at some point in their lives. Many women have more than one in their lifetime [R].

Risk factors for yeast infections include [R, R, R]:

- Untreated or uncontrolled diabetes
- Weakened immune system (e.g., from HIV or certain cancer treatments)
- Antibiotics

Classic symptoms of a vaginal yeast infection include [R]:

- Vaginal itching, irritation, and pain
- Burning feelings while urinating or during sex
- Vaginal redness and swelling
- Thick and white or watery vaginal discharge

Symptoms of oral thrush include [R]:

- White lesions in the mouth that may bleed
- Redness, burning, or soreness in the mouth
- Loss of taste
- Cracking and redness at the corners of the mouth
- A cottony feeling in the mouth

Yeast infections can become more complicated in those who [R, R, R]:

- Are pregnant
- Have diabetes
- Have weakened immune systems (e.g., people with HIV)

Thankfully, most yeast infections are easy to treat with medication [R, R].

Additional strategies to help manage yeast infections include [R, R, R, R]:

- Saltwater rinses
- Changes to oral or vaginal hygiene
- Wearing clothing (such as underwear and pantyhose) that is breathable and not too tight

People’s chances of getting yeast infections may be affected by genetics. Genes involved in yeast infections may influence the immune response [R, R].



MORE LIKELY

More likely to have yeast infections based on 104,352 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRAF5	rs569660383	AA
FGFR2	rs139149394	CC
KIF17	rs150119925	GG
EIF4G3	rs142368506	GG
HP1BP3	rs114327939	CC
CNR2	rs184601170	CC
FMN2	rs549043672	CC
EIF4G3	rs563320351	CC
NAV1	rs146733481	CC
TCERG1L	rs78303108	CC
ADGRL4	rs78913903	GG
MGMT	rs78280217	CC
TXLNA	rs575793596	GG
HP1BP3	rs149468462	CC
OR2M3	rs144885655	CC
LCK	rs184521150	GG
DCDC2B	rs142941874	AA
SH3PXD2A	rs532548209	GG
LRRN2	rs574609503	GG
EIF4G3	rs146278869	GG
OR2M3	rs189270715	CC

GENE	SNP	GENOTYPE
EIF4G3	rs138788956	GG
SORCS1	rs79325704	CC
IVNS1ABP	rs181512063	GG
RPE65	rs145772585	CC
SLC41A1	rs78016499	GG
HP1BP3	rs150174738	CC
TXLNA	rs111527763	TT
CHRM3	rs112646057	GG
GPAM	rs115759809	CC
HP1BP3	rs150268294	AA
/	rs138982938	GG
PTPRE	rs376735609	CC
CYP2J2	rs147807489	AA
GDAP2	rs78159682	AA
MTRNR2L11	rs147719295	CC
ECE1	rs193297355	CC
FAM71A	rs115476707	AA
CHRM3	rs111411999	TT
GDAP2	rs74735009	GG

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



LOWER LEVELS

Predisposed to lower 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
AKR1C3	rs36032941	CC
TYK2	rs8111359	CC
ABCA8	rs34931250	CC
SRP14	rs11638521	TT
MCM9	rs1032388	CT
S1PR1	rs6684361	TC
REEP3	rs10740131	TA
SDC1	rs3771243	AG
CNDP2	rs117327231	CC
C4A	rs184265581	GG
CMIP	rs58072681	TT
SLC22A10	rs1939769	GG
LRP12	rs11774829	TT
SLC51A	rs5855544	INS(G)INS(G)
ZNF799	rs4804181	AA
NUDT2	rs61237993	GG
MLXIPL	rs13229619	GG
/	rs2824138	TT
TNFSF12	rs62059839	CC
/	rs12436785	TT

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

Histamine Intolerance

Histamine is broken down by two enzymes called **DAO** and **HNMT**. DAO is the main enzyme that breaks down histamine in the gut. HNMT deactivates histamine within cells [R, R].

Scientists currently think that DAO deficiency likely plays a more significant role in histamine intolerance related to dietary histamine. The gene that helps make DAO is called [AOC1](#) [R, R].

On the other hand, HNMT is more responsible for breaking down the histamine created by our body. Different [HNMT](#) gene variants have been linked to histamine-related conditions, such as [R, R, R, R, R]:

- Allergies
- Asthma
- Eczema
- Migraines
- ADHD

While genetic variants can influence histamine levels, research suggests that variants alone are probably **not sufficient** to cause full-blown histamine intolerance. Various environmental factors also play a key role [R].

Some of the factors that may contribute to histamine intolerance include [R, R, R, R, R, R, R, R]:

- Gut damage and inflammation (e.g., due to inflammatory bowel disease (IBD), gluten sensitivity, lactose intolerance, chemotherapy, etc.)
- Alcohol consumption
- Certain medications, such as some antibiotics and stomach acid blockers
- Underlying imbalances in the gut bacteria
- Consumption of foods containing high levels of biological *amines*, chemicals similar to histamine



MORE LIKELY

More likely to be histamine intolerant based on 11 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AOC1	rs10156191	TT
AOC1	rs2268999	TT
AOC1	rs1049748	TT
AOC1	rs2071517	GG
AOC1	rs2071514	GG
AOC1	rs2052129	TG
AOC1	rs1049793	GC
AOC1	rs1049742	TC
HNMT	rs1050891	AA
HNMT	rs16840064	GA
HNMT	rs11558538	CC
HNMT	rs2071048	CC
HRH4	rs11662595	AA

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

Low Energy (Chronic Fatigue)

Key Takeaways:

- Up to **40%** of differences in people's chances of having chronic fatigue may be due to genetics.
- Other risk factors include: serious infections, thyroid and liver problems, and nutrient deficiencies.
- Chronic fatigue is a rare condition, so even if your genetic risk is high, your actual risk is low.
- Chronic fatigue can cause poor sleep, brain fog, weakness, pain, gut issues, and flu-like symptoms.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Fatigue is our body's way of telling us it's time to rest and recover. But what happens when that signal is sent too often, or all the time? What happens when normal, everyday activity is enough to drain you?

When fatigue goes on for more than 6 months, it's called *chronic fatigue* [R].

Chronic fatigue is often associated with [R, R, R, R, R, R, R, R]:

- Nutrient deficiency ([iron](#), [vitamin B12](#), [folate](#), [vitamin D](#))
- Thyroid problems
- Liver problems
- A recent serious infection

Chronic fatigue can lead to a decrease in social and physical activity. It can happen on its own or alongside chronic health conditions [R, R, R].

Some people can never seem to get their energy back, no matter how much they rest. This condition is known as *chronic fatigue syndrome*. It is a disabling condition that affects less than 1% of people [R, R].

Chronic fatigue can affect all parts of your body and may cause [R, R, R]:

- Poor sleep
- Brain fog
- Weakness
- Pain
- Gut issues
- Flu-like symptoms

Unfortunately, there are no standard treatments for chronic fatigue. Many people try to manage their symptoms with alternative strategies [R, R].

Chronic fatigue seems to run in families. **Up to 40% of differences in people's chances of having chronic fatigue may be attributed to genetics** [R, R, R, R].

Genes that contribute to fatigue tend to influence [R]:

- The immune system ([TNE](#), [IL1B](#), [IL4](#), [IL6](#))
- Stress response ([NR3C1](#), [POMC](#))
- Sleep cycles ([NPAS2](#))
- Brain chemistry ([TPH2](#), [GRIK2](#), [MAOA](#), [MAOB](#), [COMT](#))



MORE LIKELY

More likely to have fatigue based on 7,929 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADRB2	rs1042714	CC
IL17F	rs763780	CT
DRD2	rs6277	GA
SHISA4	rs2279681	CC
COMT	rs4680	GA
HTR2A	rs6313	GG
NR3C1	rs852977	AG
BLMH	rs2066713	GA
SPATA32	rs117228037	AA
SLC25A15	rs11147812	TT
ARSA	rs1858756	AA
MAOB	rs3027452	GG
MEGF9	rs10985013	TT
KCTD10	rs6606710	CC
NTM	rs4937651	CC
EXD2	rs4902704	CC
NMUR2	rs34299746	GG
TCF4	rs651350	AG
GRIA1	rs4644006	TC
NLGN1	rs529200	AG
IPO9	rs2820309	GA

GENE	SNP	GENOTYPE
MAPT	rs242924	GG
TNF	rs1800629	GG
TPH2	rs4570625	GG
DRD3	rs6280	CC
MAOA	rs1137070	CC
CFH	rs1061170	TT
GLRX3	rs148723539	GG
MAPKAPK3	rs12492113	GG
KRT32	rs139894014	GG
EPHA7	rs72914217	AA
SKAP1	rs7221416	AA
CFB	rs4151667	TT
ZKSCAN8	rs62620225	CC
/	rs185907577	TT
EXD3	rs73581580	GG
NRXN1	rs79927354	AA
CELF4	rs948536	AA
DCC	rs7233123	GG
/	rs4265114	AA
HTT	rs61348208	TT
CADM2	rs818215	CC

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

Low Blood Sugar

Key Takeaways:

- Up to **65%** of differences in people's blood sugar may be due to genetics.
- Other non-diabetic risk factors include age, drinking alcohol, certain medications, severe infections, problems with your adrenal or pituitary gland, liver, kidney, or pancreas.
- Other diabetic risk factors include taking too much diabetes medication, not eating enough or skipping meals, increasing physical activity without adjusting diet or medications, and drinking alcohol.
- If you have high genetic risk, you may lower overall risk by taking action on those factors that you can change. If you have diabetes, make sure to follow your diet, exercise, and medication regimen.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Glucose is a sugar that our body uses to make energy. **Insulin is a hormone that causes blood sugar (glucose) levels to drop.** People with diabetes don't make enough insulin and have to take insulin or other medication to help regulate their blood sugar levels. **However, too much medication can cause low blood sugar (hypoglycemia)** [R, R, R]. In people without diabetes, hypoglycemia may be caused by [R]:

- Too much alcohol
- Eating disorders
- Kidney or liver problems
- Hormone problems
- Medication
- Gut surgeries

For most people, fasting blood sugar levels below 70 mg/dL or 3.9 mmol/L are considered too low. However, these numbers may differ in people with certain medical conditions. Talk to your doctor if you are concerned about your blood sugar levels [R, R]. People with hypoglycemia may have symptoms like [R]:

- Fast or skipping heartbeat
- Fatigue
- Pale skin
- Shaking
- Sweating
- Tingling or numbness of the face
- Lightheadedness or fainting

Any low blood sugar episode that produces symptoms should be treated immediately. Untreated, hypoglycemia can be life-threatening [R, R]. Immediate treatment of hypoglycemia involves getting some sugar into the body. Fruit juice, regular soft drinks, and sugary candy are good first options because they work quickly. Then, a proper meal or snack should be eaten. In extreme cases, medication may be needed [R, R, R]. If you have recurrent hypoglycemia, work with your doctor to manage the condition [R].



MORE LIKELY

More likely to have low blood sugar based on 126,569 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1B	rs10830963	CC
GCK	rs4607517	GG
GCKR	rs780094	TT
CRY2	rs11605924	CC
URAD	rs11619319	AA
TOP1	rs6072275	GG
ADRA2A	rs10885122	GT
RPL22L1	rs11920090	AT
ZBTB38	rs11919595	CT
MADD	rs7944584	TA
ZBED3	rs7708285	AA
TCF7L2	rs4506565	TA
KL	rs576674	GA
DUS2	rs8044995	AG
GLIS3	rs7034200	AC
PROX1	rs340874	CT
CARD9	rs3829109	GA
C2CD4B	rs11071657	GA
PEAK1	rs7178572	GA
G6PC2	rs560887	CC
TMEM245	rs16913693	TT

GENE	SNP	GENOTYPE
FOXA2	rs6113722	GG
SLC30A8	rs11558471	AA
ADCY5	rs11708067	AA
CDKN2A	rs10811661	TT
STARD10	rs11603334	GG
FADS2	rs174550	TT
SLC25A29	rs3783347	GG
FBRSL1	rs10747083	AA
MANBA	rs223486	CG
QPCTL	rs2302593	CG
IGF1R	rs6598541	AA
PDE6C	rs2785137	GG
AMT	rs11715915	TT
RGS17	rs1281962	CC

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

MTR (Methylation)

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

However, studies have also linked this allele to:

- Fertility problems [\[R\]](#)
- Autism [\[R\]](#)
- Depression and stress [\[R, R\]](#)
- Cognitive impairment [\[R\]](#)

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

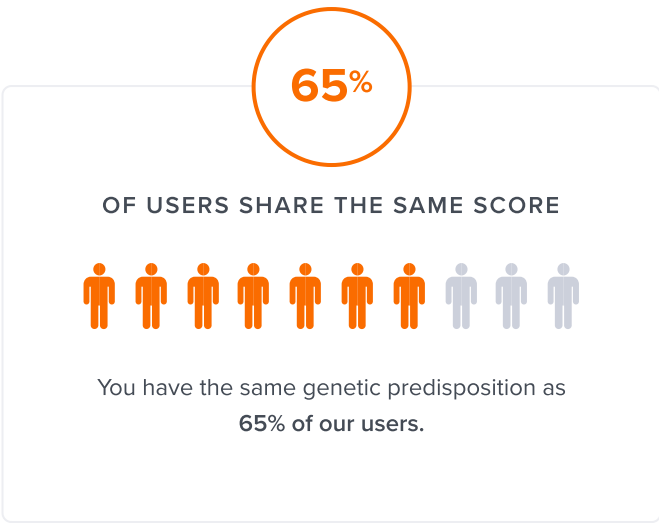
Finally, studies have found negative or mixed results for the link between rs1805087 and:

- Cancer [\[R, R\]](#)
- Neural tube defects [\[R\]](#)
- Congenital heart disease [\[R\]](#)



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTR	rs1805087	AA

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

BHMT (Methylation)

By far, the most well-researched *BHMT* polymorphism is [rs3733890](#). Its minor ‘A’ allele encodes an enzyme with increased affinity for homocysteine. Its effects on homocysteine levels are unclear but a study in pregnant women found lower transformation of betaine to DMG in ‘A’-carriers with high folate levels [\[R\]](#), [\[R\]](#).

This variant may increase the risk of:

- Folate therapy failure [\[R\]](#), [\[R\]](#)
- Head and neck cancer [\[R\]](#)
- Pulmonary thromboembolism [\[R\]](#)
- Placental abruption [\[R\]](#)
- Having a child with congenital heart disease [\[R\]](#)
- Having a child with Down’s syndrome [\[R\]](#)
- Neural tube defects [\[R\]](#), [\[R\]](#)
- Omphalocele [\[R\]](#)
- Spina bifida [\[R\]](#)
- Short telomeres [\[R\]](#)
- Liver toxicity from methotrexate [\[R\]](#)

However, it has also been associated with a decreased risk of:

- Cervical cancer [\[R\]](#), [\[R\]](#)
- Breast cancer and death from this condition [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Colorectal cancer [\[R\]](#)

In any case, the results are mixed in some cases and the effects may depend on other, less well-researched variants of the same gene, variants of other methylation pathway genes such as [MTHFR](#), [MTR](#), or [MTRR](#), and folate status.

Other variants of this gene include:

- ‘C’ at [rs651852](#): associated with lower folate levels [\[R\]](#)
- ‘C’ at [rs3797546](#): associated with cleft palate [\[R\]](#), [\[R\]](#)
- ‘C’ at [rs625879](#): associated with cleft palate and congenital heart defects, [\[R\]](#), [\[R\]](#)



WORSE

Likely worse BHMT genetics based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BHMT	rs3733890	AA
BHMT	rs651852	CC
BHMT2	rs625879	AA
JMY	rs3797546	TT

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

FOLH1 (Folate/ Methylation)

The most well-researched *FOLH1* polymorphism is [rs202676](#). Its minor ‘G’ allele alters FOLH1 activity and negatively affects methylation [\[R\]](#).

It has been associated with an increased risk of neural tube defects such as anencephaly [\[R\]](#), [\[R\]](#).

People with this variant may also have:

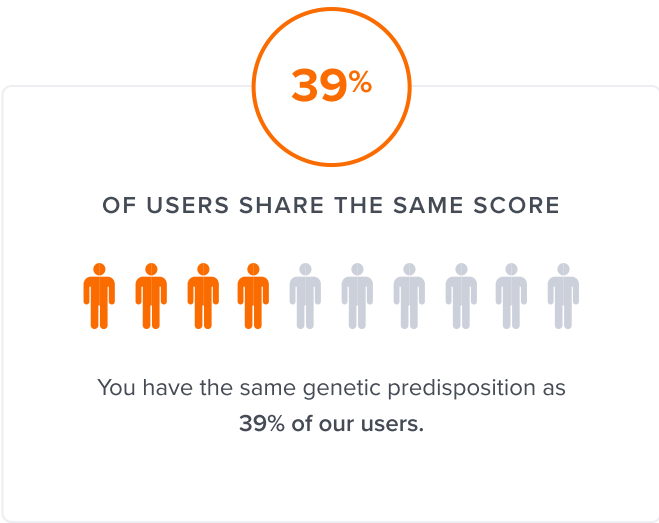
- Lower IQ and visual memory performance [\[R\]](#)
- Impaired arsenic metabolism through methylation [\[R\]](#)

Moreover, a study on patients with schizophrenia found that carriers of the ‘G’ allele failed to improve their negative symptoms in response to folate plus vitamin B12 supplementation [\[R\]](#).



WORSE GENETICS

Likely worse FOLH1 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FOLH1	rs202676	GA

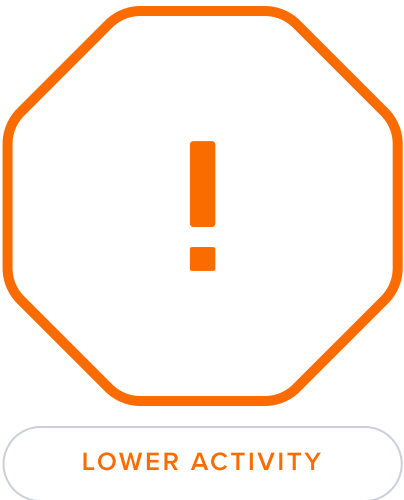
The number of "risk" variants in this table doesn't necessarily reflect your overall result.

MAT1A (Methylation)

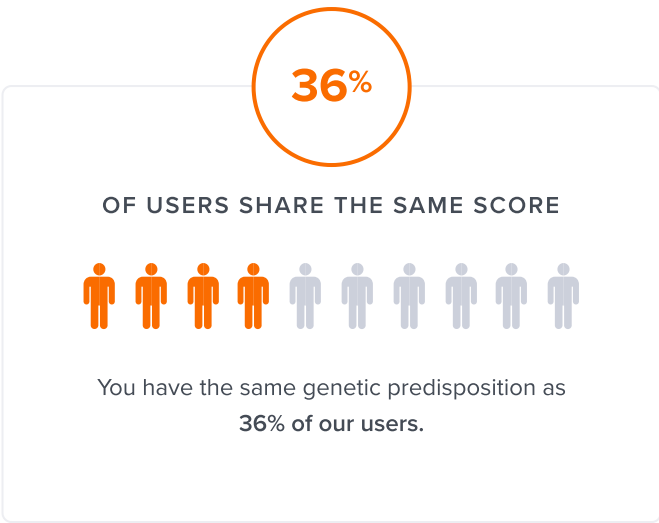
A study has linked one MAT1A variant, **rs3851059** or d18777A, with methylation issues. People with the **“A” allele** had higher homocysteine levels if their folate status was low. They also had over 4x higher odds of stroke [R].

In the same study, people with another MAT1A variant, **rs7087728-A**, were less likely to have high blood pressure and stroke. They also had lower rates of DNA damage, especially if their vitamin B6 levels were high [R].

Interestingly, another study found a link between rs3851059-A and high homocysteine only in people with **higher fat intake** [R].



Likely lower MAT1A activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MAT1A	rs7087728	GG
MAT1A	rs3851059	AG

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

MTHFD1 (Folate/ Methylation)

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

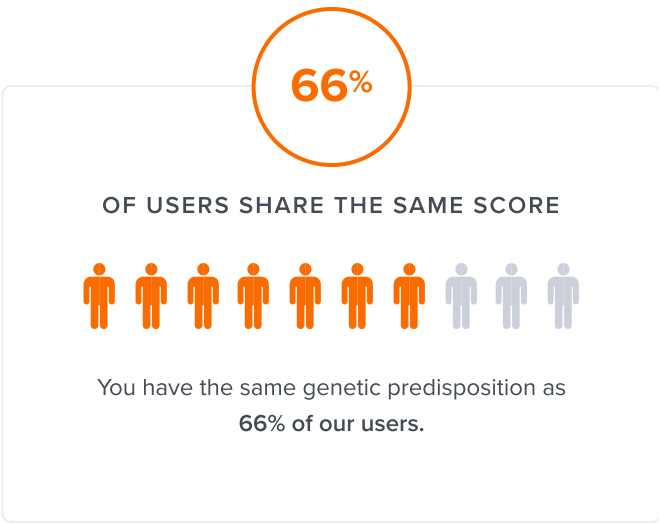
In another trial of 43 young women, this variant worsened the effects of folate deficiency. Women with the “AA” genotype saw a higher increase in homocysteine levels during a low-folate diet. This variant had no impact during folate treatment (400 and 800 µg daily) [\[R\]](#).

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



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFD1	rs2236225	AG

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

SLC19A1 (Methylation)

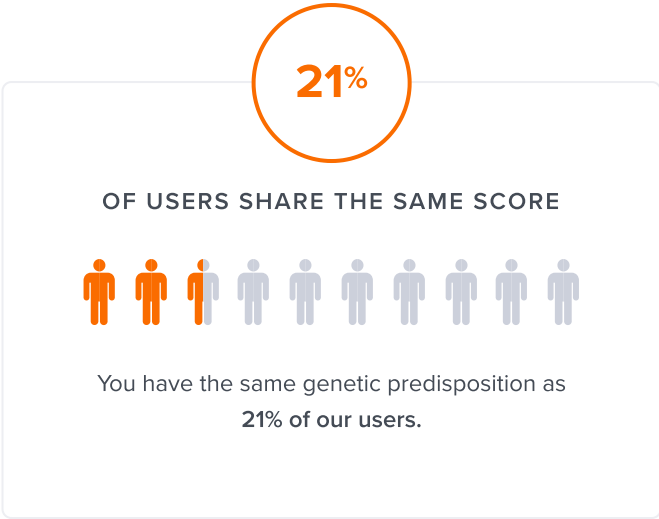
The main *SLC19A1* polymorphism is [rs1051266](#) (G80A). Its major ‘T’ allele has been associated with higher homocysteine levels in the blood, as well as with an increased risk of [\[R\]](#), [\[R\]](#):

- Cleft palate [\[R\]](#)
- Congenital heart disease [\[R\]](#)
- Autism spectrum disorder [\[R\]](#), [\[R\]](#)
- Behavioral problems in children with ADHD [\[R\]](#)
- Short telomere length [\[R\]](#)
- Lung cancer progression [\[R\]](#)
- Breast cancer [\[R\]](#)
- Colorectal cancer [\[R\]](#)
- Neuroblastoma and nephroblastoma [\[R\]](#)
- Acute lymphoblastic leukemia [\[R\]](#), [\[R\]](#)
- Poor survival in liver cancer patients [\[R\]](#)



WORSE GENETICS

Likely worse SLC19A1 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC19A1	rs1051266	TT

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

FOXE1 (Thyroid)

In a study with 6,300 participants, the minor alleles of the following four *FOXE1* variants were associated with a decreased risk of [hypothyroidism](#) [R]:

- ‘C’ of [rs925489](#)
- ‘A’ of [rs7850258](#)
- ‘A’ of [rs965513](#)
- ‘A’ of [rs10759944](#)

Of them, rs7850258 showed the strongest connection, with carriers of the ‘A’ allele showing 26% lower rates.

Scientists suggest that the above variants reduce *FOXE1* expression and allow for improved thyroid hormone production (T4) [R, R].

The effect allele carriers also had lower rates of autoimmune thyroiditis or [Hashimoto’s disease](#), which suggests autoimmunity as another potential mechanism [R].

On the other hand, some of these variants are associated with thyroid cancer, indicating a tumor-suppressor role of the *FOXE1* gene [R].



HIGHER ACTIVITY

Predisposed to a higher FOXE1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRMO	rs925489	TT
FOXE1	rs7850258	GG
TRMO	rs965513	GG
TRMO	rs10759944	GG

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

DAO (Histamine)

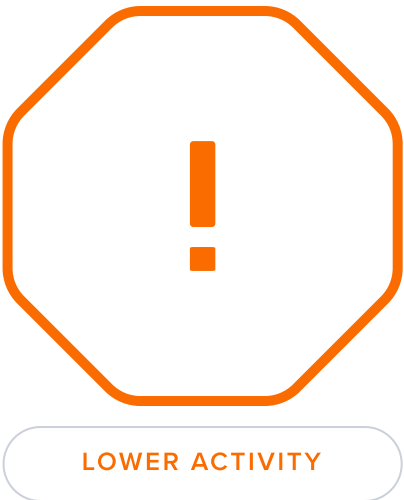
Four *AOC1* variants have been associated with lower levels of the DAO enzyme and higher incidence of [migraine](#): [rs1049793](#), [rs2052129](#), [rs10156191](#), and [rs1049742](#) [R, R, R].

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

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

Two other minor variants, ‘T’ at [rs2268999](#) and ‘A’ at [rs2071514](#), have also been linked to lower DAO activity [R].

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



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AOC1	rs10156191	TT
AOC1	rs2268999	TT
AOC1	rs1049793	GC
AOC1	rs1049742	TC
AOC1	rs2052129	TG
AOC1	rs2071514	GG
AOC1	rs35070995	AA

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

HLA-DQ (Inflammation)

Two alleles — DQA1*0501 and DQB1*0201 — form the DQ2.5 haplotype, which codes for the DQ2.5 receptor on white blood cells. The DQ2.5 receptor binds gluten and presents it to T-helper cells, initiating widespread gut inflammation. Additionally, the DQ2.5 haplotype may increase DQ2.5 receptor expression, further contributing to inflammation [R, R, R].

The ‘T’ variant of rs2187668 serves as a genetic marker — it tags the DQ2.5 haplotype with high precision. In other words, the vast majority of people with this allele will have this haplotype. A study of over 27,000 subjects identified this SNP as the primary genetic factor for celiac disease. People carrying the ‘T’ allele had over six times higher chances of being diagnosed with celiac disease. A smaller trial of 889 participants came to a similar conclusion [R, R].

This variant was also linked to an increased risk of allergies to latex and fruits in a study of 78 patients [R].

The ‘G’ allele at rs2395185 marks the allele HLA-DRB1*1101 and is linked to a higher expression of the HLA-DRB1 and DQA1 genes. This variant has been associated with higher rates of ulcerative colitis in several studies, as well as with type 1 diabetes. On the bright side, it also predicts a better response to anti-TNF treatment [R, R, R, R, R, R, R].

The ‘C’ variant of rs9275596, located between HLA-DQB1, HLA-DQA2, and HLA-DQB2, causes structural changes in this DNA region that may affect its interaction with regulatory proteins. This variant has been linked to an increased risk of [R]:

- Peanut allergy [R, R]
- Shrimp allergy [R]
- Multiple sclerosis [R]
- Primary sclerosing cholangitis [R]

A study of 4,332 participants associated the ‘G’ variant of rs9275572 with up to 5-fold higher odds of alopecia areata. This variant has also been associated with an increased risk of [R]:

- Liver cancer caused by HBV [R, R]
- Systemic lupus erythematosus [R]
- Lung cancer [R]

Another allele, ‘C’ at rs9275524, was associated with approximately twice the odds of alopecia areata in a study of 10,796 participants [R].

These two variants, believed to increase or alter HLA activity, are always inherited together, so they act as a single genetic factor. This means you will either have both ‘problematic’ genotypes or none of them.

Another variant, ‘C’ at rs6906021, is believed to increase HLA-DQA1 activity and has been linked to increased allergic sensitization. Another study, of 29,349 subjects, associated this variant with hypothyroidism [R, R].

Finally, the ‘C’ variant of rs9271588 is also believed to increase HLA-DQA1 activity and has been associated with:

- Allergy to wheat protein [R]
- Natural killer T-cell lymphoma [R]



HIGHER ACTIVITY

Likely higher HLA-DQ activity based on 7 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DQA2	rs2395185	GG
HLA-DQA1	rs2187668	TC
HLA-DQA2	rs9275596	CT
HLA-DQA1	rs6906021	CC
HLA-DQA2	rs9275572	AG
HLA-DQA2	rs9275524	TC
HLA-DQA2	rs9271588	TT

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

Ovarian Insufficiency

The exact cause of POI is often unknown, but several factors may contribute to its development [\[R\]](#):

- Genetic disorders such as Turner syndrome or fragile X syndrome
- Autoimmune disorders where the immune system mistakenly attacks ovarian tissue
- Chemotherapy and radiation therapy
- Surgical removal of the ovaries.
- Viral infections such as mumps
- Environmental and lifestyle factors, including toxins, smoking, and other external influences

Managing POI focuses on addressing the symptoms, preventing complications, and dealing with fertility issues. The following strategies may help [\[R\]](#):

- **Hormone replacement therapy (HRT)** to help control menopausal symptoms and reduce the risk of osteoporosis by maintaining necessary hormone levels. Estrogen therapy should be accompanied by progesterone if the uterus is intact, to reduce the risk of endometrial cancer.
- **Calcium and vitamin D supplements** to help prevent osteoporosis.
- **Regular physical activity and a healthy diet** to maintain a healthy weight and reduce the risk of cardiovascular disease.
- **Fertility treatment** such as in vitro fertilization (IVF) with donor eggs if the affected woman wishes to become pregnant.
- **Psychological support and counseling** to help cope with the emotional and psychological impacts of early menopause and infertility.



TYPICAL LIKELIHOOD

Typical likelihood of ovarian insufficiency based on 961,210 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CHSY3	rs246246	TT
NPY2R	rs9999820	GG
ZNF239	rs10793451	TT
NPY2R	rs4323056	AA
NPY2R	rs2880418	GG
UGT2B11	rs3966085	AG
DAB2	rs10058075	GC
NPY2R	rs4402990	AC
PRKCE	rs6759058	GG
ESR1	rs9340799	AA

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

Ectopic Pregnancy

Symptoms of an ectopic pregnancy can be similar to those of a normal early pregnancy at first, including a missed period and positive pregnancy test. However, as the ectopic pregnancy progresses, a woman may experience localized pain on one side of the abdomen or pelvis, vaginal bleeding that is different from her regular period, and, if the fallopian tube ruptures, signs of shock such as dizziness and fainting.

Treatment is essential and urgent; it may include medication or surgery, depending on the stage of the ectopic pregnancy and the woman's overall health.



TYPICAL LIKELIHOOD

Typical likelihood of ectopic pregnancy based on 259,204 genetic variants we looked at



Underactive Thyroid

Key Takeaways:

- Up to **65%** of differences in thyroid hormone levels may be due to genetics.
- Other risk factors for underactive thyroid include: autoimmune conditions, too much/little iodine, and radiation treatment.
- It can cause fatigue, sensitivity to cold, constipation, goiter, weight gain, voice changes, dry skin, and puffy face.
- Up to **1 in 10** people may have an underactive thyroid, and half of those don't know they have it.
- Be aware of the factors and symptoms, even if your genetic risk is low.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

The thyroid is a gland found in the front of the neck. It produces hormones T3 and T4, which affect [\[R\]](#):

- Heart function
- Energy production
- Breathing rate
- Bone growth
- Alertness
- Reproductive health

If the thyroid does not produce enough of these hormones, the whole body may suffer ill effects. This condition is known as *hypothyroidism* (underactive thyroid) [\[R, R, R\]](#).

Up to 10% of people may have an underactive thyroid. Of these, about half don't know they have it [\[R\]](#).

Hypothyroidism can have a number of causes. These include [\[R, R, R\]](#):

- Autoimmune conditions like *Hashimoto's disease*
- Too much or too little iodine
- Thyroid inflammation (*thyroiditis*)
- Surgery that removes all or part of the thyroid gland
- Radiation treatment
- Some medications
- Genetics**

If your doctor suspects hypothyroidism, they may look for signs and symptoms like [\[R, R, R\]](#):

- Fatigue
- Sensitivity to cold
- Constipation
- Enlarged thyroid gland (*goiter*)
- Weight gain
- Voice changes
- Dry skin
- Puffy face

Diagnosis is confirmed with blood tests. These tests check for hormone levels that indicate the thyroid is not as active as it should be [\[R\]](#).

If you have an underactive thyroid (hypothyroidism), treatment will depend on your hormone levels, medical history, and your signs and symptoms.

The standard treatment involves a daily dose of synthetic thyroid hormone medication that can restore thyroid hormone levels



TYPICAL LIKELIHOOD

Typical likelihood of hypothyroidism based on 875 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRMO	rs925489	TT
FOXE1	rs1867277	GG
VAV3	rs7537605	GA
NBL1	rs10917477	AG
CTLA4	rs3087243	AG
FCRL3	rs7522061	TC
MICB	rs2517532	AG
/	rs9271365	GG
TRMO	rs7030280	TT
TYK2	rs34536443	GG
CLECL1	rs370475698	TT
PLGRKT	rs911760	AA
TPO	rs732609	AC
ARID5B	rs71508903	TC
RASGRP1	rs12593201	GA
C1QTNF6	rs229528	TC
SASH1	rs9497965	TC
TNFRSF14	rs2234167	GA
FAP	rs2111485	GA
IL2RA	rs3118469	TA
RBPJ	rs7441808	AG

and reverse the signs and symptoms. But keep in mind that it may take some time to adjust the dosage of thyroid hormones so they are right for you [R].

It is extremely important to treat hypothyroidism according to your doctor's instructions. Left untreated, hypothyroidism can lead to *myxedema coma*. This condition is a medical emergency. Even with treatment at a hospital, up to 60% of these cases can lead to death [R].

Up to 67% of differences in thyroid hormone levels may be attributed to genetics. Genes that may affect thyroid function include [R, R]:

- [PDE8B](#)
- [DIO1](#)
- [CAPZB](#)
- [TSHR](#)
- [FOXE1](#)

GENE	SNP	GENOTYPE
PDE8B	rs4704397	GG
TPO	rs11675434	CC
PTPN22	rs6679677	CC
PTPN22	rs2476601	GG
TSHR	rs12101261	CC
SH2B3	rs653178	TT
TNF	rs1800629	GG
DPH5	rs77046277	CC
ADCY7	rs78534766	CC
FLT3	rs76428106	TT
/	rs187707293	TT
BACH2	rs6908626	GG
SESN3	rs4409785	TT
PDE8B	rs1479565	GG
TPO	rs11675342	CC
ACAP1	rs61759532	CC
SESN1	rs1364450	AA
CD44	rs736374	GG
CBLB	rs13090803	GG
RAB5C	rs9902341	CC
DIO1	rs2235544	CC

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

Muscle Cramps

Factors that might increase the risk of experiencing muscle cramps include:

- Dehydration
- Age, with older individuals being more susceptible
- Overuse of the muscle
- Muscle strains
- Holding a position for an extended period
- Mineral depletion, especially low levels of potassium, calcium, or magnesium
- Certain medications, such as diuretics, blood pressure drugs, and statins
- Medical conditions like poor circulation, kidney problems, and thyroid disorders
- Genetics

While muscle cramps are typically linked to external factors, genetics can play a role in muscle function and susceptibility to cramps. Some individuals may have a genetic predisposition to muscle cramping, either due to the way their muscles function or how their body regulates electrolytes.



TYPICAL LIKELIHOOD

Typical likelihood of having muscle cramps based on 1,672 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IKZF2	rs112988286	AA
MSI2	rs116924898	GG
/	rs35525189	GG
LMO7	rs73229904	TT
TBC1D4	rs76851570	TT
STK32A	rs35852718	AA
EPS8L2	rs201086107	GG
ST6GAL2	rs62155507	AA
RAB21	rs61754230	CC
MRPS34	rs11552434	CC
AGXT2	rs114286107	CC
CLEC18C	rs150702800	CC
PTK7	rs34021075	AA
TARS1	rs138936240	GG
DUOX2	rs151261408	GG
PCDHA3	rs141677026	CC
CHRNA5	rs2229961	GG
CC2D2A	rs144439937	AA
SLC36A2	rs77010315	CC
TMC3	rs150843673	GG
NEB	rs62167164	GG

GENE	SNP	GENOTYPE
KCTD18	rs565245989	AA
SPATA22	rs150770000	GG
MCM10	rs35114749	CC
PSCA	rs138377917	GG
TENM2	rs114898031	AA
GANC	rs35285091	CC
MCF2L	rs140657264	CG
AMPD1	rs17602729	GG
CGRRF1	rs34839928	CC
SPG11	rs78183930	CC
EFHC1	rs1570624	GG
ALDH5A1	rs62621664	GG
/	rs1369355526	AA
CACNA2D3	rs112362995	CC
OBSCN	rs62621832	TT
XIRP2	rs16853333	GG
CFHR2	rs41257904	GG
/	rs66906990	TT
DCHS2	rs546143621	AA
GLCE	rs12440300	AA
FAM193B	rs116293002	GG
FPGS	rs35789560	CC
RFX7	rs33984059	AA
KRT6A	rs62617089	GG
/	rs78767524	AA
CYP4B1	rs45467195	AA
BLVRA	rs1050916	AA
IQCH	rs62014646	GG
PDLIM5	rs75841704	AA

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

Painful Intercourse

The impacts of painful intercourse extend beyond physical discomfort, potentially leading to emotional distress and strain on intimate relationships. This discomfort can discourage sexual activity, contributing to a cycle of pain and avoidance.

Management and treatment require a multidisciplinary approach—often including gynecological evaluation, physical therapy, counseling or sex therapy, and potential lifestyle modifications. Addressing other contributing factors such as stress, anxiety, or past traumatic experiences is crucial for comprehensive care and improving quality of life for those impacted by dyspareunia.



TYPICAL LIKELIHOOD

Typical likelihood of painful intercourse based on 1,681 genetic variants we looked at



Headache

Key Takeaways:

- About **45%** of the differences in people's chances of developing headaches may be due to genetics.
- Modifiable factors like diet and stress may be equally important, so make sure to address them.
- About **75%** of Americans will experience a headache this year. A good genetic result doesn't mean you should ignore potential risks.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Nearly everyone suffers the occasional headache. In fact, around 95% of all people get them at some point in their life [R]. Some headaches are not caused by an underlying condition. These are called *primary* headaches. The main types are [R]:

- Tension headache
- Migraine
- Cluster headache

Tension headaches are the most common. People with these headaches often feel like something tight is pressing around their head [R, R].

Migraines are the second-most common type. These aren't just headaches, and pain isn't the only symptom. People with migraines often also experience symptoms like nausea and sensitivity to light or sound [R, R].

Only about 0.1% of people get cluster headaches. They're extremely painful and short, typically lasting between 15 minutes and 3 hours. They often cause [R, R]:

- Pain on one side of the head
- Tear production
- Runny nose
- Red eyes
- Drooping eyelids
- Sweating

Headaches caused by an underlying condition are called *secondary* headaches. They can be caused by [R]:

- Infection
- High blood pressure
- Nerve problems
- Head injury
- Medication overuse
- Tumors
- Stroke

Fortunately, **most headaches are mild and can be treated at home with common painkillers.** However, some may have underlying causes that require special treatment [R, R].

Around 45% of the differences in people's chances of developing headaches may be attributed to genetics. Genes involved in headaches may influence [R, R]:

- Clearance of waste from the brain ([LRP1](#))
- Stress hormones ([CRHR1](#))
- Brain cell function ([STAT6](#))

This report focuses on headaches other than migraines. For personalized genetics-based information on migraines, check out our Migraines Report.



TYPICAL LIKELIHOOD

Typical likelihood of headaches based on 439,774 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HTR2A	rs6313	GG
MAGI1	rs1495452	GG
PHACTR1	rs9349379	AA
NAXE	rs2274316	CC
PRDM16	rs2651899	CC
TRPM8	rs10166942	CT
IRAG1	rs4910165	CG
TRIM32	rs6478241	AG
BDNF	rs6265	CT
AOC1	rs2052129	TG
HNRNPA2B1	rs76473094	CC
HHAT	rs12141729	CT
TGFBR3	rs10493859	AC
CHSY3	rs17635642	CC
DHX36	rs34097149	TT
PLEKHA1	rs78438709	AA
GPN3	rs7300001	AA
BTN3A2	rs2072806	CC
PHACTR1	rs9349379	AA
UFL1	rs9486715	CA
TRPM8	rs2362290	AG

GENE	SNP	GENOTYPE
MRPS21	rs12740679	GC
STAT6	rs11172113	CC
MTHFR	rs1801133	GG
NOS3	rs2070744	TT
/	rs138996723	GG
KTN1	rs141874014	AA
/	rs12035827	AA
DDX10	rs192588356	AA
STK38L	rs367589977	GG
CUX1	rs183121879	CC
FGF23	rs7308018	GG
STAT6	rs11172113	CC
CASQ2	rs12134493	CC
CRHR1	rs77804065	CC
GJA1	rs9490318	CC
NUFIP2	rs8614	CC
TRIM32	rs17220352	AA

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

Uterine Fibroids

Uterine fibroids are benign growths that develop in the walls of the uterus. They can vary in size – some are so small that they can’t be seen by the human eye, while others are so large that they can alter the shape of the uterus [R, R].

In the US, **70-80% of women** may be diagnosed with uterine fibroids before they turn 50 [R, R, R].

Risk factors for uterine fibroids include [R, R, R, R]:

- An early first period
- Ethnicity – black women have increased risk
- A diet higher in meat and lower in fruit, vegetables, and dairy
- Vitamin D deficiency
- Obesity
- Alcohol intake
- **Genetics**

Often, uterine fibroids don’t cause any symptoms. If there are symptoms, they can include [R]:

- Irregular periods (heavy bleeding, periods that last longer than a week, etc.)
- Pain in the pelvis, legs, or back
- Urinating frequently
- Problems with emptying the bladder fully
- Constipation

Rarely, uterine fibroids can lead to complications like [R]:

- Infertility and pregnancy problems
- Anemia due to blood loss

Treatment of uterine fibroids can include [R]:

- Medications that balance sex hormones
- Medications that reduce bleeding
- Painkillers
- Surgery

Genetics may play a role in people’s chances of developing uterine fibroids. Genes involved may influence cell growth and hormone levels [R, R, R].



TYPICAL LIKELIHOOD

Typical likelihood of uterine fibroids based on 49 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
POT1	rs79314063	CC
/	rs780590302	AA
BET1L	rs73392700	GG
RAP2C	rs5930554	CC
PAH	rs17033114	TT
CCDC73	rs2207548	AA
SLC38A2	rs2131371	CC
TERT	rs10069690	CT
SULT1B1	rs10794695	AT
DMRT1	rs10815717	AG
GADD45G	rs28508285	AG
CD44	rs2553773	GC
/	rs566396343	AA
CTNNA2	rs755741156	AA
TP53	rs78378222	TT
SLAIN2	rs551980034	CC
/	rs779929745	TT
/	rs772494879	CC
GABRG1	rs540409605	CC
FOXO1	rs117245733	GG
POGLUT3	rs149934734	CC

GENE	SNP	GENOTYPE
STN1	rs79342925	CC
SULF2	rs6094982	TT
LNX1	rs191692776	CC
CHEK2	rs17879961	AA
SYNE1	rs58415480	CC
LNX1	rs62323681	AA
CDC42	rs3820282	CC
TGM1	rs41293836	CC
MCM8	rs16991615	GG
STMN3	rs41308088	CC
ITGA11	rs2306022	CC
ADSL	rs2413620	CC
UIMC1	rs34933909	GG
E2F6	rs12479436	TT

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

MTHFR

Key Takeaways:

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

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

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

Read [this blog post](#) for more details about MTHFR variants and potential ways to reduce their impact.

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

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

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

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

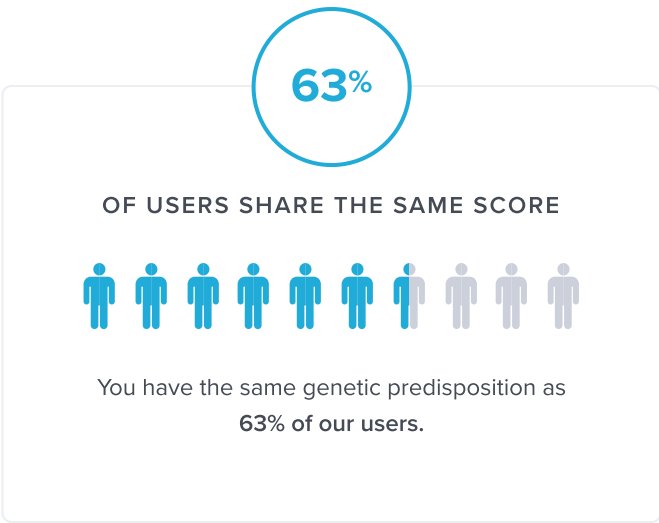
In addition to folate, there is some evidence that people with *MTHFR* variants may do better if they get more [riboflavin](#) (vitamin B2). This vitamin helps MTHFR work properly [R, R, R, R, R, R, R, R].

Good sources of riboflavin include [R, R]:

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



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801131	TG
MTHFR	rs1801133	GG

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

MTRR (Methylation)

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

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

Studies have observed a potential link between this variant and:

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

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

Another well-researched SNP in this gene is [rs1532268](#). The “**T**” **allele** changes the enzyme structure and **reduces its activity** [\[R\]](#).

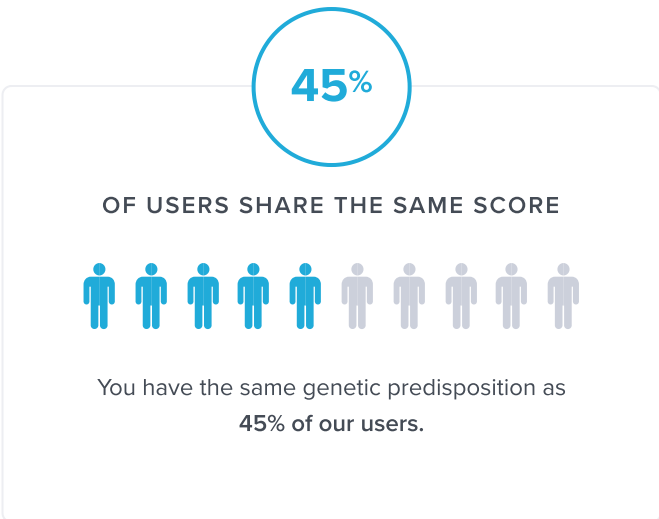
The effects of this variant may **also depend on vitamin B12 status**. In one study, it was associated with increased homocysteine when B12 status was low. Other studies have linked it to [\[R\]](#):

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



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTRR	rs1801394	AG
MTRR	rs1532268	TC

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

DHFR (Folate/ Methylation)

One of the most well-researched *DHFR* polymorphisms is [rs408626](#), also known as 317A>G. Its major ‘T’ allele may increase gene expression. This variant has been associated with [\[R\]](#):

- Worse response to methotrexate in patients with rheumatoid arthritis [\[R\]](#)
- Lower event-free survival in children with acute lymphoblastic leukemia [\[R\]](#)
- Increased risk of methotrexate-induced leucopenia [\[R\]](#)

However, this allele has also been associated with:

- Decreased risk of acute lymphoblastic leukemia relapse [\[R\]](#), [\[R\]](#)
- Better response to methotrexate in Crohn’s disease [\[R\]](#)

Another common polymorphism is [rs1650697](#), also known as 473T>C. Its minor ‘A’ allele may be linked to increased DHFR levels. This variant has been associated with [\[R\]](#):

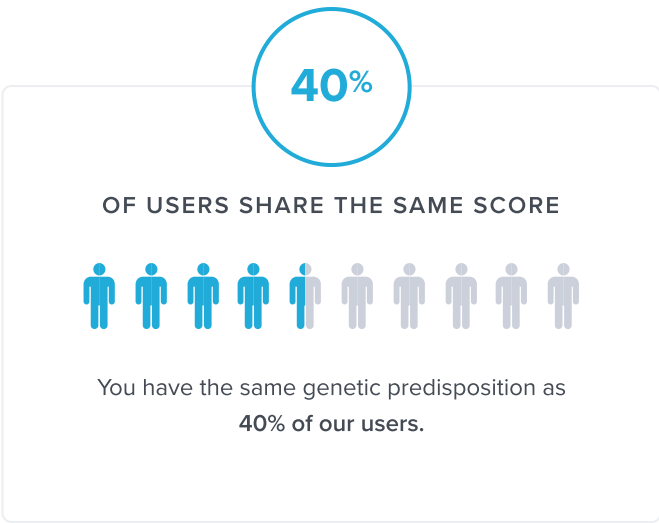
- Decreased risk of methotrexate hepatotoxicity [\[R\]](#)
- Increased survival in non-small cell lung cancer patients treated with methotrexate [\[R\]](#)

However, this variant may also increase the risk of pemetrexed toxicity [\[R\]](#).



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MSH3	rs1650697	GG
MSH3	rs408626	TC

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

MTHFD1L (Folate/ Methylation)

The main MTHFD1L variant is [rs11754661](#). Studies have linked its “A” allele to [\[R, R, R, R\]](#):

- Alzheimer’s disease
- Parkinson’s disease
- Depression

Another important variant is [rs6922269](#). Its “A” allele has shown links to **heart disease** in different studies. However, some studies did not confirm this result [\[R, R, R, R\]](#).

Folate is necessary for homocysteine clearance. Folate deficiency and elevated homocysteine are related to both heart and brain health issues [\[R, R, R\]](#).

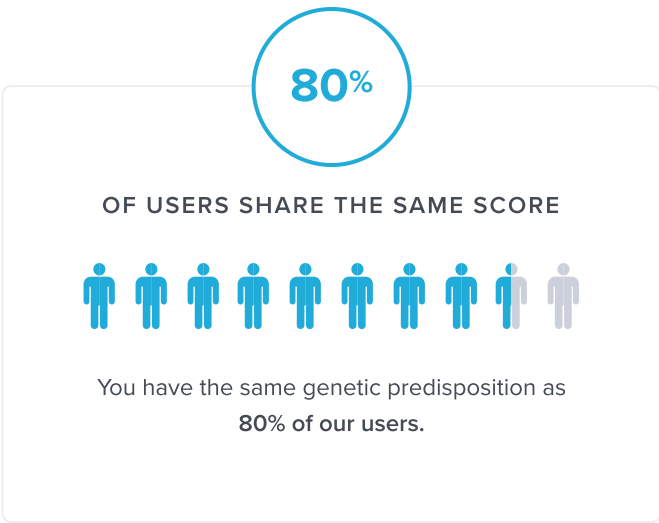
These variants likely reduce MTFD1 activity, impairing methylation and homocysteine removal. However, the available evidence is limited [\[R\]](#).

On the other hand, increased MTHFD1 activity may play a role in cancer development [\[R, R\]](#).



TYPICAL ACTIVITY

Likely typical MTHFD1L activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFD1L	rs6922269	AG
MTHFD1L	rs11754661	GG

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

TYMS (Methylation)

One TYMS gene variant, **rs2853533-C**, seems to alter its activity. It may be linked to [R, R, R]:

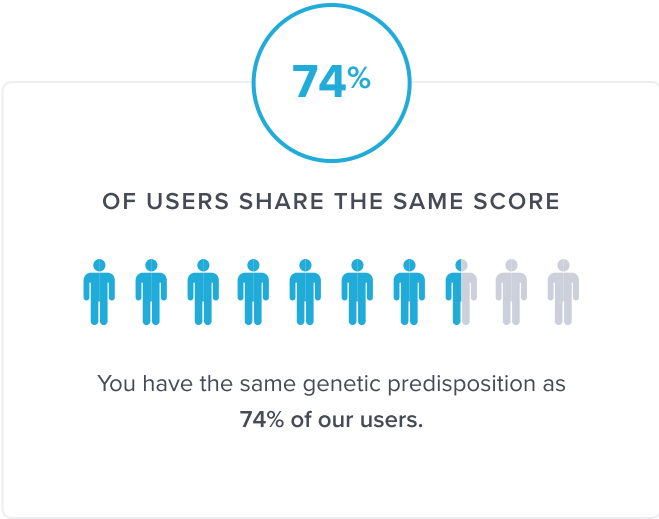
- Colorectal cancer
- Chemotherapy (5-FU) toxicity
- Spina bifida (unclear)

The available information about this variant is scarce, so we can't be sure about its associations and underlying mechanisms. It most likely involves depletion of active folate or impaired DNA production.



TYPICAL GENETICS

Likely typical TYMS genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TYMS	rs2853533	GG

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

CYP11A1 (Sex Hormones)

The main *CYP11A1* polymorphism is [rs11632698](#). Its ‘G’ allele has been associated with an increased risk of:

- Recurrent pregnancy loss [\[R\]](#)
- PCOS [\[R, R\]](#)
- Bone loss in breast cancer patients treated with aromatase inhibitors [\[R\]](#)

Another variant, the ‘T’ allele of [rs4077582](#) has also been associated with an increased risk of: recurrent pregnancy loss and PCOS [\[R, R, R, R, R, R\]](#).

Other variants associated with an increased risk of PCOS include:

- ‘A’ of [rs4887139](#) [\[R, R\]](#)
- ‘C’ of [rs4886595](#) [\[R\]](#)
- ‘G’ of [rs6495096](#) [\[R\]](#)

The minor ‘T’ allele of [rs2279357](#) has been associated with an increased risk of breast cancer in women. However, this variant has been associated with a decreased risk of late-onset hypogonadism in men with benign prostate hyperplasia [\[R, R\]](#).

Finally, the following variants have been associated with an increased risk of endometrial cancer [\[R\]](#):

- ‘A’ of [rs4555110](#)
- ‘A’ allele of [rs3825944](#)
- ‘C’ allele of [rs7173655](#)



TYPICAL ACTIVITY

Predisposed to typical CYP11A1 genetics based on 9 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP11A1	rs6495096	GG
CYP11A1	rs2279357	TT
CYP11A1	rs7173655	CC
CYP11A1	rs4887139	GA
CYP11A1	rs4886595	CA
CSK	rs4555110	GA
CSK	rs3825944	GA
ULK3	rs4077582	CC
CYP11A1	rs11632698	AA

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

CYP17A1 (Sex Hormones)

The main *CYP17A1* polymorphism is [rs743572](#). Its minor ‘G’ allele increases enzyme activity, resulting in higher sex hormone levels. This variant has been associated with an increased risk of [\[R\]](#):

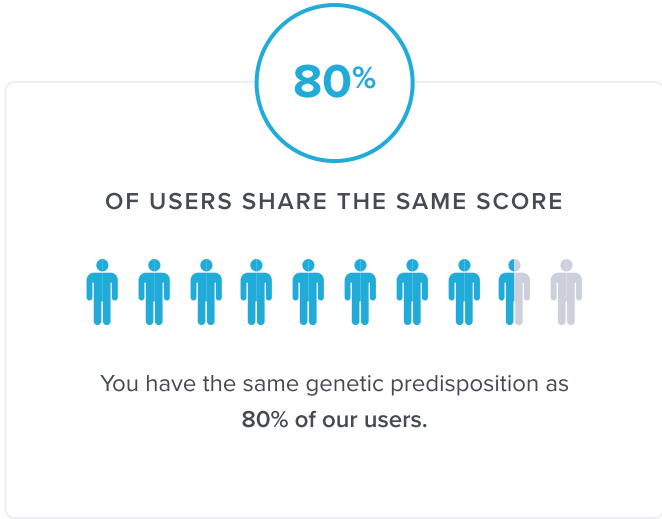
- Acne [\[R, R, R, R\]](#)
- PCOS [\[R\]](#)
- Breast cancer (in premenopausal but not postmenopausal women) [\[R, R, R, R, R, R, R\]](#)
- Prostate cancer (in Black but not Caucasian or Asian populations) [\[R, R\]](#)
- Ovarian cancer [\[R\]](#)
- Uterine fibroids [\[R\]](#)
- Endometriosis [\[R\]](#)

In contrast, it has been associated with a decreased risk of endometrial and pancreatic cancer [\[R, R\]](#).



TYPICAL ACTIVITY

Predisposed to a typical CYP17A1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BORCS7	rs743572	AG

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

ESR1 (Estrogen)

The two main *ESR1* variants are [rs2234693](#) (-397T>C or PvuII) and [rs9340799](#) (-351A>G or XbaI). They are often inherited together, meaning you will likely carry either none or both.

Their “**C**” and “**G**” alleles, respectively, may be linked to the following **positive health outcomes**:

- Stronger bones (higher BMD) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Lower odds of endometrial cancer [\[R\]](#)
- Slower cognitive decline (only in European ancestry) [\[R\]](#)
- [Lower odds of anxiety \(phobia\)](#) [\[R\]](#)
- Better cardiovascular health [\[R\]](#)
- Increased fertility in men [\[R\]](#)

On the other hand, they may be linked to the following **negative health outcomes**:

- Endometriosis [\[R\]](#)
- Breast cancer [\[R\]](#), [\[R\]](#)
- Prostate cancer [\[R\]](#), [\[R\]](#)
- Depression [\[R\]](#)

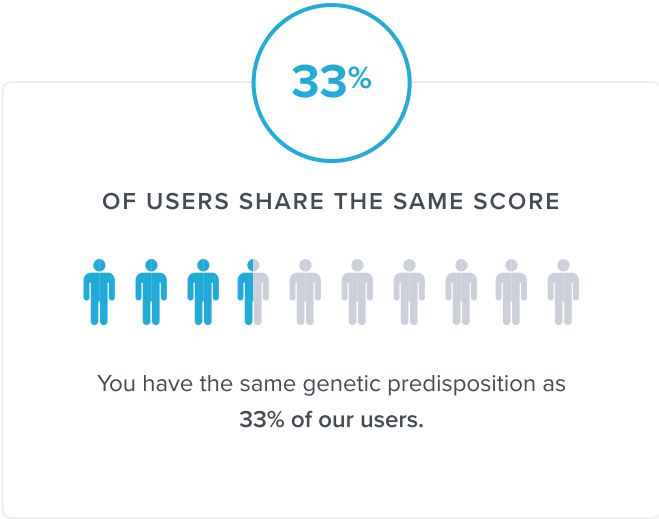
Expectedly, the effects of these variants are more pronounced in women. According to most of the above associations and some lab experiments, **rs2234693-C increases *ESR1* expression**, leading to more pronounced effects of estrogen [\[R\]](#).

However, some studies have found no links – or even opposite links – of these variants with most of the above health outcomes. They may be partly explained by different results in people of Asian vs European ancestry [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

Likely lower **ESR1** activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ESR1	rs2234693	TT
ESR1	rs9340799	AA

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

PGR (Sex Hormones)

The main *PGR* gene variant is [rs10895068](#), commonly referred to as +331G/A. Its minor ‘T’ allele selectively increases the expression of the PR-B isoform. This variant has been associated with an increased risk of [\[R\]](#):

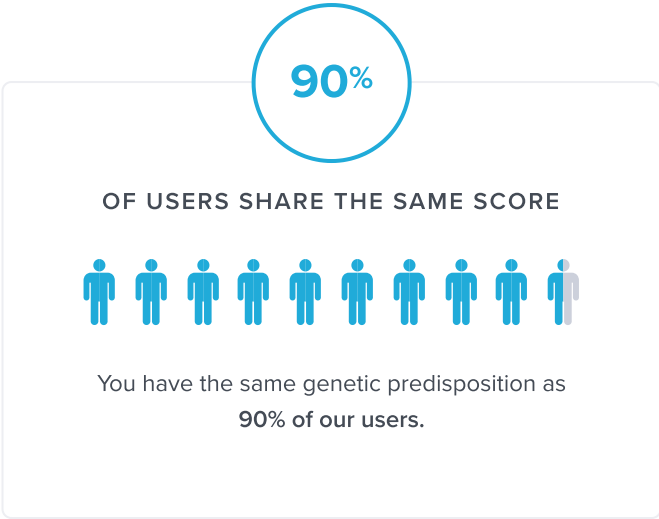
- Ovarian cancer [\[R\]](#)
- Endometrial cancer [\[R\]](#)
- Uterine fibroids [\[R\]](#)
- Implantation failure during in vitro fertilization [\[R\]](#)
- Preeclampsia [\[R\]](#)

On the bright side, this allele has been associated with a reduced risk of ovarian hyperstimulation syndrome and endometriosis [\[R\]](#), [\[R\]](#).



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PGR	rs10895068	CC

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

LHCGR (Sex Hormones)

The main *LHCGR* gene variant is [rs13405728](#). Multiple studies have associated its major ‘A’ allele with an increased risk of PCOS. Women with this condition may have higher levels of testosterone, triglycerides, and LDL cholesterol if they carry this allele [\[R, R, R, R, R\]](#).

This variant has also been associated with an increased risk of endometroid adenocarcinoma and worse ovarian response to assisted reproductive technology [\[R, R, R\]](#).

Another well-researched polymorphism is [rs2293275](#). Its minor ‘T’ allele has been associated with an increased risk of PCOS and disease progression, and higher testosterone but lower LH and LH/FSH values in women with this condition [\[R, R, R, R, R, R\]](#).

This variant has also been associated with accelerated ovarian aging and ovarian hyperstimulation syndrome and worse pregnancy outcomes after assisted reproductive technologies, but a higher number of oocytes retrieved [\[R, R, R, R\]](#).

In men, this variant has been associated with a lower risk of infertility, maldescended testicles, and aggressive prostate cancer [\[R, R, R\]](#).

The following variants have also been associated with an increased risk of PCOS:

- ‘T’ of [rs4953616](#) [\[R, R, R\]](#)
- ‘T’ of [rs7371084](#) [\[R, R\]](#)
- ‘C’ of [rs12470652](#) (only in Punjab) [\[R\]](#)

In men, the ‘C’ allele of rs7371084 has been associated with an increased risk of testicular cancer metastasis, as well as with higher LH levels and androgen sensitivity index [\[R\]](#).



TYPICAL GENETICS

Predisposed to typical LHCGR genetics based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LHCGR	rs13405728	AA
LHCGR	rs7371084	TT
STON1-GTF2A1L	rs4953616	CT
LHCGR	rs2293275	CC
LHCGR	rs12470652	TT

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

DIO2 (Thyroid)

At first glance, one might think DIO2 doesn’t have much of an impact on thyroid health. Multiple studies failed to make a connection between variations in this gene and thyroid hormone levels [R, R].

However, many people have symptoms of [low thyroid hormones](#) despite their lab results being in the normal range ([‘hidden hypothyroidism’](#)). That *might be* because their thyroid hormones don’t function well on a cellular and tissue level, which cannot be measured by blood tests.

One *DIO2* variant may be involved in this phenomenon. The less common "C" allele on [rs225014](#) (Thr92Ala) is associated with:

- Poor response to thyroid meds [R, R]
- Obesity and [insulin resistance](#) [R]
- Inadequate blood sugar control [R]
- Impaired cognitive development (lower [IQ](#)) [R]

All of the above may indicate low thyroid hormones in DIO2 target tissues such as the brain, fat tissue, and muscles.

The same DIO2 variant (rs225014) is associated with an inadequate response to thyroid meds in some people. Out of 45 patients, those who carried at least one “C” allele didn’t respond as well to standard T4 treatment and were significantly more depressed. They preferred a combination of T4 and T3 (liothyronine) instead [R].

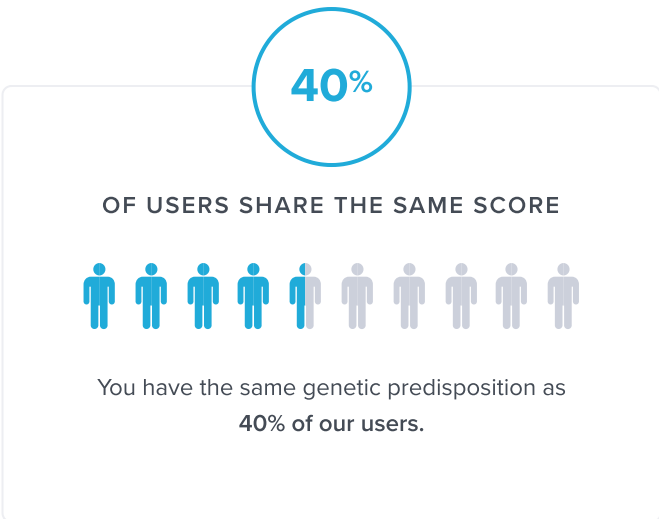
A larger trial came to a similar conclusion, though the effects were significant only for patients who had both copies of the “C” allele [R].

A Dutch study with over 12,600 participants found no connection between DIO2 and thyroid treatment response. However, they didn’t investigate the effects of the T4+T3 combination [R].



SLIGHTLY LOWER ACTIVITY

Slightly lower DIO2 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DIO2	rs225014	TC

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

IL6 Gene (Inflammation)

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

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

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

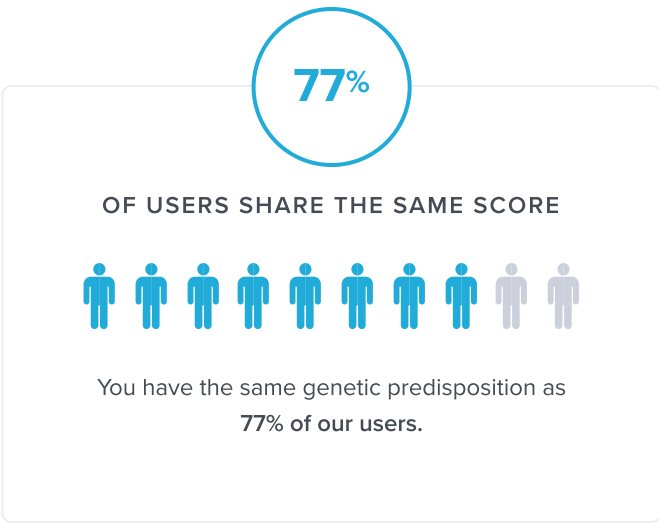
- [Faster muscle recovery and increased power performance](#) [R, R]
- [Increased longevity](#) [R]
- [Reduced risk of obesity](#) [R, R, R]
- [Reduced risk and severity of PTSD](#) [R]
- Reduced incidence of respiratory infections [R]
- Reduced risk of type 2 diabetes and insulin resistance [R, R]
-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

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

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



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL6	rs1800795	GG

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

IL10 Gene (Autoimmunity)

IL10 gene variants are linked to different inflammatory and autoimmune conditions, especially [R, R, R, R, R, R, R]:

- [IBD](#)
- Type 1 diabetes
- [Lupus](#)

These variants likely **reduce** anti-inflammatory IL10 activity, enabling a stronger autoimmune response.



TYPICAL ACTIVITY

Predisposed to typical IL10 activity based on 666 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL19	rs3024498	TT
FCMR	rs3024493	CC
IL19	rs3024505	GG
IL19	rs3024496	AA
IL19	rs1800896	TT

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

CRP Gene

The main SNP in the CRP gene is [rs1205](#) (also known as “1846 G>A”). The ‘**C**’ allele is linked to **higher CRP** levels, as well as [\[R\]](#):

- Heart disease [\[R\]](#)
- High blood sugar [\[R\]](#)
- Pneumonia [\[R\]](#)
- Overall and cardiovascular mortality [\[R, R\]](#).

However, a study found **lower** non-cardiovascular mortality in people with this variant, particularly from cancer [\[R\]](#).

Another well-known CRP variant is [rs1130864](#). The ‘**A**’ allele is linked to [\[R, R, R, R, R\]](#):

- Higher CRP levels
- Obesity
- Pneumonia
- PTSD

Other notable CRP variants include:

- [rs1800947](#): the 'G' allele is associated with lower CRP levels and lower odds of pneumonia, while the evidence for heart disease is mixed [\[R, R, R, R, R\]](#).
- [rs3091244](#): the ‘A’ allele is linked to higher CRP levels and pneumonia [\[R\]](#).
- [rs3093059](#): the ‘G’ allele is linked to higher CRP levels and a reduced risk of myocardial infarction [\[R, R\]](#).



TYPICAL ACTIVITY

Predisposed to typical CRP gene activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRP	rs1205	CC
CRP	rs1800947	CC
DUSP23	rs1130864	GG
CRP	rs3093059	AA
DUSP23	rs3091244	GG

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

TNF Gene (Inflammation)

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

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

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

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

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

- Crohn’s disease [\[R, R\]](#)
- Hashimoto’s disease [\[R\]](#)

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

- [IBD](#) [\[R, R, R\]](#)
- [Acne](#) [\[R\]](#)

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



TYPICAL ACTIVITY

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNF	rs1799724	CC
TNF	rs1800629	GG
TNF	rs1799964	TT

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

CTLA4 (Autoimmunity)

The best-researched *CTLA4* variant is [rs231775](#) (A49G). Its minor ‘G’ allele may decrease *CTLA4* gene expression and the levels of this protein in immune cells. This variant has been associated with an increased risk of autoimmune conditions such as [\[R, R, R\]](#):

- Autoimmune thyroid disease (both Hashimoto’s and Graves’ disease) [\[R, R\]](#)
- Latent autoimmune diabetes [\[R, R\]](#)
- Type 1 diabetes [\[R, R\]](#)
- Rheumatoid arthritis [\[R, R\]](#)
- Addison’s disease [\[R\]](#)
- Type 1 autoimmune hepatitis [\[R\]](#)
- Systemic lupus erythematosus [\[R\]](#)
- Alopecia areata [\[R\]](#)

Another well-researched variant is [rs3087243](#) (CT60). Its major ‘G’ allele has been associated with lower levels of the soluble CTLA4 isoform and an increased risk of [\[R\]](#):

- Rheumatoid arthritis [\[R, R, R, R, R, R\]](#)
- Autoimmune thyroid disease (both Hashimoto’s and Graves’ disease) [\[R, R, R\]](#)
- Type 1 diabetes [\[R\]](#)
- Systemic lupus erythematosus [\[R\]](#)

Another minor allele, ‘T’ at [rs231779](#), has been associated with an increased risk of Graves’ disease [\[R, R, R\]](#).

Finally, the major ‘G’ allele of [rs11571302](#) has been associated with an increased risk of rheumatoid arthritis [\[R, R\]](#).



TYPICAL ACTIVITY

Likely typical CTLA4 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CTLA4	rs231775	AG
CTLA4	rs3087243	AG
CTLA4	rs231779	CT
CTLA4	rs11571302	TG

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

Heavy Periods

Key Takeaways:

- Up to **55%** of the differences in heavy periods may be due to genetics.
- Other risk factors include certain medications and health conditions, use of intrauterine devices (IUD), and stress.
- Up to **55%** of people who menstruate may have heavy periods.
- If you have high genetic risk or experience symptoms, talk to your healthcare professional about the best actions to take.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Up to 55% of people who menstruate may have heavy periods. Their periods may last longer than 7 days or they may lose a lot of blood during their period [R].

Many factors can contribute to heavy periods, including [R, R, R, R]:

- Medications
- Health conditions that alter hormone levels or impact the uterus
- Use of intrauterine devices (IUD)
- Stress
- Genetics**

Up to 55% of the differences in heavy periods may be due to genetics. Genes involved may influence the function of blood vessels of the uterus [R].

Heavy periods can have a major impact on day-to-day life. Luckily, there are ways to manage them. Treatments can include [R, R]:

- Medications
- Surgery



LESS LIKELY

Less likely to have heavy periods based on 20,302 genetic variants we looked at



PERCENTILE



Your risk is greater than 2% of the population and lower than 98% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PSMD13	rs547025	TT
ARL14EP	rs11031006	GG
RAP2C	rs12392108	AA
TERT	rs72709458	CT
UIMC1	rs2456181	CG
TERT	rs72709458	CT
DMRT1	rs10976689	GA
ITGA11	rs148079454	AA
AADACL2	rs577706273	GG
TP53	rs78378222	TT
POGLUT3	rs149934734	CC
MCM8	rs16991615	GG
COX7C	rs144547792	GG
/	rs146741629	CC
KCNK2	rs547067	TT
EPHA5	rs144026705	AA
COL5A1	rs112290467	GG
RPL27A	rs140928568	GG
MRPL23	rs138801154	GG
/	rs115549347	TT
ADAM23	rs151000880	AA

GENE	SNP	GENOTYPE
TMOD2	rs80077390	CC
AKR1C1	rs182944440	CC
ZFPM2	rs7003249	CC
TENM4	rs144891298	AA
/	rs138376136	AA
SLAMF9	rs78243655	AA
/	rs193090021	TT
RBFOX1	rs117218078	GG
FRMD6	rs138935132	CC
COX7C	rs150666358	CC
ARHGAP23	rs138289112	GG
PRKG2	rs149498868	CC
RASGRP3	rs144939947	TT
COX7C	rs111402458	TT
PAX8	rs80290871	TT
ZNF646	rs148753960	CC
NDUFC1	rs149918776	TT
TWIST1	rs139165502	GG
CAMK2D	rs188182052	TT

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

PMS

Factors that might increase the risk of developing PMS include:

- High levels of stress
- A history of mood disorders such as depression or bipolar disorder
- A family history of PMS or PMDD (Premenstrual Dysphoric Disorder, a more severe form of PMS)
- Smoking
- Being overweight or obese
- Previous traumatic experiences or trauma
- Genetics

Some research suggests that there may be genetic variations affecting hormone levels and brain chemicals that could make certain women more prone to PMS symptoms. For instance, genes related to estrogen metabolism, progesterone receptors, and serotonin pathways may play roles in PMS onset and severity.



LESS LIKELY

Less likely to have PMS based on 25,476 genetic variants we looked at



Endometriosis

Key Takeaways:

- Up to **50%** of differences in people's chances of developing endometriosis may be attributed to genetics.
- Other risk factors include early puberty, shorter menstrual cycles, heavy bleeding during periods, higher estrogen levels, lower BMI, and certain medical conditions.
- Around **1 in 10 women** of reproductive age have endometriosis.
- If you have high genetic risk, pay attention for symptoms and speak to a healthcare professional for the best course of action.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Endometriosis is a condition in which tissue from the uterus lining grows outside of the uterus. It most commonly grows on the ovaries, the fallopian tubes, or the tissue lining the pelvis [R, R, R].

During each menstrual cycle, this tissue grows and breaks down, just like normal uterine lining. However, it has no way to get out of the body. This can cause serious issues such as cysts or fertility problems [R, R, R].

Endometriosis is very common, affecting up to 15% of women. Among women with pelvic pain or fertility problems, the rate is up to 50% [R].

The exact cause of this condition is unknown. Risk factors may include [R]:

- Going through puberty early
- Shorter menstrual cycles (less than 27 days)
- Heavy bleeding during periods
- Higher estrogen levels
- Lower body mass index (BMI)
- Some medical conditions
- **Genetics**

Endometriosis is often painful. Symptoms may include [R]:

- Painful periods
- Pain during sex
- Pain when going to the bathroom
- Heavy bleeding during periods

The main complication of this condition is infertility. **Up to half of women with endometriosis have trouble getting pregnant** [R].

Treatment options may include [R]:

- Pain medication
- Hormone therapy
- Surgery

Some people with the condition may need fertility treatment if they want to get pregnant [R].

Up to 50% of differences in people's chances of developing endometriosis may be attributed to genetics. Genes involved may influence [R, R, R]:

- Reproductive system development
- Estrogen
- Inflammation
- Cell growth



LESS LIKELY

Less likely to have endometriosis based on 1,145,572 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
/	rs993184	AA
IL1A	rs10167914	GG
ZNF239	rs10508881	AA
GNRH1	rs35698191	AT
SYNE1	rs17803970	AA
GREB1	rs11674184	GT
ARL14EP	rs74485684	TT
CDKN2A	rs1537377	CC
DMRTA1	rs1448792	GG
VEZT	rs3596	AG
KDR	rs1903068	AG
CCDC170	rs1971256	CT
/	rs113537648	GG
CDC42	rs2235529	CC
KSR2	rs10431397	CC
CDC42	rs12037376	GG
SLC66A3	rs7580473	CC
CCDC170	rs12173791	GG
CDC42	rs4654783	CC
OR1E1	rs12449465	TT
CDC42	rs16826658	TT

GENE	SNP	GENOTYPE
VEZT	rs4762326	CT
ID4	rs6907340	CC
RND3	rs6757804	TT
PPP1R17	rs2270221	TT
MOAP1	rs1268843	CC
SORCS1	rs11193561	TC
IL33	rs10975519	CC
CSMD1	rs7816936	TC
GREB1	rs77294520	GG
SYNE1	rs71575922	CC
ESR1	rs2206949	CC
ID4	rs760794	CC
HNRNPA2B 1	rs12700667	GG

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

Female Infertility

Key Takeaways:

- Genes affecting fertility may impact puberty and menopause.
- Even without heritability numbers, managing risk factors like diet and not smoking, can help mitigate your overall risk.
- Risk factors include age, smoking, over/underweight, past sexually transmitted infections, alcohol use, and PCOS.
- Responses to infertility can range from diet changes to In Vitro Fertilization.
- About **1 in 10** American women have fertility problems.

It's fairly normal for it to take a while to get pregnant. However, a person may be **infertile** if there is no successful pregnancy after [\[R\]](#), [\[R\]](#):

- 6 months of trying, for women over 35
- 12 months of trying, for women under 35

About **1 in 10 American women** have fertility problems. These problems become more common as women get older, even before menopause. This is because age can have a negative impact on ovulation [\[R\]](#), [\[R\]](#), [\[R\]](#).

A lack of ovulation means that an egg is not released from one of the ovaries. Without an egg to be fertilized, a baby cannot develop [\[R\]](#), [\[R\]](#), [\[R\]](#).

Aging is one of the most important risk factors for fertility problems. Others include [\[R\]](#):

- Smoking
- Being overweight or underweight
- Past sexually transmitted infections
- Alcohol use

Conditions like *polycystic ovary syndrome* (PCOS) can also have a negative impact on fertility. **PCOS is one of the most common causes of female infertility** [\[R\]](#).

Many women with fertility problems would still like to have children. Fortunately, there are options for some of them. Fertility treatments include [\[R\]](#), [\[R\]](#):

- Diet changes
- Weight management programs
- Medication
- Surgery
- *In vitro* fertilization (IVF)

Fertility treatments can come with their own complications [\[R\]](#), [\[R\]](#), [\[R\]](#).

Studies suggest a role of genetics in female fertility. Genes involved in female fertility may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Puberty ([KISS1](#), [GNRH1](#), [DLK1](#))
- Menopause ([BMP15](#), [FMR1](#))



LESS LIKELY

Less likely to have fertility problems based on 569 genetic variants we looked at



PERCENTILE



Your risk is greater than 2% of the population and lower than 98% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
RPS27AP5	rs72736636	CC
SEPTIN7	rs145844500	GG
PDE3A	rs146328472	GG
ZNF469	rs62047095	CC
USP3	rs117261523	TT
TRIP4	rs146498400	TT
LLCFC1	rs74746719	CC
DNAJC19	rs180915700	TT
DAPK2	rs145589988	GG
USP3	rs147469276	GG
SNAP25	rs79262309	TT
SDC2	rs148898608	TT
CDH19	rs146642675	GG
ARHGEF7	rs117622286	CC
RBPJ	rs190883507	CC
DMAC1	rs79443685	TT
GAP43	rs187126706	CC
PARP8	rs142362248	AA
PES1	rs150906026	AA
ASCC1	rs140500790	CC
FAM83F	rs143963382	CC

GENE	SNP	GENOTYPE
USP24	rs61774767	GG
DIAPH3	rs138463456	AA
/	rs140378815	GG
EXD3	rs182317439	GG
/	rs149110975	TT
CPQ	rs149587064	CC
DAOA	rs117949591	CC
DNAJB12	rs143910543	CC
NECTIN1	rs61901122	TT
GPC5	rs144456435	TT
/	rs139663059	TT
SPINK2	rs547161444	AA
ABHD17C	rs75271743	GG
COL9A1	rs112327742	CC
KCNK9	rs148836647	TT
ANAPC16	rs17647694	GG
TNRC6B	rs148140984	CC
MICU1	rs3998174	TT
RUNX1T1	rs147914982	CC

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

Thyroid Inflammation

The most common forms of thyroiditis include Hashimoto's thyroiditis, an autoimmune disease where the body's immune system mistakenly attacks the thyroid; postpartum thyroiditis, which can occur after childbirth; and subacute thyroiditis, which usually follows a viral infection. Diagnosis may involve blood tests to measure thyroid hormone levels, as well as antibody tests to detect autoimmune activity.

Treatment depends on the type and severity of thyroiditis, ranging from observation and symptom management to medications like levothyroxine for hypothyroidism or beta-blockers for hyperthyroidism symptoms.



LESS LIKELY

Less likely to have thyroid inflammation based on 348,866 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ZNF668	rs57348955	GG
TRIB2	rs1534422	AG
TNFRSF14	rs2843403	TC
PTPN22	rs2476601	GG
PTPN22	rs6679677	CC
CTLA4	rs11571297	CT
TNF	rs1800629	GG
TNF	rs1799964	TT
BACH2	rs72928038	GG
SESN3	rs4409785	TT
LPP	rs13093110	CC
IL2RA	rs706779	TC
GXYLT1	rs4768412	CC

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

Acne

Key Takeaways:

- About **50-90%** of differences in people's chances of developing acne may be due to genetics.
- Around **85%** of people develop acne between the **ages of 12 and 24**.
- Risk factors include: sugary food, dairy, oily makeup, stress, and hormonal changes.
- If your genetic risk is high, and you are young, take action now.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Acne is a common skin condition easily recognized by the pimples that appear on the face and back [\[R\]](#), [\[R\]](#).

Pimples are caused by blocked hair follicles. Oil, dead skin cells, and bacteria can all plug hair follicles and contribute to pimples [\[R\]](#), [\[R\]](#).

Acne is extremely common in teenagers. In fact, it affects about 90% of boys and 80% of girls at some point in their teen years [\[R\]](#), [\[R\]](#).

Researchers aren't sure about the exact cause of acne. One possible explanation is that the body makes more sex hormones during puberty. These hormones can increase the production of *sebum*, a skin oil that can plug a follicle. In response, the bacteria *Cutibacterium acnes* (*C. acnes*) can begin to grow [\[R\]](#), [\[R\]](#).

It is normal for *C. acnes* to live on your skin, mainly in and around the hair follicles. In fact, it may even help protect against infection by more dangerous bacteria. However, some types of *C. acnes* have been linked to acne [\[R\]](#).

Besides puberty, factors that may trigger or worsen acne include [\[R\]](#), [\[R\]](#):

- Sugary food
- Dairy
- Oily makeup
- Stress
- Hormonal changes
- Genetics**

Acne isn't usually dangerous and often goes away on its own. However, zits may leave scars on the skin long after they're gone. Both acne and its scars can affect a person's self-esteem. It is therefore important to manage acne and its potential impact on mental health [\[R\]](#), [\[R\]](#), [\[R\]](#).

Treatments often combine oral medication, creams, and skin washing. Other treatments include light therapy and chemical peels [\[R\]](#), [\[R\]](#), [\[R\]](#).

About 50-90% of differences in people's chances of developing acne may be attributed to genetics. Genes involved in acne may influence [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Hormones([MYC](#), [DDB2](#), [SELL](#))
- Skin cell function ([TP63](#), [CACNA1H](#), [ADAM19](#))



LESS LIKELY

Less likely to have acne based on 30,205 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
MOCS2	rs38055	GA
TGFB2	rs1159268	GA
SEMA4B	rs34560261	CC
TNF	rs1799724	CC
ADAMTS18	rs72803831	GG
PF4V1	rs4073	AT
TLR4	rs4986791	CC
DEXI	rs7194305	AA
EDNRA	rs6842241	CC
WNT10A	rs74333950	TG
LYPLAL1	rs1256580	GC
PNPLA3	rs738409	CC
MAP3K1	rs455660	CC
/	rs1342583	AA
MOCS2	rs629725	CT
ARNTL	rs3849154	GT
PCNX3	rs61744384	TA
UPB1	rs2070475	TA
NUDT6	rs13104688	TG
MYEOV	rs10896460	GT
IL17F	rs763780	CT

GENE	SNP	GENOTYPE
BORCS7	rs743572	AG
LAMC2	rs513398	GA
BCL11A	rs2901000	GA
SLC25A51	rs4878737	TG
SYN3	rs135025	AG
PPARG	rs1801282	GC
IL1A	rs17561	CC
LPCAT2	rs243865	CC
TNF	rs1800629	GG
SPDYC	rs144908022	AA
TNFRSF1B	rs1061622	TT
SLC45A1	rs80293268	GG
IL4R	rs1801275	AA
EDAR	rs260643	GG
IL6	rs1800796	GG
DLC1	rs17803958	CC
CSTA	rs17265703	AA
MAP3K1	rs158343	CC
TIMP4	rs3773364	AA
TRPM7	rs8042919	GG
CRELD2	rs28470568	GG
DBX1	rs1838055	GG
FGF10	rs16874036	AA
SUGCT	rs9639838	CC
DUSP16	rs7312010	GG
H4C13	rs169262	TT
PAQR8	rs2275913	GG
SLC20A1	rs1800587	GG
UTP25	rs12086634	TT

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

DNMT3B (Methylation)

One DNMT3B variant, **rs2424913-T**, has shown links with several traits related to methylation [R, R]:

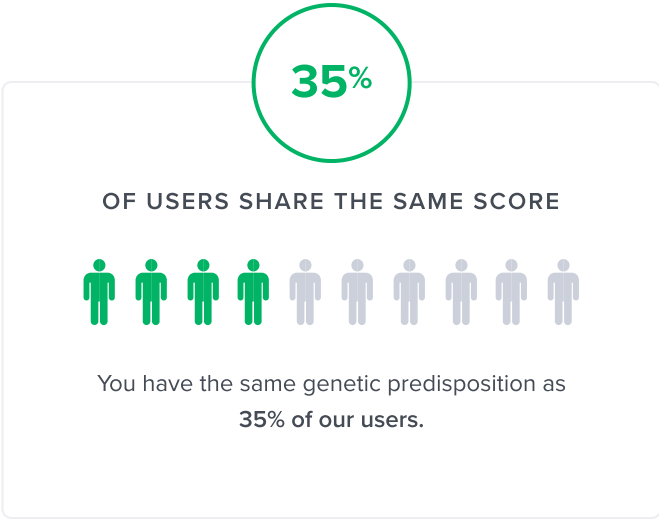
- Folate deficiency anemia
- Increased toxicity and reduced effectiveness of methotrexate
- Liver disease
- High blood sugar

The mechanism behind these findings is unclear. One possibility is that the variant increases DNMT3B activity, thus spending too much SAM-e for DNA methylation and depleting it from other pathways. Another possibility is that the variant reduces DNMT3B activity, thus impairing DNA methylation [R].



BETTER GENETICS

Likely better DNMT3B genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DNMT3B	rs2424913	CC

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

GNMT (Methylation)

Even though the GNMT enzyme plays a key role in the methylation cycle, the available research on GNMT variants is scarce.

One GNMT variant, [rs9296404-T](#), may be linked to higher homocysteine levels in response to dietary methionine [\[R\]](#).

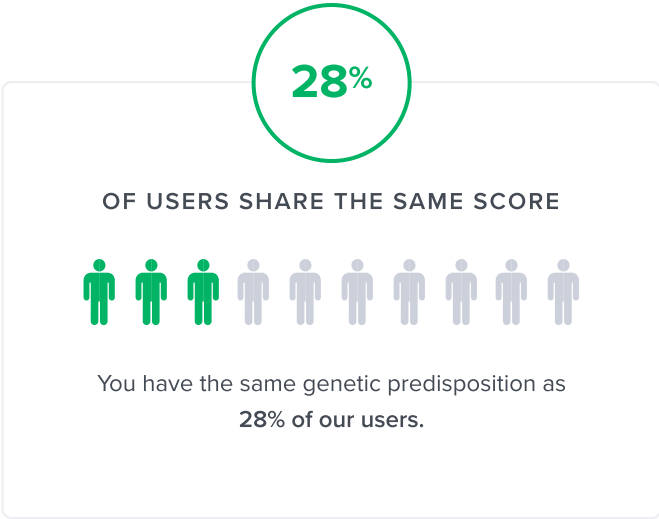
Another closely related GNMT variant, [rs10948059-C](#), showed a link with liver damage and higher cholesterol levels. However, this variant may also be linked to better methotrexate (folate-targeting drug) response and its lower liver toxicity. The ‘C’ allele at another polymorphism ([rs11752813](#)) is usually inherited together with this variant, so you will most likely carry both or neither of them [\[R\]](#), [\[R\]](#).

The above variants likely **increase GNMT activity**, shifting the SAM-e to SAH ratio towards the latter. As a result, the **methylation potential is reduced**. These variants are usually inherited together, meaning you probably carry either none or both [\[R\]](#).



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GNMT	rs10948059	TC
GNMT	rs9296404	CC

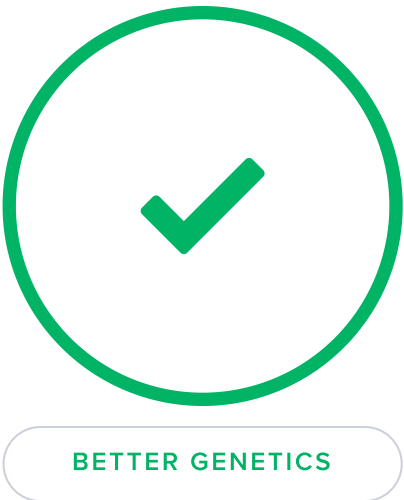
The number of "risk" variants in this table doesn't necessarily reflect your overall result.

MTHFS (Folate/ Methylation)

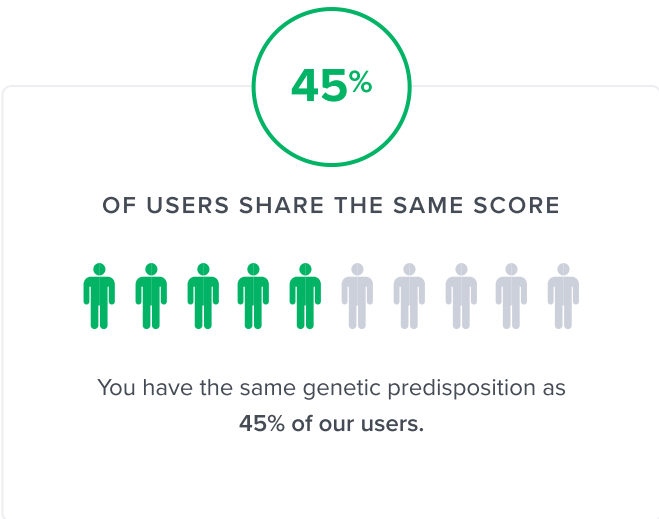
The main MTHFS variant is [rs6495446](#). A large study has found a link between the “C” allele of this variant and higher odds of kidney disease [\[R\]](#).

This finding is not surprising, given the various benefits of folate for kidney function. However, scientists are not sure if this variant has a causal effect and what the underlying mechanism is. Interestingly, they found that the “C” allele may increase MTHFS activity [\[R\]](#).

A study on people with type 2 diabetes found no link between this variant and diabetic kidney disease [\[R\]](#).



Likely better MTHFS genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFS	rs6495446	TC

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

SHMT1 (Folate/ Methylation)

The main SHMT1 variant is **rs1979277**. Its “**A**” **allele** seems to reduce the ability of SHMT to produce 5,10-MTHF, leading to **lower levels of active folate**. This may have a detrimental effect on methylation. In other words, this variant may favor the folate cycle over the methylation cycle [R].

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

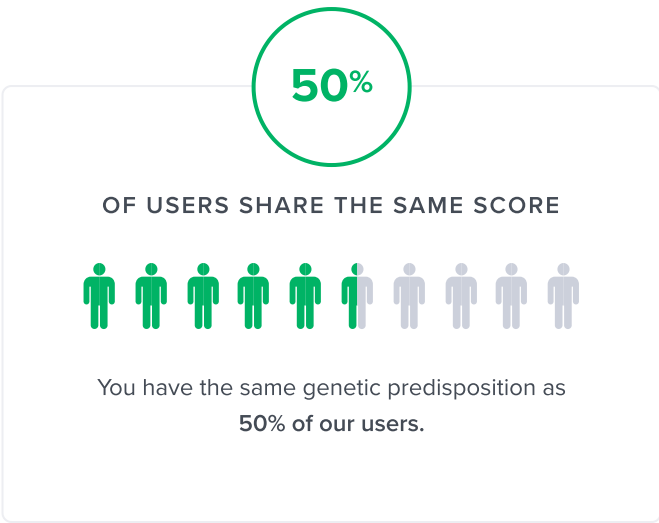
- Liver cirrhosis
- Congenital problems with blood vessels
- Down’s syndrome

In one study, the link between the MTHFR gene variant and heart disease was stronger in people who also carried this SHMT1 variant [R].



BETTER GENETICS

Likely better SHMT1 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SHMT1	rs1979277	GG

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

DIO1 (Thyroid)

Based on the data from over 3,000 individuals, the researchers identified one variant, [rs2235544](#), that correlates with [low thyroid hormones](#). More precisely, carriers of the “A” allele have lower levels of T3, which is the active form of thyroid hormones [\[R\]](#).

Carriers of the "A" allele on rs2235544 have reduced expression of *DIO1* (compared with the “C” allele), which may lower the activity of thyroid hormones. People with low T3 can experience the symptoms of hypothyroidism despite having normal, or even slightly elevated T4 levels [\[R, R, R\]](#).

Studies have identified another variation on the same gene, [rs11206244](#), but its effects are less significant and stem from a correlation with the SNP mentioned above [\[R, R\]](#).



HIGHER ACTIVITY

Likely higher DIO1 activity based on the genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DIO1	rs2235544	CC

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



Pregnancy Optimization and Birth Preparation

This section highlights genetic tendencies related to nutrient needs, stress resilience, immune balance, and physiological readiness, supporting informed preparation for pregnancy, labor, and birth.



HIGHER

Gestational Weight Gain

Predisposed to higher gestational weight gain



HIGHER LEVELS

Total Cholesterol in Pregnancy

Predisposed to higher cholesterol levels in pregnancy



HIGHER LEVELS

LDL Cholesterol in Pregnancy

Predisposed to higher LDL cholesterol levels in pregnancy



MORE LIKELY

Stillbirth

More likely to suffer a stillbirth



MORE LIKELY

Abnormal Vaginal Bleeding

More likely to have abnormal vaginal bleeding



MORE LIKELY

Acid Reflux

More likely to have GERD



HIGHER ACTIVITY

AGTR1 (Blood Pressure)

Predisposed to higher AGTR1 activity



HIGHER ACTIVITY

ITGB3 (Cardiovascular)

Predisposed to higher ITGB3 activity



LOWER ACTIVITY

KDR (Heart Disease, Drug Response)

Predisposed to a lower KDR activity



LOWER ACTIVITY

OXTR (Oxytocin)

Likely lower OXTR activity



TYPICAL LEVELS

HDL Cholesterol in Pregnancy

Predisposed to typical HDL cholesterol levels in pregnancy



TYPICAL LEVELS

Triglycerides in Pregnancy

Predisposed to typical triglyceride levels in pregnancy



TYPICAL LIKELIHOOD

Hypertensive Disorders of Pregnancy

Typical likelihood of hypertensive disorders of pregnancy



TYPICAL LIKELIHOOD

Preterm Labor

Typical likelihood of preterm labor



TYPICAL LIKELIHOOD

Swelling

Typical likelihood of having edema



TYPICAL LIKELIHOOD

Vomiting

Typical likelihood of vomiting



TYPICAL LIKELIHOOD

Stretch Marks

Typical likelihood of stretch marks



TYPICAL LIKELIHOOD

Hemorrhoids

Typical likelihood of hemorrhoids



TYPICAL LIKELIHOOD

Constipation

Typical likelihood of constipation



TYPICAL

Gut Microbiome Diversity

Predisposed to typical gut microbiome diversity



TYPICAL LEVELS

VEGFA

Predisposed to typical VEGFA levels



TYPICAL ACTIVITY

VWF (Bleeding Disorders)

Predisposed to typical VWF activity



TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity



TYPICAL ACTIVITY

IL10 Gene (Autoimmunity)

Predisposed to typical IL10 activity



TYPICAL ACTIVITY

IL8 (Inflammation)

Likely typical IL8 activity



TYPICAL ACTIVITY

CRP Gene

Predisposed to typical CRP gene activity



TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity



TYPICAL ACTIVITY

NLRP3 (Gut Inflammation)

Likely typical NLRP3 activity



LOWER ACTIVITY

STAT3 (Th1/Th17)

Likely lower STAT3 activity



LESS LIKELY

Preterm Birth

Less likely to give preterm birth



LESS LIKELY

Nausea

Less likely to have nausea



LESS LIKELY

Blood Clotting

Less likely to have thrombosis



LESS LIKELY

Cavities

Less likely to have cavities



BETTER

Overactive Bladder

Less likely to have urinary incontinence



LOWER ACTIVITY

EDN1 (Blood Pressure)

Predisposed to a lower EDN1 activity



HIGHER ACTIVITY

NOS3 (Cardiovascular)

Likely higher NOS3 activity



LOWER ACTIVITY

SERPINE1/PAI-1 (Blood Clots)

Predisposed to lower SERPINE1 activity

Gestational Weight Gain

Several factors can affect a woman's weight gain during pregnancy [\[R\]](#), [\[R\]](#):

- **Nutritional intake:** Excessive or inadequate calorie consumption.
- **Physical activity levels:** Sedentary lifestyles may lead to excessive weight gain.
- **Metabolic changes:** Hormonal shifts affecting appetite and fat storage.
- **Pre-pregnancy weight:** Underweight or overweight women may gain weight outside the recommended ranges.
- **Multiple pregnancies:** Women carrying twins or multiples naturally gain more weight.
- **Health conditions:** Gestational diabetes, thyroid disorders, or other medical conditions can impact GWG.
- **Genetic predispositions**

A study explored maternal and fetal genetic contributions to gestational weight gain (GWG). Maternal genetics explained ~20% of variations in GWG variability, with a smaller fetal contribution. Early GWG, driven by maternal fat deposition, showed stronger maternal genetic influence, while late GWG, influenced by fetal growth, had modest maternal genetic contribution [\[R\]](#).

Variants associated with **BMI, blood glucose, and blood pressure** were linked to GWG, highlighting risks from **both high and low GWG** [\[R\]](#).

Monitoring and managing gestational weight gain includes [\[R\]](#), [\[R\]](#):

- **Regular prenatal visits:** Track weight gain to ensure it aligns with recommendations.
- **Balanced diet:** Focus on nutrient-rich foods, including fruits, vegetables, lean proteins, whole grains, and healthy fats.
- **Physical activity:** Engage in safe exercises, such as walking, swimming, or prenatal yoga, with healthcare provider approval.
- **Individualized care:** Women with special needs, such as diabetes or multiple pregnancies, may require tailored guidance.

Consumer Summary

- The weight you gain during pregnancy is important for your health and your baby’s growth. Too little or too much weight gain can lead to complications, so following the recommended ranges based on your pre-pregnancy BMI is key.
- Gaining the right amount of weight helps your baby grow, lowers the risk of early delivery, and reduces health issues like gestational diabetes or high blood pressure. It also makes it easier to recover and return to a healthy weight after giving birth.
- Too much weight gain can lead to a larger baby, a higher chance of needing a C-section, and difficulty losing weight later. Too little weight gain can cause low birth weight or early delivery.
- Factors like your diet, activity levels, health conditions, and genetics can affect how much weight you gain in pregnancy. About 20% of differences may be due to genetics.
- Staying active, eating a balanced diet, and regular check-ups can help keep your weight on track.



HIGHER

Predisposed to higher gestational weight gain based on 7,267,537 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ERCC6L2	rs13295979	TT
RBM19	rs7133083	AA
UGDH	rs9995522	AA
TMEM163	rs481396	CT
/	rs1702200	GT
HLA-C	rs6457375	AG
PSG4	rs16989175	GC
SLIT2	rs3924699	CC
NTF3	rs7301563	CC
SYT4	rs310087	GG

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

Total Cholesterol In Pregnancy

During pregnancy, cholesterol levels naturally fluctuate to support fetal development, but abnormal levels may pose risks to both the mother and baby. Cholesterol levels naturally increase by **25-50%** during pregnancy to **support the production of hormones and fetal development**. These changes are considered normal and typically resolve after delivery [\[R, R\]](#).

The following dynamics of cholesterol levels during pregnancy is typical, though it can vary a lot individually [\[R, R\]](#):

- **First trimester:** Levels are similar to pre-pregnancy values.
- **Second trimester:** Begin to rise significantly.
- **Third trimester:** Peak levels, often ranging between **200-350 mg/dL**

Excess cholesterol levels during pregnancy may warrant closer monitoring, especially in women with risk factors for cardiovascular disease. They are linked to a higher risk of [\[R, R\]](#):

- **Preeclampsia:** Studies suggest that elevated LDL may increase the risk of this hypertensive disorder.
- **Gestational Diabetes:** High LDL is associated with a greater likelihood of developing glucose metabolism issues.
- **Preterm Birth:** Uncontrolled lipid levels may contribute to premature delivery.
- **Fetal Growth Restrictions:** Abnormal cholesterol levels can affect placental function, impacting the baby’s growth.
- **Long-term Cardiovascular Risk:** Persistently high LDL after pregnancy increases the mother’s lifetime risk of cardiovascular disease.

Factors that may particularly affect total cholesterol levels during pregnancy include [\[R, R\]](#):

- **Pre-pregnancy lipid levels:** Women with pre-existing dyslipidemia are more likely to have abnormal cholesterol during pregnancy.
- **Diet and lifestyle:** High saturated fat intake or sedentary behavior can elevate cholesterol.
- **Multiple pregnancies:** Increased cholesterol production to meet the needs of multiple fetuses.
- **Health conditions:** Gestational diabetes, obesity, or hypothyroidism can influence lipid metabolism.
- **Genetics and family history.**

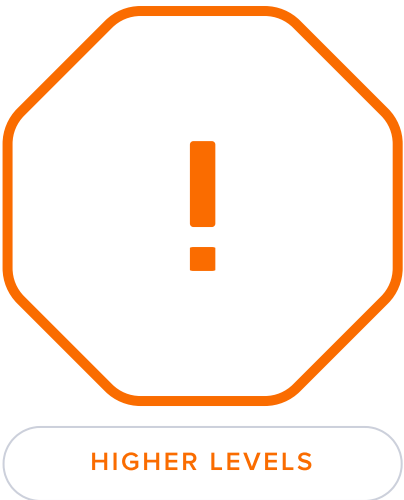
Up to **65%** of differences in cholesterol levels may be attributed to genetics. Genes that may affect cholesterol during pregnancy influence [\[R, R, R, R\]](#):

- Cholesterol production and metabolism ([HMGCR](#))
- Cholesterol receptors ([CELSR2](#), [VLDLR](#), [LDLR](#))
- Cholesterol transport ([APOE](#), [APOC1](#), [APOB](#))
- Sugar metabolism ([GCKR](#))

Interestingly, many well-established genes linked to cholesterol levels **didn’t show associations** in pregnant women [\[R\]](#).

Consumer Summary

- Cholesterol is essential for your body, especially during pregnancy, to support your baby’s growth and development. It helps build cells and produces important hormones.
- During pregnancy, cholesterol levels naturally rise by 25-50%, especially in the second and third trimesters. These changes are normal and usually return to pre-pregnancy levels after delivery.



Predisposed to higher cholesterol levels in pregnancy based on 42 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs190712692	GG
APOE	rs141622900	GG
APOE	rs7412	CC
APOE	rs1065853	GG
APOE	rs61679753	TT
APOE	rs111784051	TT
APOE	rs1160983	GG
APOE	rs72654473	CC
APOE	rs7254892	GG
APOE	rs429358	CC
INSIG2	rs10490626	GG
CLPTM1	rs434132	CG
VLDLR	rs3780181	AA
PPP1R3B	rs9987289	GG
SORT1	rs12740374	TG
SORT1	rs7528419	GA
APOE	rs814573	AT
LDLR	rs6511720	GG
SORT1	rs646776	CT
SORT1	rs629301	GT

- Too much cholesterol during pregnancy can lead to health issues like high blood pressure, diabetes, preterm birth, or poor baby growth. If you have high cholesterol before pregnancy, your doctor might monitor you more closely.
- Factors like your pre-pregnancy cholesterol levels, diet, exercise, and health conditions like diabetes or thyroid problems can affect cholesterol during pregnancy. Genetics also play a big role, affecting how your body processes and transports cholesterol.
- To keep your cholesterol at healthy levels, focus on a balanced diet, staying active, and regular prenatal checkups. If you’re concerned, talk to your doctor about the best steps to protect your health and your baby’s development.

GENE	SNP	GENOTYPE
DNAJC13	rs17404153	GG
TTC38	rs4253772	CT
APOE	rs4420638	GA
GCKR	rs1260326	TT
MTARC1	rs2642438	GG
EFCAB13	rs7225700	CT
DOCK7	rs2131925	GT
PIM1	rs913499	GA
EFCAB13	rs7206971	GG
KCNK17	rs2758886	GG
SLC22A1	rs1564348	TT
GPAM	rs2255141	GG
UBASH3B	rs7117842	TT
APOB	rs1367117	GG
NLRC5	rs3764261	CC
SIDT2	rs964184	CC
NAT2	rs1495741	AA
ALDH1A2	rs1532085	GG
PLEC	rs7832643	GG
CPLANE2	rs6656611	TT
HMGCR	rs7703051	CC
HMGCR	rs12916	TT

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

LDL Cholesterol In Pregnancy

During pregnancy, LDL cholesterol levels naturally fluctuate to support fetal development, but abnormal levels may pose risks to both the mother and baby. LDL levels naturally increase by **25-50%** during pregnancy to support the production of hormones and fetal development. These changes are considered normal and typically resolve after delivery [\[R, R\]](#).

Excess LDL cholesterol during pregnancy can increase the risk of [\[R, R\]](#):

- **Preeclampsia:** Studies suggest that elevated LDL may increase the risk of this hypertensive disorder.
- **Gestational Diabetes:** High LDL is associated with a greater likelihood of developing glucose metabolism issues.
- **Preterm Birth:** Uncontrolled lipid levels may contribute to premature delivery.
- **Fetal Growth Restrictions:** Abnormal cholesterol levels can affect placental function, impacting the baby’s growth.
- **Long-term Cardiovascular Risk:** Persistently high LDL after pregnancy increases the mother’s lifetime risk of cardiovascular disease.

Factors that may particularly affect LDL levels during pregnancy include [\[R, R\]](#):

- **Diet:** High intake of saturated fats and trans fats.
- **Pre-pregnancy BMI:** Overweight or obesity can raise LDL levels.
- **Existing Conditions:** Diabetes, metabolic syndrome, or hypothyroidism can affect lipid metabolism.
- **Genetics**

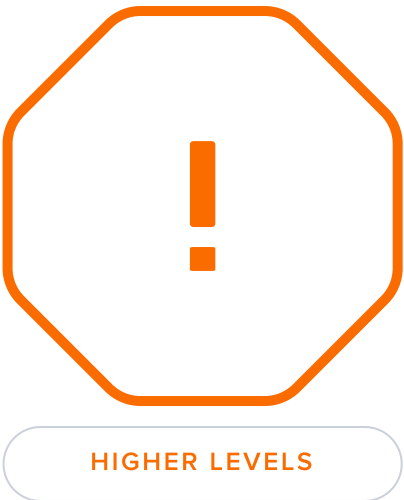
Up to **65%** of differences in cholesterol levels may be attributed to genetics. Genes that may affect LDL cholesterol during pregnancy influence [\[R, R, R, R\]](#):

- Cholesterol production and metabolism ([CELSR2](#))
- Cholesterol transport ([APOE](#), [APOC1](#))

Interestingly, many well-established genes linked to cholesterol levels **didn’t show associations** in pregnant women [\[R\]](#).

Consumer Summary

- During pregnancy, LDL or “bad” cholesterol levels naturally rise by 25-50%. This is normal and helps your baby grow. However, if levels get too high, it could lead to complications like preeclampsia, gestational diabetes, or poor baby growth.
- Factors like your diet, weight before pregnancy, and conditions like diabetes or thyroid problems can raise LDL cholesterol. Genetics also play a big role, affecting how your body processes and transports cholesterol.
- Eating a healthy diet, staying active, and attending regular checkups can help manage LDL cholesterol. If levels are high, your doctor will guide you on the best steps to protect you and your baby.
- Most changes in LDL cholesterol during pregnancy go back to normal after delivery, but keeping an eye on your levels is important for long-term heart health.



Predisposed to higher LDL cholesterol levels in pregnancy based on 37 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs190712692	GG
APOE	rs141622900	GG
APOE	rs7412	CC
APOE	rs1065853	GG
APOE	rs61679753	TT
APOE	rs111784051	TT
APOE	rs1160983	GG
APOE	rs72654473	CC
CLPTM1	rs769446	TT
APOE	rs7254892	GG
APOE	rs429358	CC
SORT1	rs6657811	AA
SORT1	rs660240	CC
APOE	rs157592	CC
CLPTM1	rs434132	CG
APOE	rs769449	AG
APOE	rs111789331	AT
NECTIN2	rs12721046	AG
NECTIN2	rs12972156	GC
NECTIN2	rs12972970	AG

GENE	SNP	GENOTYPE
APOE	rs12721051	GC
NECTIN2	rs34342646	AG
SORT1	rs12740374	TG
SORT1	rs7528419	GA
SORT1	rs646776	CT
SORT1	rs629301	GT
APOE	rs814573	AT
NECTIN2	rs6857	TC
APOE	rs7256200	TG
APOE	rs56131196	AG
APOE	rs4420638	GA
SORT1	rs1277930	AG
SORT1	rs583104	TG
SORT1	rs599839	AG
CLPTM1	rs439382	AA
APOE	rs10414043	GG
PSRC1	rs4970836	GG

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

Stillbirth

The impact of stillbirth extends beyond the immediate loss, with long-lasting emotional and psychological effects on the parents and family. Parents may experience a range of emotions, including grief, guilt, and depression.

The medical community typically offers counselling and support to help families cope with a stillbirth. Research continues to focus on prevention strategies, enhanced diagnostic tools, and improved healthcare practices to decrease the incidence of stillbirths worldwide.



MORE LIKELY

More likely to suffer a stillbirth based on 1,303,688 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PAPOLA	rs1957819	TC

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

Abnormal Vaginal Bleeding

The assessment of abnormal vaginal bleeding typically involves a detailed personal medical history and a physical examination, including pelvic examination. Further diagnostic procedures might include ultrasounds, blood tests to check hormone levels, and sometimes a biopsy to rule out endometrial pathology.

Treatment options vary based on the cause and may include hormonal therapies, such as birth control pills or intrauterine devices (IUDs), medications to control bleeding, or surgical treatments. Addressing the symptom promptly is crucial as it can impact the individual's quality of life and, in some cases, may signal serious health concerns.



MORE LIKELY

More likely to have abnormal vaginal bleeding based on 66,937 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WNT16	rs73717494	GA
ZFP69	rs4660438	AG

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

Acid Reflux

Key Takeaways:

- About **40%** of differences in people's chances of developing GERD may be attributed to genetics. It affects about **1 in 5** people in the U.S.
- GERD affects about **1 in 5** people in the U.S.
- Risk factors include: obesity, smoking, pregnancy, slow stomach emptying, hiatal hernia, certain foods, and genetics.
- If you have a high genetic risk, you may reduce overall risk by taking action on risk factors that you can change.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Have you ever had heartburn after a meal? If so, you're already familiar with **acid reflux**.

The stomach is full of acid that helps it digest food. Normally, a muscle (sphincter) above the stomach keeps the acid from moving up into the esophagus. If the muscle relaxes at the wrong time or becomes weak, it can allow stomach acid to flow up. This is called acid reflux [R].

In addition to heartburn, other signs and symptoms of acid reflux include [R]:

- A sour taste
- A constant cough or hiccups
- A hoarse voice
- Bad breath
- Bloating

Factors that can trigger or worsen these symptoms include [R]:

- Eating large meals
- Eating late at night
- Lying down or bending over after eating
- Consuming certain foods or drinks (e.g., fried or spicy foods, chocolate, coffee, and alcohol)

Many people have occasional acid reflux. However, if it is frequent, severe, or long-term, it may be a sign of [gastroesophageal reflux disease](#) (GERD). GERD is one of the most common gut disorders in the US. It affects about 1 in 5 people in North America [R, R, R, R].

Risk factors for GERD include [R, R]:

- Obesity
- Smoking
- Pregnancy
- Slow stomach emptying
- Hiatal hernia (bulging of stomach tissue into the chest)
- Genetics**

GERD is commonly treated with medications that help neutralize stomach acid or reduce its production [R].

If left untreated, GERD may lead to chronic inflammation in the esophagus. This may cause [R, R]:

- Difficulty swallowing
- Open sores (ulcers) in the esophagus
- Changes in the lining of the esophagus (Barrett's esophagus)
- Cancer of the esophagus



MORE LIKELY

More likely to have GERD based on 222,102 genetic variants we looked at

99th

PERCENTILE



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GNB3	rs5443	TT
/	rs9372625	GG
PGPEP1	rs9636202	GG
BTN2A2	rs2145318	TT
TSKU	rs7942368	CC
PPP1R17	rs215614	GG
MLN	rs4713692	CC
PPP3CA	rs920559	CG
CELF4	rs12967855	AG
VCAN	rs72771256	GG
REX1BD	rs2023878	TC
KNDC1	rs761777	GA
/	rs4676893	AA
HIVP2	rs9373363	AG
AFF3	rs4851239	CT
FAM160A2	rs12792379	AA
/	rs10940767	AA
ANO10	rs6441814	AG
MAD1L1	rs4721096	CT
HLA-B	rs9266237	CG
MAML3	rs809955	GA

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

- Detoxification ([DPYD](#))
- Inflammation ([MST1R](#), [PDE4B](#))
- Muscle function ([LAMA2](#))

GENE	SNP	GENOTYPE
REX1BD	rs12974777	TC
AFF3	rs7609078	GA
OLIG1	rs7282609	GA
APOB	rs11901649	AG
SLC39A8	rs13107325	CC
MRM2	rs11762636	AA
GRM8	rs2106353	GG
SORCS3	rs1021363	GG
ADARB1	rs2838771	CC
/	rs324769	TT
SNRK	rs74652506	CC
ETAA1	rs4362541	TT
DPYD	rs7552188	CC
CA10	rs34796998	CC
BTN3A2	rs7763910	AA
PGPEP1	rs1363119	GG
SDK1	rs10242223	GG
GRM8	rs12706746	GG
SH2B3	rs597808	GG

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

AGTR1 (Blood Pressure)

The main *AGTR1* polymorphism is [rs5186](#), commonly called A1166C in the literature. Its minor ‘C’ allele may increase the expression of this gene, potentially increasing RAS signaling [\[R\]](#).

In line with this, this variant has been associated with an increased risk of:

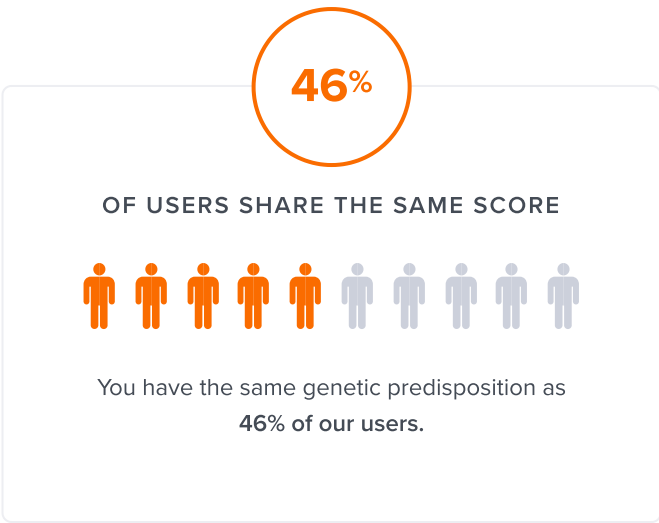
- Hypertension [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Hypertensive disorders of pregnancy [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Chronic kidney disease [\[R\]](#)
- End-stage kidney disease [\[R\]](#)
- Coronary artery disease [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Myocardial infarction [\[R\]](#)
- Metabolic syndrome [\[R\]](#)
- Aortic aneurysm [\[R\]](#)

Interestingly, this variant has been associated with higher triglycerides and cholesterol but lower adiponectin levels in response to dietary fats, predicting an increased risk of NAFLD, insulin resistance, and impaired blood vessel function in people eating a high-fat diet [\[R\]](#).



HIGHER ACTIVITY

Predisposed to higher AGTR1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CPA3	rs5186	AC

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

ITGB3 (Cardiovascular)

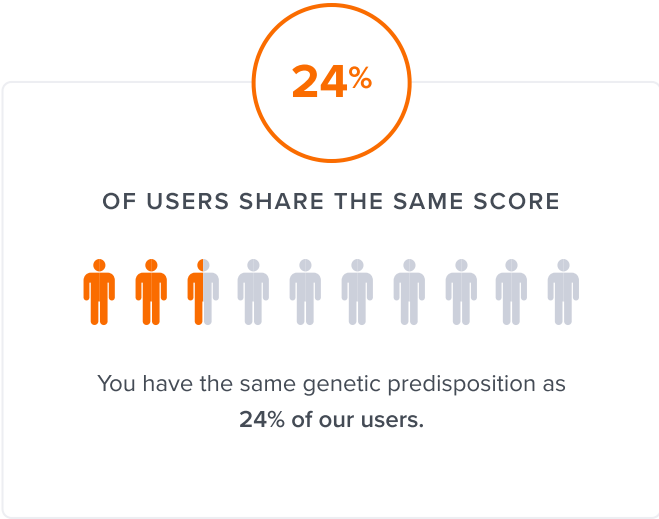
The *ITGB3* polymorphism most strongly associated with cardiovascular outcome is [rs5918](#) (Leu59Pro), commonly referred to as *PIA1/A2*. Its minor ‘C’ allele (*PIA2*) encodes an αIIbβ3 protein that makes platelets more likely to clump together. This variant has been associated with an increased risk of [\[R\]](#):

- Coronary artery disease [\[R\]](#), [\[R\]](#)
- Myocardial infarction [\[R\]](#), [\[R\]](#)
- Sudden cardiac death and coronary thrombosis [\[R\]](#)
- Congenital heart defects [\[R\]](#)
- Heart failure [\[R\]](#)
- Metabolic syndrome [\[R\]](#)
- Atherosclerotic plaque rupture [\[R\]](#)



HIGHER ACTIVITY

Predisposed to higher ITGB3 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ITGB3	rs5918	TC

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

KDR (Heart Disease, Drug Response)

The main *KDR* gene variant is [rs1870377](#), commonly referred to as Gln472His. Its minor ‘A’ allele encodes a protein with reduced binding affinity for VEGF. This variant has been associated with an increased risk of [\[R\]](#):

- Glioma [\[R\]](#)
- Coronary heart disease [\[R, R, R\]](#)
- Hypertension in cancer patients [\[R\]](#)
- Atherosclerotic cardiovascular diseases [\[R\]](#)
- Severe COVID-19 [\[R\]](#)
- Cancer hyperprogression [\[R\]](#)
- Rheumatoid arthritis [\[R\]](#)
- Schizophrenia [\[R\]](#)
- Invasive pituitary adenoma [\[R\]](#)
- Clopidogrel resistance post percutaneous coronary intervention [\[R\]](#)
- High total and LDL cholesterol [\[R, R\]](#)

However, this variant has also been associated with a reduced risk of stroke, astrocytomas, and intractable Graves’ disease [\[R, R, R\]](#).

Another well-researched polymorphism is [rs2071559](#). Its ‘G’ allele reduces *KDR* gene expression. This variant has been associated with an increased risk of [\[R\]](#):

- Glioma [\[R\]](#)
- Poor prognosis of cancer treatment [\[R\]](#)
- Myocardial infarction [\[R\]](#)
- Astrocytomas [\[R\]](#)
- Nasopharyngeal cancer metastasis [\[R\]](#)
- Diabetic nephropathy [\[R\]](#)
- Vascular dementia [\[R\]](#)
- Intractable Graves’ disease [\[R\]](#)
- ACL rupture [\[R\]](#)

However, this variant has been associated with a decreased risk of age-related macular degeneration, stroke, pituitary adenoma, coronary artery stenosis, and rheumatoid arthritis [\[R, R, R, R, R\]](#).

Finally, the ‘T’ allele of [rs2305948](#) reduces the affinity of KDR for VEGF and has been associated with an increased risk of [\[R\]](#):

- Glioma [\[R\]](#)
- Atherosclerotic cardiovascular diseases [\[R\]](#)
- Poor prognosis of cancer treatment [\[R\]](#)
- Astrocytomas [\[R\]](#)
- Coronary heart disease [\[R\]](#)
- Hemorrhagic stroke [\[R\]](#)
- Ovarian hyperstimulation syndrome [\[R\]](#)
- Rheumatoid arthritis [\[R\]](#)
- Clopidogrel resistance post percutaneous coronary intervention [\[R\]](#)



LOWER ACTIVITY

Predisposed to a lower KDR activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
KDR	rs1870377	AA
KDR	rs2071559	AG
KDR	rs2305948	CC

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

OXTR (Oxytocin)

The best-researched *OXTR* polymorphism is [rs53576](#). Its minor ‘A’ allele is associated with decreased activity in the oxytocin system and lowered effects of oxytocin supplementation When compared to those with the ‘GG’ genotype, those with the ‘A’ allele may have [\[R\]](#):

- Lower optimism, empathy, and pro-social behavior [\[R\]](#), [\[R\]](#)
- Decreased emotion-reading ability [\[R\]](#), [\[R\]](#)
- Lower predisposition to forgive [\[R\]](#)
- Decreased happiness in marriage [\[R\]](#)
- Lower non-verbal IQ [\[R\]](#)
- Higher predisposition to major depression [\[R\]](#)
- Increased risk of autism spectrum disorders [\[R\]](#), [\[R\]](#), [\[R\]](#)

However, people with this allele may deal better with stress and social rejection [\[R\]](#), [\[R\]](#).

Another well-researched polymorphism is [rs2254298](#). Its minor ‘A’ allele may increase oxytocin sensitivity and amygdala size. This variant has been associated with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Higher anxiety and sensitivity to stress [\[R\]](#), [\[R\]](#)
- Higher empathic concern of their partner's distress in romantic relationships [\[R\]](#)
- Lower optimism [\[R\]](#)
- Worse executive functioning and decision-making [\[R\]](#), [\[R\]](#)
- Decreased emotion-reading ability [\[R\]](#)

Interestingly, the heterozygous ‘AG’ genotype may be the most empathetic one compared to ‘AA’ and ‘GG’ [\[R\]](#).

Another minor variant, ‘T’ at [rs1042778](#), may decrease oxytocin levels. This variant has been associated with [\[R\]](#):

- Less empathy for the partner in romantic relationships [\[R\]](#)
- Decreased generosity and kindness [\[R\]](#)
- Less pro-social behavior [\[R\]](#)

The major ‘T’ allele of [rs13316193](#) may decrease the number of oxytocin receptors in the brain. The ‘TT’ genotype of this variant has been associated with [\[R\]](#):

- Increased risk of low mood and autism [\[R\]](#)
- Less empathy for the partner in romantic relationships [\[R\]](#)
- Decreased generosity and kindness [\[R\]](#)
- Less pro-social behavior [\[R\]](#)

Finally, the rare ‘A’ allele of [rs2268494](#) may cause lower oxytocin levels or less efficient oxytocin receptors. This variant has been associated with an increased risk of autism and less empathy for the partner in romantic relationships [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

Likely lower OXTR activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
OXTR	rs13316193	TT
OXTR	rs2254298	GG
OXTR	rs53576	GA
OXTR	rs1042778	TG
OXTR	rs2268494	TT

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

HDL Cholesterol In Pregnancy

HDL cholesterol increases during the first trimester of pregnancy and **peaks during the second and third trimesters, correlated with estrogen levels**. A failure to increase HDL cholesterol levels during pregnancy has been associated with [\[R\]](#), [\[R\]](#):

- Pregnancy loss [\[R\]](#)
- Aberrant fetal growth [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Gestational diabetes [\[R\]](#)
- Dyslipidemia and cardiovascular disease after pregnancy [\[R\]](#)

Risk factors for low HDL cholesterol in pregnancy include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Being overweight or obese
- Smoking
- Low physical activity
- Certain ethnicities
- Genetics

Up to **65%** of differences in cholesterol levels may be attributed to genetics. Genes that may affect HDL cholesterol during pregnancy influence [\[R\]](#):

- Cholesterol production ([LPL](#), [LIPC](#), [FADS2](#))
- Cholesterol transport ([APOC1](#))
- HDL and LDL cholesterol balance ([CETP](#))

Managing HDL cholesterol levels primarily involves lifestyle interventions, as medication use is generally limited during pregnancy due to potential risks to the fetus. Doctors may recommend [\[R\]](#), [\[R\]](#), [\[R\]](#):

- A balanced diet rich in fruits, vegetables, whole grains, and healthy fats
- Regular, moderate-intensity exercise such as walking or prenatal yoga
- Regular monitoring of lipid profiles as part of prenatal care, especially if there is a history of lipid disorders.

Consumer Summary

- HDL cholesterol, or "good cholesterol," helps your body by removing excess cholesterol and protecting against heart disease. During pregnancy, HDL levels naturally rise, especially in the second and third trimesters, thanks to higher estrogen levels.
- If HDL levels don't increase as expected during pregnancy, it might raise the risk of complications like gestational diabetes, poor baby growth, or even pregnancy loss.
- Factors like being overweight, smoking, or low physical activity can lead to lower HDL cholesterol levels during pregnancy. Genetics is a major factor, affecting how your body makes and processes cholesterol.
- You can boost your HDL levels by eating a healthy diet with fruits, vegetables, whole grains, and good fats, like those found in nuts and fish. Staying active with regular exercises, such as walking or yoga, can also help.
- Your doctor may check your cholesterol levels during pregnancy, especially if you have a history of cholesterol issues. Making small, healthy changes now can protect both you and your baby.



TYPICAL LEVELS

Predisposed to typical HDL cholesterol levels in pregnancy based on 37 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NLRC5	rs247617	CC
NLRC5	rs183130	CC
NLRC5	rs247616	CC
NLRC5	rs3764261	CC
LPL	rs12678919	AA
ALDH1A2	rs1532085	GG
DUS2	rs16942887	AG
RRNAD1	rs12145743	TT
LILRA5	rs103294	CC
AKT1	rs4983559	AG
SORT1	rs646776	CT
SORT1	rs629301	GT
SNX13	rs4142995	TG
DOCK6	rs737337	CT
PGS1	rs4969178	AG
ADAM10	rs261342	GC
MAP3K1	rs9686661	TC
APOE	rs4420638	GA
HNF4A	rs1800961	CC
CETP	rs5880	GG
HERPUD1	rs11076175	AA
ABCA1	rs4149307	TT
ABCA1	rs4149310	TT
TTC39B	rs686030	AA
PLTP	rs6065906	TT
GLUL	rs1689797	CC
PLTP	rs4465830	AA
GLUL	rs1689800	AA

GENE	SNP	GENOTYPE
LPL	rs894210	AA
TRIB1	rs2980885	AA
MTARC1	rs2642438	GG
ABCA1	rs1883025	CC
DNAJC13	rs17404153	GG
RBM6	rs2013208	TT
FANCL	rs17615494	GG
FADS2	rs174546	CC
SNTB1	rs4871137	GG
TRANK1	rs6777217	GG

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

Triglycerides In Pregnancy

The blood lipid profile of **pregnant women** undergoes changes that start during the first weeks and include an increase in triglyceride levels. While a physiological increase in triglycerides is required for fetal development and pregnancy maintenance, excess levels may increase the risk of:

- Adverse pregnancy outcomes [R, R]
- Aberrant fetal growth [R, R, R, R]
- Dyslipidemia and cardiovascular disease in the offspring [R]

Some factors may particularly increase triglycerides during pregnancy. These include [R, R]:

- Being overweight or obese
- Certain ethnicities
- Eating a diet high in saturated fats
- Smoking during pregnancy
- Higher maternal age
- Higher parity
- Lack of exercise

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

- [LEPR](#)
- [BUD13](#)
- [FADS1](#)
- [FADS2](#)
- [LIPC](#)
- [GCKR](#)
- [LPL](#)

Managing triglyceride levels primarily involves lifestyle interventions, as medication use is generally limited during pregnancy due to potential risks to the fetus. Doctors may recommend [R, R]:

- A balanced diet with plenty of fruits, vegetables, whole grains, and sources of omega-3 fatty acids while limiting sugars and saturated fats
- Regular, moderate exercise such as walking or prenatal yoga.
- Regular monitoring of lipid profiles as part of prenatal care, especially if there is a history of lipid disorders.

Consumer Summary

- Triglycerides are a type of fat your body uses for energy and stores for later. They naturally rise during pregnancy to support your baby’s growth and development, but very high levels can lead to complications.
- Excess triglycerides during pregnancy might increase the risk of problems like abnormal baby growth or long-term heart issues for both you and your baby.
- Factors like being overweight, eating too much saturated fat, and smoking can cause triglycerides to rise too much during pregnancy. Genetics also plays a big role, with genes involved in sugar and fat metabolism.
- To manage triglyceride levels, focus on eating a balanced diet with plenty of fruits, vegetables, whole grains, and healthy fats like omega-3s. Regular exercise, like walking or prenatal yoga, can also help.
- Your doctor may monitor your lipid levels as part of routine prenatal care, especially if you have a history of high triglycerides.



TYPICAL LEVELS

Predisposed to typical triglyceride levels in pregnancy based on 26 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LPL	rs12678919	AA
MLXIPL	rs17145738	CC
GCKR	rs1260326	TT
QKI	rs4709741	CC
MICB	rs2247056	CC
GCKR	rs780094	TT
GINS2	rs871290	GC
ARL15	rs6450176	AA
NSMAF	rs2081687	TC
COBLL1	rs7607980	CT
GRB14	rs12328675	CT
EYA1	rs4738141	AG
ADAM10	rs261342	GC
MAP3K1	rs9686661	TC
DOCK7	rs2131925	GT
REEP3	rs7897379	CT
TNFAIP8	rs1045241	TC
SIDT2	rs10790162	GG
PCSK7	rs2160669	TT
SIDT2	rs964184	CC
LCMT2	rs2412710	GG
LPL	rs894210	AA
BUD13	rs603446	TT
ATP2B4	rs2821231	CC
FADS2	rs174546	CC
FADS2	rs1535	AA

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

Hypertensive Disorders Of Pregnancy

Certain factors may increase the likelihood of developing hypertensive disorders [\[R\]](#), [\[R\]](#):

- First pregnancy.
- Previous history of hypertensive disorders in pregnancy.
- Family history of preeclampsia or other hypertensive disorders.
- Chronic hypertension, kidney disease, or diabetes.
- Advanced maternal age (over 35).
- Obesity or excessive weight gain during pregnancy.
- Twin or multiple pregnancies.
- Autoimmune diseases (e.g., lupus or antiphospholipid syndrome).
- Genetics

Genetics accounts for about 50% of the differences in blood pressure and preeclampsia rates [\[R\]](#), [\[R\]](#).

If left untreated, hypertensive disorders can result in serious complications for both mother and baby, such as [\[R\]](#), [\[R\]](#):

- Placental abruption (premature separation of the placenta).
- Preterm birth.
- Fetal growth restriction.
- Low birth weight.
- Stillbirth in severe cases.
- Organ damage in the mother (kidneys, liver, brain).
- Increased lifetime risk of cardiovascular disease for the mother.

Management depends on the type of hypertensive disorder and the stage of pregnancy [\[R\]](#):

- **Chronic Hypertension:** Blood pressure medications may be adjusted to ensure safety for the baby.
- **Gestational Hypertension:** Regular monitoring and lifestyle changes, such as a healthy diet and moderate physical activity.
- **Preeclampsia/Eclampsia:** Hospitalization may be required for close monitoring, and early delivery may be necessary in severe cases.
- **Superimposed Preeclampsia:** Intensive monitoring and possible early delivery.

Consumer Summary

- High blood pressure during pregnancy can happen in different forms, like chronic hypertension (before pregnancy), gestational hypertension (after 20 weeks), or preeclampsia (high blood pressure with organ problems). Severe cases like eclampsia can cause dangerous seizures.
- If not treated, these conditions can harm both the mother and baby, leading to early delivery, low baby weight, or even serious outcomes like stillbirth. Moms may also face long-term health problems like heart or kidney issues.
- Risk factors include being pregnant for the first time, being over 35, having diabetes or kidney problems, being overweight, and genetics.
- Regular doctor visits to check blood pressure, staying active, eating healthy, and managing existing health problems can help prevent or catch these issues early.
- Treatment can include making healthy lifestyle changes, taking safe blood pressure medicine, or in severe cases, going to the hospital or delivering the baby early to protect both mom and baby.



TYPICAL LIKELIHOOD

Typical likelihood of hypertensive disorders of pregnancy based on 7,277,852 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
RGL3	rs167479	GG
FGF5	rs16998073	AT
PRELID3B	rs201454025	GG
FLT1	rs7318880	TT
WNT3A	rs708119	CC
KLRB1	rs10843404	CC
MTHFR	rs13306561	AG
PREX1	rs2208589	GA
PGR	rs2508372	AG
NPR3	rs12656497	TC
FTO	rs113935429	ADEL(T)
FTO	rs1421085	TC
ACTN4	rs979971	TC
MECOM	rs9855086	TA
MECOM	rs1918969	CT
APOE	rs7412	CC
AGT	rs699	GG
ULK3	rs6495122	AA
ARHGAP42	rs633185	CC
ABO	rs579459	TT

GENE	SNP	GENOTYPE
ULK3	rs24722299	AA
ADRB1	rs1801253	CC
BCL2	rs12454712	TT
PRKAG2	rs10224002	GG
EPAS1	rs10168349	GG
TNNT3	rs4980379	TC
ACE	rs4343	AG
TCF7L2	rs34872471	CT
NPR3	rs1173771	AG
TNS2	rs117928258	CC
UPB1	rs17572606	CC
FGL1	rs2653414	CC
NELFCD	rs259983	AA
PLCE1	rs10882398	TT
FES	rs6224	GG
SH2B3	rs10774624	AA
MICB	rs2442752	TT
SH2B3	rs3184504	CC
ACE2	rs2285666	CC
TWIST1	rs2107595	GG
ACE2	rs1978124	CC
NGF	rs11466111	CC

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

Preterm Labor

The exact causes of preterm labor can be difficult to pinpoint, but several factors are known to increase the risk [\[R\]](#):

- Multiple pregnancies: Twins, triplets, or higher-order multiples are more likely to be born prematurely.
- Previous preterm birth
- Maternal health issues such as diabetes, high blood pressure, infections, and chronic conditions like heart and kidney disease
- Pregnancy complications: like preeclampsia, placental problems (e.g., placenta previa), or intrauterine growth restriction
- Smoking, alcohol use, and illicit drug use during pregnancy.
- Age: Teenagers and women over the age of 35 are at increased risk.
- Lack of proper prenatal care
- High stress, long working hours, physical labor, and lack of social support
- Genetics

About **15-35%** of the differences in premature labor may be due to genetics [\[R\]](#).

The following treatments may help prevent preterm labor in women at high risk:

- Progesterone supplements
- Cervical cerclage: A surgical procedure that can be used to close the cervix temporarily
- Reducing physical stress, quitting smoking, and avoiding other harmful substances.
- Effective control of conditions like diabetes and high blood pressure.
- In some cases, admission to the hospital might be necessary to manage preterm labor.
- Medications such as tocolytics may delay delivery long enough for steroids or other treatments to improve the baby's health outcomes.

Regular prenatal visits are crucial to monitor the health of both mother and baby and to implement strategies to reduce the risk of preterm birth. Early intervention and careful management of any underlying risk factors are vital in preventing preterm labor or ensuring that the baby is as healthy as possible if they are born prematurely [\[R\]](#).

Consumer Summary

- Preterm labor happens when a baby is born before 37 weeks of pregnancy. Babies born prematurely are at risk for long-term health challenges.
- Signs of preterm labor include frequent contractions, increased vaginal discharge or bleeding, pressure in the pelvis, constant back pain, and abdominal cramps. Recognizing these early signs is essential.
- Risk factors for preterm labor include carrying multiples (e.g., twins), past preterm births, pregnancy complications, health issues like diabetes or infections, lifestyle factors, and genetics.
- Preventive treatments may include progesterone supplements, cervical cerclage (a procedure to close the cervix), and managing chronic conditions. It's important to avoid harmful substances and reduce physical stress.
- If preterm labor begins, a doctor may recommend medications to delay delivery, allowing time for treatments that can improve the baby's health.



TYPICAL LIKELIHOOD

Typical likelihood of preterm labor based on 1,017,185 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TGFB1	rs11466328	GG
TRIB2	rs13401913	CT
CDC42	rs3820282	CC
HLA-DRB1	rs9271673	GG
KCNAB1	rs1488425	AA
HAND2	rs11732983	TT
PMP22	rs7217780	CC
LRP5	rs312777	GC
/	rs2963463	CC
DMAC1	rs148983777	GG
SOX5	rs17408900	TT
BOD1L1	rs13151645	TT
AKR1C3	rs7098485	GG
EEFSEC	rs4241495	CC

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

Swelling

Factors that might increase the risk of developing edema include [R](#), [R](#):

- Sitting or standing in one place for too long.
- Hot weather.
- High salt intake.
- Pregnancy: Hormonal changes can cause increased fluid retention.
- Certain medications, like those for hypertension, steroids, NSAIDs, and some diabetes medications.
- Chronic venous insufficiency.
- Lymphatic system blockages.
- Congestive heart failure.
- Kidney disease or damage.
- Cirrhosis.
- Genetics



TYPICAL LIKELIHOOD

Typical likelihood of having edema based on 1,672 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DSG3	rs73412205	TT
RGS10	rs4752321	GG
PLPPR5	rs12042620	TT

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

Vomiting

Common causes of vomiting include:

- **Gastroenteritis (stomach flu)**
- Pregnancy-related sickness
- Migraine headaches
- Chemotherapy or radiation
- Food poisoning or contamination
- Overeating or drinking large amounts of alcohol
- Certain medications
- Vestibular disorders, like motion sickness
- Gallbladder disease

Factors that might increase the risk of vomiting include:

- Exposure to individuals with stomach viruses or infections
- Consuming contaminated food or water
- Traveling, especially to areas with different water or food sanitation standards
- A history of motion sickness or migraine
- Genetics



TYPICAL LIKELIHOOD

Typical likelihood of vomiting based on 1,675 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NT5M	rs8082383	TT
KCND2	rs12706265	TC
/	rs62493919	CG
GJB4	rs11589940	CT
/	rs10928874	AT
SLCO3A1	rs1568209	AG
FGF14	rs1927382	TC
PPP2R1A	rs8108607	CC
/	rs1355625	GG
SLC5A8	rs7956620	AA
MEIS2	rs2681320	TT
C9ORF50	rs10118527	CC
C9ORF50	rs10118507	CC
CPEB2	rs6848922	TT
CLDN14	rs2071049	CT
SPATS2L	rs1561296	TC
MTNR1B	rs7118248	GT

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

Stretch Marks

Key Takeaways:

- Gene variants involved in stretch marks formation may affect elastin and other skin proteins.
- Other factors include being female, pregnancy, rapid growth or gaining/losing weight, steroid use, breast enlargement surgery, and African ancestry.
- Stretch marks are a common condition starting in adolescence.
- If you have high genetic risk, you may lower overall risk by taking action on those factors that you can change.

Stretch marks are a type of scarring typically caused by our skin stretching or shrinking too quickly.

They are typically caused by:

- Growth spurts in puberty
- Pregnancy
- Rapid weight loss or gain
- Rapid muscle gain due to weight training
- Breast enlargement surgery
- Extended corticosteroid use
- Some medical conditions such as Cushing's syndrome

The following factors may further increase the risk of stretch marks [\[R\]](#):

- Being female
- African ancestry
- **Genetics**

Research has found different gene variants involved in stretch marks formation. Involved genes may affect **elastin** and other skin proteins [\[R\]](#).



TYPICAL LIKELIHOOD

Typical likelihood of stretch marks based on 1,519 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SCFD1	rs9707389	TT
/	rs6673165	TT
/	rs7421449	AA
TAFA1	rs9809500	GG
TAFA1	rs9848233	CC
TENM4	rs548541	GG
SRSF6	rs6093816	GG
SRSF6	rs6093813	CC
SRSF6	rs58314244	GG
SRSF6	rs2010809	CC
L3MBTL1	rs57083567	CC
SRSF6	rs6103260	GG
NR2F2	rs62009523	AG
NR2F2	rs16976042	CT
CHRNA2	rs12143679	CC
GADL1	rs4955369	TT
ATXN1	rs59302766	AA
TJP1	rs41280060	GG
SLC26A8	rs11969921	AA
BNIP5	rs16887986	CC
BNIP5	rs11968573	TT

GENE	SNP	GENOTYPE
BNIP5	rs11965968	CC
PFDN2	rs1556258	CC
/	rs11088770	CC
MDGA1	rs35787789	CC
MDGA1	rs11963879	AA
MDGA1	rs61749283	AA
OB11	rs9574326	AA
CES5A	rs57161061	AA
USP13	rs61760203	CC
NR2F2	rs62009489	CC
/	rs1976600	GG
NR2F2	rs62009485	GG
NR2F2	rs62009522	TT
NR2F2	rs62009521	TT
NR2F2	rs62009520	GG
/	rs10513579	TT
/	rs1397220	TT
NR2F2	rs62009519	TT
NR2F2	rs8030797	CC

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

Hemorrhoids

Key Takeaways:

- Hemorrhoids are a very common condition. Your genetics can make you more susceptible to them.
- Mild cases can be managed with eating more fiber, drinking more water, topical creams or suppositories, soaking in a warm bath, and pain medication. Talk to your doctor if symptoms persist beyond a week.
- If your genetic risk is high, taking more precautions to avoid straining during bowel movements and constipation may prove beneficial.
- Click the **next steps** tab for relevant labs.

Hemorrhoids are swollen veins in the anus or lower rectum. They are also called *piles*. They can be [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- **Internal** (on the walls of the rectum)
- **External** (under the skin around the anus)

Hemorrhoids are very common. **In fact, up to 3 out of 4 adults will have them at some point in their lives** [\[R\]](#).

The risk of hemorrhoids increases as the body ages. Hemorrhoids can also occur during pregnancy [\[R\]](#).

Symptoms can vary between different types of hemorrhoids. The symptoms of **external hemorrhoids** may include [\[R\]](#), [\[R\]](#):

- Itching
- Swelling
- Bleeding
- Pain

The symptoms of **internal hemorrhoids** may include [\[R\]](#), [\[R\]](#):

- Bleeding during bowel movements
- Pain and irritation if a hemorrhoid pushes through the anus

In rare cases, hemorrhoids may cause complications such as [\[R\]](#):

- A lack of healthy red blood cells (*anemia*)
- Blood clots in the hemorrhoid
- Extreme pain if blood supply to the hemorrhoid is cut off

If you have rectal bleeding, don't assume that hemorrhoids are the cause. Rectal bleeding can occur as a result of other conditions, some of them more serious. Be sure to see your doctor if your bleeding lasts longer than a week or you bleed during bowel movements [\[R\]](#).

In most cases, hemorrhoids can be managed at home. Some options for mild cases include [\[R\]](#), [\[R\]](#):

- Eating foods high in fiber
- Drinking more water
- Creams or suppositories
- Soaking in a warm bath
- Painkillers

If these strategies don't help within a week, a doctor may recommend [\[R\]](#), [\[R\]](#):

- Topical medication
- Injectable treatments (sclerotherapy)
- Surgical removal



TYPICAL LIKELIHOOD

Typical likelihood of hemorrhoids based on 640,366 genetic variants we looked at

62nd

PERCENTILE



Your risk is greater than 62% of the population and lower than 38% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MUC12	rs4556017	TT
PPIE	rs11585073	AA
SFMBT1	rs9847710	TT
/	rs7183672	GG
XKR9	rs1838392	GT
MYOCD	rs62061554	AG
/	rs12153515	CT
CCAR2	rs13271626	GC
CCT8	rs2832279	CA
PRKCA	rs4423457	GA
EVI2A	rs2525570	GA
PIAS1	rs12594232	AG
TBX5	rs2555004	GA
ASPN	rs755209	AG
/	rs7423637	AT
ATP1B1	rs145163454	TT
TP53	rs78378222	TT
LLPH	rs11176001	CC
/	rs676996	TT
SMAD3	rs17293632	CC
ETAA1	rs2861709	AA

Genetic differences may play a role in people's chances of developing hemorrhoids. Genes involved in hemorrhoids may influence the function of [R](#):

- Muscles in the anus
- The gut
- Blood vessels

GENE	SNP	GENOTYPE
SLC40A1	rs16831319	TT
ESR1	rs9322356	GG
MYH11	rs6498573	CC
CDKN2B	rs1333047	TT
CAP2	rs10807610	AA
PLEC	rs58579887	TT
MERTK	rs57116599	GG
CDH26	rs35384758	AA
THBS2	rs3253	CC
KANK2	rs2421206	TT
AMPD3	rs2218793	CC
MTCH2	rs10838738	AA
ATPAF2	rs854786	GG
GAS2L1	rs174767	GG
NLRC4	rs6723226	AA
OTX1	rs4671051	AA
ISL1	rs4485884	TT
SPRY1	rs2060285	CC

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

Constipation

Key Takeaways:

- Genetic research indicates that genes involved in constipation are likely similar to those influencing IBS.
- Other risk factors include dehydration, a low-fiber diet, lack of exercise, intestinal blockages, certain nerve, muscle, or hormone issues, older age, being female, and certain medications.
- Constipation is very common, with about 1 in 4 people having it at any given time.
- If your genetic risk is high or you have symptoms, you may lower your overall risk by taking action on those factors that you can change.

Constipation is difficulty passing stools. It presents as few bowel movements a week, generally less than three. People with constipation may also have [R](#), [R](#):

- Difficult or painful bowel movements
- Stools that are hard, dry, or lumpy
- A feeling that more stool needs to be passed

Constipation is very common; **about 1 in 4 people may have it at any time** [R](#), [R](#).

The following may contribute to constipation [R](#):

- Dehydration
- A low-fiber diet
- A lack of exercise
- Something blocking the intestine
- Problems with certain nerves, muscles, or hormones
- Older age
- Female sex
- Some medications

To support healthy bowel movements, experts recommend [R](#):

- Eating lots of fiber
- Drinking lots of water
- Staying active
- Managing stress
- Passing stool as soon as you feel the urge

Some people may need laxatives or other medications to help with constipation. In some cases, surgery may be required to remove a blockage [R](#).

Some of the differences in people's bowel movements may be attributed to genetics [R](#), [R](#).



TYPICAL LIKELIHOOD

Typical likelihood of constipation based on 1,687 genetic variants we looked at



Your risk is greater than 75% of the population and lower than 25% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MORC2	rs55694472	CC
FZD4	rs182200829	GG
/	rs574648890	AA
HORMAD1	rs150782165	GG
KATNIP	rs149014823	CC
/	rs140085457	AA
MCUR1	rs562047350	AA
/	rs560797967	TT
TRAPPC9	rs116380351	CC
LRRC31	rs564587334	AA
SEC62	rs551839727	CC
/	rs13328995	TT
CXCR4	rs146493009	TT
CALM1	rs113878265	CC
PPP6R2	rs188272551	CC
ST18	rs144859003	CC
KCTD9	rs79700501	TT
SLITRK1	rs113428943	TT
MTRES1	rs116465542	GG
ATP8B2	rs144890977	CC
AP1M1	rs143695943	CC

GENE	SNP	GENOTYPE
/	rs537591474	CC
KLF2	rs561412363	CC
MCTP2	rs115350201	AA
CLSTN1	rs542394633	CC
AVL9	rs576185900	GG
CCNI	rs115310636	TT
GRK5	rs551434317	GG
GCFC2	rs568976510	GG
ESRRG	rs142704599	GG
JARID2	rs150597631	GG
DDR1	rs147082103	GG
MUC21	rs59236926	GG
GABRG3	rs112865614	CC
SLC35G1	rs138110766	AA
NAALADL2	rs144790287	GG
TMEM174	rs6872673	CC
MAP4K3	rs146245526	AA
VPS41	rs77233399	TT
ZNF764	rs147809573	CC

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

Gut Microbiome Diversity

Key Takeaways:

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

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

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

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

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

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

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

- Nutrition
- Blood type
- Metabolism



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

Your top variants that most likely impact your genetic predisposition:

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

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

VEGFA

About 60% of the differences in people’s VEGFA levels may be due to genetics [R].

Some people might naturally make more VEGFA because of their genes. This means that their family's history might make them more likely to have higher levels of this protein. These genes can also affect how some medicines work, especially those that target VEGFA.

Other factors influencing VEGFA levels include:

- **Low Oxygen Levels:** Hypoxia is one of the primary factors that increase VEGFA levels. When cells experience low oxygen levels, they produce more VEGFA to stimulate blood vessel growth and improve oxygen delivery.
- **Injuries and Inflammation:** Tissues that undergo damage or inflammation often see an increase in VEGFA levels as part of the body's healing response.
- **Exercise:** Physical activity, especially at higher intensities, can temporarily increase VEGFA levels. This promotes capillary growth in muscles and aids in exercise recovery and adaptation.
- **Diet:** Certain antioxidants found in fruits, vegetables, beans, and green tea can inhibit the production of VEGFA, leading to lower levels. In contrast, iron deficiency increases VEGFA production as the body attempts to enhance iron delivery through increased blood supply.
- **Sunlight Exposure:** Exposure to UV from sunlight stimulates the production of vitamin D. This vitamin activates VEGFA production and increases its levels.
- **Medical Conditions:** As previously described conditions such as cancer, age-related macular degeneration, and diabetic retinopathy are associated with increased VEGFA levels.
- **Certain Medications:** Some drugs, especially those used in chemotherapy, can indirectly increase VEGFA levels as a response to their action or as a side effect.



Predisposed to typical VEGFA levels based on 22 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
VEGFA	rs6921438	GA
VLDLR	rs2375981	CG
ZFPM2	rs6993770	TA
VEGFA	rs1740073	CT
VLDLR	rs34881325	TC
NRBF2	rs10822155	AC
VEGFA	rs12205248	TC
ZFPM2	rs4734879	GA
ZFPM2	rs2343592	GA
TMEM97	rs241771	CT
CFHR3	rs1329421	AT
REEP3	rs7896518	GA
TMEM63B	rs79238583	TT
MRPS18A	rs9381249	TT
NFKBIE	rs9462957	AA

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

VWF (Bleeding Disorders)

Von Willebrand disease is a bleeding disorder with slow blood clotting and abnormal bleeding. People with this condition often experience [\[R\]](#):

- Easy bruising
- Excessive bleeding or oozing after injuries, surgery, or dental work
- Long-lasting nosebleeds
- Heavy or long periods
- Heavy bleeding during labor

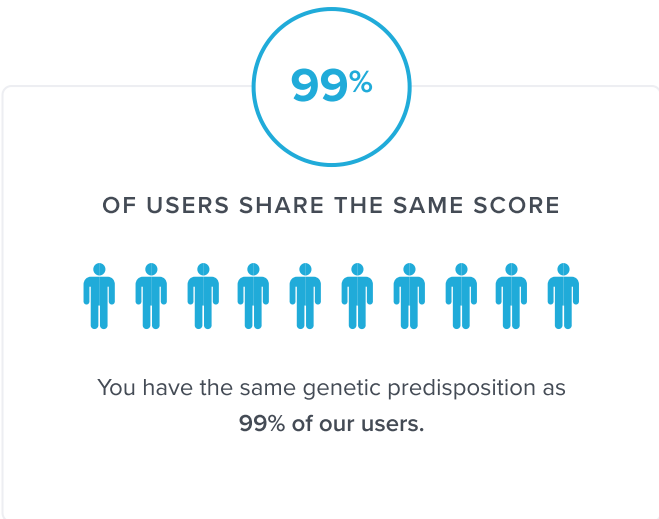
Von Willebrand disease is caused by mutations leading to the production of lower VWF protein levels (type 1), aberrant forms of the protein with impaired function (type 2), or total lack of the protein (type 3). Most cases are inherited in an autosomal dominant pattern, which means only one copy of the mutated allele is sufficient to cause the disorder. Some of the variants associated with this condition include [\[R\]](#), [\[R\]](#):

- ‘C’ of [rs1800386](#)
- ‘A’ of [rs121964894](#)
- ‘C’ of [rs267607353](#)
- ‘T’ of [rs41276738](#)



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
VWF	rs41276738	CC
/	rs267607353	AA
VWF	rs1800386	TT

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

IL6 Gene (Inflammation)

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

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

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

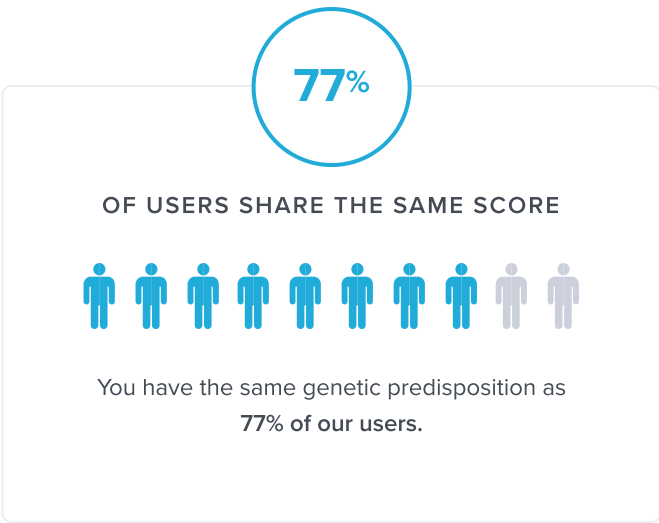
- [Faster muscle recovery and increased power performance](#) [R, R]
- [Increased longevity](#) [R]
- [Reduced risk of obesity](#) [R, R, R]
- [Reduced risk and severity of PTSD](#) [R]
- Reduced incidence of respiratory infections [R]
- Reduced risk of type 2 diabetes and insulin resistance [R, R]
-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

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

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



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL6	rs1800795	GG

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

IL10 Gene (Autoimmunity)

IL10 gene variants are linked to different inflammatory and autoimmune conditions, especially [R, R, R, R, R, R, R]:

- [IBD](#)
- Type 1 diabetes
- [Lupus](#)

These variants likely **reduce** anti-inflammatory IL10 activity, enabling a stronger autoimmune response.



TYPICAL ACTIVITY

Predisposed to typical IL10 activity based on 666 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL19	rs3024498	TT
FCMR	rs3024493	CC
IL19	rs3024505	GG
IL19	rs3024496	AA
IL19	rs1800896	TT

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

IL8 (Inflammation)

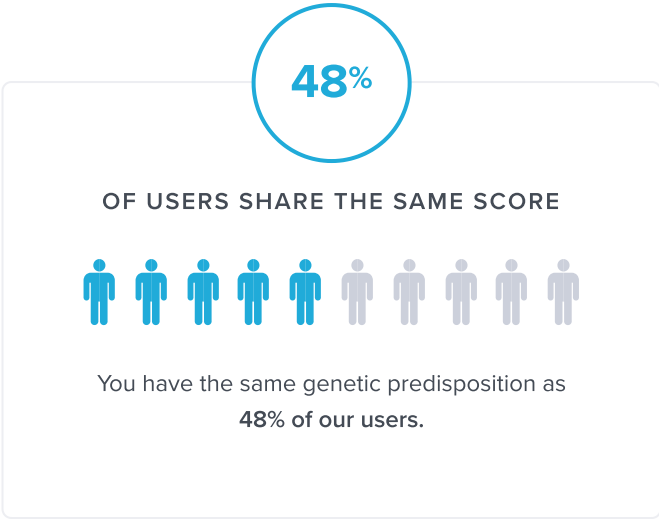
The main IL8 polymorphism is [rs4073](#). Its ‘A’ allele increases *IL8* expression in white blood cells, which may contribute to inflammatory conditions. In line with this, this variant has been associated with an increased risk of [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Acne [\[R\]](#)
- ARDS [\[R\]](#), [\[R\]](#)
- Acute liver injury [\[R\]](#)
- Stomach inflammation [\[R\]](#), [\[R\]](#)
- Acute pancreatitis [\[R\]](#), [\[R\]](#)
- Systemic lupus erythematosus [\[R\]](#)
- Chronic gum disease [\[R\]](#)
- Pelvic pain in people with endometriosis [\[R\]](#)
- IBD [\[R\]](#), [\[R\]](#)
- Systemic inflammatory response to wasp stings [\[R\]](#)



TYPICAL ACTIVITY

Likely typical IL8 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PF4V1	rs4073	AT

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

CRP Gene

The main SNP in the CRP gene is [rs1205](#) (also known as “1846 G>A”). The ‘**C**’ allele is linked to **higher CRP** levels, as well as [\[R\]](#):

- Heart disease [\[R\]](#)
- High blood sugar [\[R\]](#)
- Pneumonia [\[R\]](#)
- Overall and cardiovascular mortality [\[R, R\]](#).

However, a study found **lower** non-cardiovascular mortality in people with this variant, particularly from cancer [\[R\]](#).

Another well-known CRP variant is [rs1130864](#). The ‘**A**’ allele is linked to [\[R, R, R, R, R\]](#):

- Higher CRP levels
- Obesity
- Pneumonia
- PTSD

Other notable CRP variants include:

- [rs1800947](#): the 'G' allele is associated with lower CRP levels and lower odds of pneumonia, while the evidence for heart disease is mixed [\[R, R, R, R, R\]](#).
- [rs3091244](#): the ‘A’ allele is linked to higher CRP levels and pneumonia [\[R\]](#).
- [rs3093059](#): the ‘G’ allele is linked to higher CRP levels and a reduced risk of myocardial infarction [\[R, R\]](#).



TYPICAL ACTIVITY

Predisposed to typical CRP gene activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRP	rs1205	CC
CRP	rs1800947	CC
DUSP23	rs1130864	GG
CRP	rs3093059	AA
DUSP23	rs3091244	GG

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

TNF Gene (Inflammation)

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

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

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

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

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

- Crohn’s disease [\[R, R\]](#)
- Hashimoto’s disease [\[R\]](#)

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

- IBD [\[R, R, R\]](#)
- Acne [\[R\]](#)

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



TYPICAL ACTIVITY

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNF	rs1799724	CC
TNF	rs1800629	GG
TNF	rs1799964	TT

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

NLRP3 (Gut Inflammation)

One of the main *NLRP3* variants is [rs10754558](#). People with the “**GG**” **genotype** were about **2.5 times** more likely to have **ulcerative colitis** in one study. Interestingly, this variant has also been linked to severe food allergies [\[R\]](#), [\[R\]](#), [\[R\]](#).

Another well-researched variant is [rs35829419](#). Its “**C**” **allele** is linked to higher odds of **IBD** and other inflammatory conditions like rheumatoid arthritis and eczema [\[R\]](#), [\[R\]](#).

Other *NLRP3* variants linked to higher odds of IBD (Crohn’s) include [\[R\]](#):

- [rs3806265](#)-C
- [rs4925648](#)-T
- [rs3738447](#)-G

These variants likely increase *NLRP3* activity, contributing to excess inflammation [\[R\]](#), [\[R\]](#).



TYPICAL ACTIVITY

Likely typical NLRP3 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NLRP3	rs35829419	CC
NLRP3	rs10754558	CG
NLRP3	rs3738447	GG
NLRP3	rs4925648	CC
NLRP3	rs3806265	TT

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

STAT3 (Th1/Th17)

The most widely-studied *STAT3* polymorphism is [rs744166](#). Although its mechanism remains unknown, some researchers have suggested that the minor ‘G’ variant may alter the structure of the STAT3 protein. This may favor its interaction with some cytokines, leading to an increased activation of the immune system [\[R\]](#).

Its minor allele has been associated with an increased risk of the following autoimmune diseases:

- [Multiple sclerosis](#) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- [Psoriasis](#) and psoriatic arthritis [\[R\]](#), [\[R\]](#), [\[R\]](#)
- [Vitiligo](#) [\[R\]](#)
- [Systemic lupus erythematosus](#) [\[R\]](#)

However, the major ‘A’ variant has been associated with an increased risk of [IBD](#) (both Crohn’s disease and ulcerative colitis). Cell-based research suggests that STAT3 activation in the gut lining promotes wound healing, kills infectious bacteria, and reduces inflammation, which might explain this association [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Similarly, this variant has been associated with a decreased risk of [autoimmune thyroid disorders](#) such as Hashimoto’s thyroiditis and Grave’s disease in some ethnicities but not in others [\[R\]](#), [\[R\]](#), [\[R\]](#).

Alternatively, the ‘G’ allele of this variant has been associated with abdominal obesity and increased [weight gain](#) from saturated fat intake [\[R\]](#).

Another polymorphism of this gene is [rs2293152](#). Its minor ‘G’ allele was associated with increased frequency and severity of IBD (Crohn’s disease, ulcerative colitis, or both) in three different studies, but not in a fourth one [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In contrast, the major ‘C’ allele was the one associated with multiple sclerosis in two studies (but only statistically significant in one of them). Although the mechanism of this variant is unknown, the fact that its effects are the opposite of those of [rs744166](#) suggests the minor variant may decrease STAT3 activity [\[R\]](#), [\[R\]](#).

The minor ‘G’ allele of another variant, [rs4796793](#), reduces *STAT3* expression. In a Chinese population, this allele was less common among people with Crohn’s disease. However, this variant was unrelated to ulcerative colitis [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

The major ‘T’ allele of another *STAT3* polymorphism, [rs3816769](#), was associated with both Hashimoto’s and Graves’ disease in a Polish study. People with autoimmune thyroid disorders had ‘TT’ over 6 times more frequently than ‘CC’ [\[R\]](#)!

Finally, the minor allele ‘C’ allele of [rs1053005](#) was more common in people with either Hashimoto’s or Graves’ disease in a Chinese study. This allele increases STAT3 production, which could contribute to autoimmune thyroid issues by over-activating the immune system [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

Likely lower STAT3 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STAT3	rs744166	AG
STAT3	rs2293152	GC
STAT3	rs3816769	TC
STAT3	rs4796793	CG
STAT3	rs1053005	TT

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

Preterm Birth

The exact causes of preterm birth can be difficult to pinpoint, but several factors are known to increase the risk [R]:

- Multiple pregnancies: Twins, triplets, or higher-order multiples are more likely to be born prematurely.
- Previous preterm birth
- Maternal health issues such as diabetes, high blood pressure, infections, and chronic conditions like heart and kidney disease
- Pregnancy complications: like preeclampsia, placental problems (e.g., placenta previa), or intrauterine growth restriction
- Smoking, alcohol use, and illicit drug use during pregnancy.
- Age: Teenagers and women over the age of 35 are at increased risk.
- Lack of proper prenatal care
- High stress, long working hours, physical labor, and lack of social support
- Genetics

About **15-35%** of the differences in premature birth may be due to maternal genetics [R].

The following treatments may help prevent preterm labor in women at high risk:

- Progesterone supplements
- Cervical cerclage: A surgical procedure that can be used to close the cervix temporarily
- Reducing physical stress, quitting smoking, and avoiding other harmful substances.
- Effective control of conditions like diabetes and high blood pressure.
- In some cases, admission to the hospital might be necessary to manage preterm labor.
- Medications such as tocolytics may delay delivery long enough for steroids or other treatments to improve the baby's health outcomes.

Regular prenatal visits are crucial to monitor the health of both mother and baby and to implement strategies to reduce the risk of preterm birth. Early intervention and careful management of any underlying risk factors are vital in preventing preterm labor or ensuring that the baby is as healthy as possible if they are born prematurely [R].

Consumer Summary

- Preterm birth happens when a baby is born before 37 weeks of pregnancy. Babies born prematurely are at risk for long-term health challenges.
- Signs of preterm labor include frequent contractions, increased vaginal discharge or bleeding, pressure in the pelvis, constant back pain, and abdominal cramps. Recognizing these early signs is essential.
- Risk factors for preterm labor include carrying multiples (e.g., twins), past preterm births, pregnancy complications, health issues like diabetes or infections, lifestyle factors, and genetics.
- Preventive treatments may include progesterone supplements, cervical cerclage (a procedure to close the cervix), and managing chronic conditions. It's important to avoid harmful substances and reduce physical stress.
- If preterm labor begins, a doctor may recommend medications to delay delivery, allowing time for treatments that can improve the baby's health.



LESS LIKELY

Less likely to give preterm birth based on 7,264,930 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TGFB1	rs11466328	GG
TRIB2	rs13401913	CT
CDC42	rs3820282	CC
HLA-DRB1	rs9271673	GG
KCNAB1	rs1488425	AA
HAND2	rs11732983	TT
PMP22	rs7217780	CC
LRP5	rs312777	GC
/	rs2963463	CC
DMAC1	rs148983777	GG
SOX5	rs17408900	TT
BOD1L1	rs13151645	TT
AKR1C3	rs7098485	GG
EEFSEC	rs4241495	CC

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

Nausea

Common situations or conditions that can result in nausea include:

- Stomach flu or gastroenteritis.
- Pregnancy (morning sickness).
- Motion sickness or seasickness.
- Intense pain.
- Emotional stress, fear, or anxiety.
- Overeating or consuming spicy foods.
- Excessive alcohol consumption or substance misuse.
- Food poisoning.
- Certain medications or medical treatments, such as chemotherapy or radiation.
- Gallbladder disease.
- Gastroesophageal reflux disease (GERD).
- Gastroparesis or delayed stomach emptying.

While nausea is primarily a symptom resulting from various conditions or stimuli, genetics can play a role in an individual's susceptibility to certain triggers of nausea. For instance, there may be a genetic predisposition to conditions like motion sickness or migraines.



LESS LIKELY

Less likely to have nausea based on 1,670 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NT5M	rs8082383	TT
KCND2	rs12706265	TC
/	rs62493919	CG
GJB4	rs11589940	CT
/	rs10928874	AT
SLCO3A1	rs1568209	AG
FGF14	rs1927382	TC
PPP2R1A	rs8108607	CC
/	rs1355625	GG
SLC5A8	rs7956620	AA
MEIS2	rs2681320	TT
C9ORF50	rs10118527	CC
C9ORF50	rs10118507	CC
CPEB2	rs6848922	TT
CLDN14	rs2071049	CT
SPATS2L	rs1561296	TC
MTNR1B	rs7118248	GT

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

Blood Clotting

About **50%** of the differences in thrombosis may be due to **genetics** [R].

Other factors that might influence the risk of thrombosis include:

- Prolonged immobility (e.g., bed rest, long flights)
- Surgery, especially joint replacement surgery
- Injuries, especially those involving fractures or muscle damage
- Certain medications(e.g., oral contraceptives, hormone replacement therapy, chemotherapy drugs)
- Smoking
- Age, especially being over 60
- Pregnancy

Some health conditions may increase the risk of thrombosis, including:

- Obesity
- Chronic inflammatory diseases (e.g., lupus, inflammatory bowel disease)
- Blood clotting disorders
- Cancer



LESS LIKELY

Less likely to have thrombosis based on 1,669 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GP6	rs1671152	GG
GP6	rs1613662	AA
ITGB3	rs5918	TC
F5	rs4524	TT
MCMBP	rs12767946	TT
KIF26B	rs1756912	GG
CYP4V2	rs2289252	TC
HLA-DQA2	rs17202393	GG
NRG3	rs1649936	CC
NCAM2	rs62207434	CC
CSGALNAC T1	rs62496681	CC
/	rs72755680	AA
TAS2R5	rs145241704	TG
F5	rs6025	CC
F2	rs1799963	GG
PROCR	rs867186	AA
ABO	rs657152	CC
ENPP1	rs72983636	AA
RNASEL	rs55897462	TT
POLE4	rs74965230	TT
FAM174A	rs115887893	CC

GENE	SNP	GENOTYPE
PSG8	rs59559305	GG
NME7	rs16861990	AA
SELL	rs1018827	GG
/	rs687289	GG
PLRG1	rs6825454	TT

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

Cavities

Key Takeaways:

- Up to 60% of differences in people's chances of getting cavities may be due to genetics.
- Risk factors include age, sugary foods, frequent snacking, poor oral care, lack of fluoride, dry mouth, heartburn, and eating disorders.
- In the U.S., about 90% of the population get at least one cavity by the age of 20.
- If you have a high genetic risk or are experiencing symptoms, you may want to take action as well as see a dentist regularly.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Tooth decay is a very common health condition in the United States. In fact, about 90% of the population will have at least one cavity by the time they turn 20 [R].

Saliva keeps the mouth clean. It helps dilute sugars and other substances and washes them down to the stomach. It can also help balance bacteria in the mouth [R, R, R].

Even so, some sugar and bacteria can stick to the teeth and gums. Bacteria digest sugar and turn it into acid. This acid can dissolve the top layer of the teeth (enamel) and eventually make small holes called **cavities** [R, R, R].

You may have a cavity if you have signs and symptoms like [R]:

- Tooth pain or sensitivity
- Holes or pits in the teeth
- Stains (brown, black, or white) on the teeth

The major risk factors of tooth decay include [R, R]:

- Age (young children, teenagers, and older adults may be at a higher risk)
- Eating sugary foods
- Frequent snacking
- Poor oral care (e.g., bad brushing or flossing habits, lack of fluoride)
- Dry mouth
- Heartburn
- Eating disorders
- **Genetics**

The back teeth (molars and premolars) are the teeth most likely to develop cavities. They have more grooves and surfaces where food can get stuck [R].

Left untreated, cavities can become infected. Eventually, the whole tooth may need to be removed. Infections can also spread elsewhere in the body [R, R].

Other complications of tooth decay may include [R]:

- Broken teeth
- Teeth shifting
- Weight loss (from painful chewing)

Cavities are not reversible, so the best course of action is to prevent them. Dentists' advice often includes [R]:

- Brushing at least twice daily with fluoride toothpaste
- Flossing daily
- Using mouthwash
- Regular professional cleanings



LESS LIKELY

Less likely to have cavities based on 398 genetic variants we looked at

18th

PERCENTILE



Your risk is greater than 18% of the population and lower than 82% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WNT10A	rs121908120	TT
SH3YL1	rs62106258	TT
P2RY2	rs149467613	GG
PITX1	rs1122171	CT
COQ8A	rs3820640	TT
SYT14	rs2046850	CC
EFNA5	rs1352724	CC
HAO1	rs4816017	GG
RPS6KA6	rs5922945	CC
HOXB4	rs9905793	AG
FOXC2	rs10048146	AG
MC4R	rs28822480	GA
PBX3	rs10987008	AT
FAM118A	rs1569414	TG
ZNF804A	rs263771	AC
INO80E	rs8054556	GA
RARB	rs7429279	AC
STAG1	rs61790808	AG
KCNJ2	rs34559440	CT
SALL1	rs1108343	CT
MFHAS1	rs898797	TC

Once a cavity develops, treatment options include [\[R\]](#):

- Fluoride treatment
- Fillings
- Oral surgery

Up to 63% of differences in people's chances of developing cavities may be attributed to genetics. Genes involved in cavities may influence [\[R\]](#), [\[R\]](#):

- Antibacterial activity in the mouth ([LYZL2](#), [IL17D](#))
- Tooth development ([AJAP1](#), [IBSP](#), [DMP1](#), [DSPP](#), [SMAD7](#))

GENE	SNP	GENOTYPE
/	rs7918807	TC
BAHCC1	rs57067187	TC
CDH9	rs55769264	GA
NPEPPS	rs3865314	AC
KLRC1	rs10772314	AT
OPA1	rs185566659	GG
ALK	rs80270335	CC
AMY2B	rs72694438	GG
FGF10	rs1482698	GG
ELL	rs2238651	CC
SOX9	rs7217268	GG
IREB2	rs10851907	GG
RHCG	rs2072693	TG

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

Overactive Bladder

Key Takeaways:

- Urinary incontinence is not uncommon, especially for women, due to pregnancy and menopause. It can vary in severity from occasional to interfering with daily activities.
- Risk factors include being older, female, overweight, a smoker, certain health conditions, and your genetics.
- If your risk is high, your overall risk is still going to be low unless you are older or have had children. If your risk is low and you have incontinence issues, talk with your doctor about potential actions to take.

Urinary incontinence is a loss of bladder control. People with bladder control problems urinate without meaning to [\[R\]](#).

About 50% of women and 14% of men may have bladder control problems. This difference may partly be due to pregnancy, childbirth, and menopause, which may all contribute to bladder control problems [\[R\]](#), [\[R\]](#).

Other risk factors for bladder control problems include [\[R\]](#):

- Being older
- Excess weight
- Smoking
- Certain health conditions (e.g., neurological conditions, diabetes)
- **Genetics**

Bladder control problems can range in severity. Some people may only leak occasionally, such as during a cough or sneeze. For others, a lack of bladder control can have a major impact on daily life [\[R\]](#).

A wide range of management and treatment options exist, depending on the severity of bladder control problems. They include [\[R\]](#):

- Bladder training
- Pads
- Kegel exercises for pelvic floor muscles
- Medication
- Medical devices
- Surgery

Left untreated, severe bladder control problems may lead to [\[R\]](#):

- Rashes and sores due to wet skin
- Social and work life problems
- Urinary tract infections (UTIs)

Up to 50% of differences in people's chances of developing bladder control problems may be attributed to genetics. Genes involved in bladder control may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Pelvic support
- Brain activity
- Bladder muscle function



BETTER

Less likely to have urinary incontinence based on 540,713 genetic variants we looked at

8th

PERCENTILE



Your risk is greater than 8% of the population and lower than 92% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NPSR1	rs78878767	AA
ADAM15	rs1218596	CC
WNT5A	rs13059018	GG
AGK	rs78851245	CC
EN1	rs138724718	GG
PHACTR1	rs34998271	GG
/	rs61813427	AA
/	rs4914973	GG
/	rs116744411	GG
/	rs139036278	GG
KCNA2	rs186165819	CC
C1ORF127	rs77414117	AA
/	rs72703744	CC
CASZ1	rs72643222	CC
NMNAT1	rs77452977	AA
COL11A1	rs115983165	GG
/	rs141817176	GG
COL11A1	rs181487399	CC
CASZ1	rs59061093	GG
COL11A1	rs187658947	AA
/	rs114198115	CC

GENE	SNP	GENOTYPE
NTNG1	rs75792089	GG
/	rs139217761	GG
PRMT6	rs55749345	AA
COL11A1	rs57358576	CC
/	rs533757641	CC
SLC25A24	rs189741835	AA
OLFM3	rs116403645	AA
HES4	rs76467416	CC
KIF1B	rs113726578	GG
RTCA	rs147711390	CC
/	rs61816382	TT
MFSD14A	rs138808106	CC
/	rs143849547	CC
NTNG1	rs142132466	AA
KCNA10	rs72679936	CC
/	rs61814618	TT
OLFM3	rs61804499	GG
CASZ1	rs570916888	CC
AMY2B	rs535746663	AA

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

EDN1 (Blood Pressure)

The main *EDN1* gene variant is [rs5370](#), also known as Lys198Asn. Its minor ‘T’ allele may increase endothelin 1 levels. This variant has been associated with an increased risk of [\[R\]](#):

- Hypertension [\[R, R, R\]](#)
- Pulmonary hypertension [\[R\]](#)
- Ischemic stroke [\[R, R, R, R\]](#)
- Preeclampsia [\[R\]](#)
- Coronary artery disease [\[R\]](#)
- Coronary atherosclerosis [\[R, R\]](#)
- Lupus [\[R\]](#)
- Age-related hearing impairment [\[R\]](#)

The risk of hypertension may be higher in low-fit subjects. Moreover, carriers of the ‘T’ allele may respond less to endurance exercise training [\[R\]](#).

This variant has also been associated with lower HDL cholesterol levels [\[R\]](#).

Another well-researched polymorphism is [rs1800541](#). Its major ‘T’ allele may increase endothelin-1 levels and has been associated with an increased risk of [\[R\]](#):

- Subarachnoid hemorrhage [\[R\]](#)
- Diabetic kidney disease [\[R\]](#)
- Chemoresistant or metastatic osteosarcoma [\[R, R\]](#)
- Hormone-refractory prostate cancer [\[R\]](#)
- Sudden infant death [\[R\]](#)

On the bright side, this variant has been associated with a decreased risk of fibromyalgia [\[R\]](#).

The ‘T’ allele of [rs2070699](#) may also increase endothelin-1 levels and has been associated with an increased risk of [\[R\]](#):

- Pulmonary hypertension [\[R\]](#)
- Aneurysm rebleeding after subarachnoid hemorrhage [\[R\]](#)
- Lupus [\[R\]](#)
- Acute mountain sickness [\[R\]](#)
- Colorectal cancer [\[R, R\]](#)

In contrast, this variant has been associated with a decreased risk of ischemic stroke, chemoresistant osteosarcoma, and hormone-refractory prostate cancer [\[R, R, R\]](#).

Finally, the ‘A’ allele of [rs3087459](#) has been associated with higher endothelin-1 levels and an increased risk of [\[R\]](#):

- Coronary artery disease [\[R\]](#)
- Acute coronary syndrome [\[R\]](#)

However, this variant has been associated with a decreased risk of lupus [\[R\]](#).



LOWER ACTIVITY

Predisposed to a lower EDN1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
EDN1	rs1800541	GT
EDN1	rs3087459	CA
EDN1	rs5370	GG
EDN1	rs2070699	GG

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

NOS3 (Cardiovascular)

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

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

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

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

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

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

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

The minor variants of [rs179983](#) and [rs2070744](#) have also been associated with:

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

On the bright side, they are also linked to:

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

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



HIGHER ACTIVITY

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NOS3	rs2070744	TT
NOS3	rs3918226	CC
NOS3	rs1549758	CC

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

SERPINE1/PAI-1 (Blood Clots)

Several *SERPINE1* polymorphisms increase the levels of PAI-1, resulting in an increased risk of blood clots and associated conditions such as ischemic stroke or myocardial infarction. Some of them include:

- The ‘D’ allele of [rs1799768](#), which acts as a proxy for another variant (4G/5G) and has been associated with myocardial infarction, ischemic stroke, asthma exacerbations, multiple organ dysfunction in critically ill patients, metabolic syndrome, sepsis, and cancer (particularly, endometrial) [\[R, R, R, R, R, R, R, R\]](#).
- The ‘A’ allele of [rs2227631](#), which is usually inherited with the previous one and has been associated with an increased risk of acute coronary heart disease, atherosclerosis, coronary syndrome, stroke, subarachnoid hemorrhage, PCOS, osteonecrosis of the femoral head, and breast cancer, as well as with worse outcomes in COVID-19 and Parkinson’s disease patients [\[R, R, R, R, R, R, R, R, R, R\]](#).
- The ‘G’ allele of [rs7242](#), which has been associated with an increased risk of myocardial infarction and major depression disorder, worse outcomes in subarachnoid hemorrhage patients, and reduced risk of radiation-induced lung inflammation in lung cancer patients [\[R, R, R, R\]](#).
- The ‘A’ allele of [rs6092](#), which has been associated with an increased risk of blood clots in COVID-19 patients, osteonecrosis in children with acute lymphoblastic leukemia, and oral premalignant disorders, decreased survival in colorectal cancer patients, and a decreased risk of type 2 diabetes [\[R, R, R, R, R, R\]](#).
- The ‘T’ allele of [rs2227692](#), which has been associated with an increased risk of blood clots in COVID-19 patients and diffuse-type gastric cancer, but a decreased risk of recurrence or metastasis in patients with breast cancer [\[R, R, R\]](#).



LOWER ACTIVITY

Predisposed to lower SERPINE1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SERPINE1	rs1799768	TT
NAT16	rs7242	GT
SERPINE1	rs2227631	GG
SERPINE1	rs6092	GG
AP1S1	rs2227692	CC

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



Postpartum Recovery and Breastfeeding Support

This section examines genetic factors involved in healing, inflammation, energy restoration, milk production, and metabolic recovery during the postpartum and lactation period.



INCREASED NEED

Iron

Likely increased need for iron



MORE LIKELY

Anemia

More likely to have anemia



MORE LIKELY

Low Energy (Chronic Fatigue)

More likely to have fatigue



MORE LIKELY

Back Pain

More likely to have back pain



MORE LIKELY

Anger

More likely to feel angry



MORE LIKELY

Pelvic Organ Prolapse

More likely to have pelvic organ prolapse



TYPICAL LIKELIHOOD

Postpartum Hemorrhage

Typical likelihood of postpartum hemorrhage



TYPICAL LIKELIHOOD

Hair Loss

Typical



TYPICAL

Muscle Recovery

Predisposed to typical muscle recovery



TYPICAL LIKELIHOOD

Muscle Cramps

Typical likelihood of having muscle cramps



TYPICAL LIKELIHOOD

Breast Pain

Typical likelihood of breast pain



TYPICAL LIKELIHOOD

Breast Infection

Typical likelihood of mastitis



TYPICAL

Sleep Quality

Predisposed to typical sleep quality



TYPICAL

Insulin Resistance

Predisposed to typical insulin resistance



TYPICAL LIKELIHOOD

Psychological Trauma

Typical likelihood of PTSD



TYPICAL ACTIVITY

IL6 Gene (Inflammation)

Likely typical IL6 activity



TYPICAL ACTIVITY

IL10 Gene (Autoimmunity)

Predisposed to typical IL10 activity



TYPICAL ACTIVITY

TNF Gene (Inflammation)

Likely typical TNF activity



TYPICAL ACTIVITY

CRP Gene

Predisposed to typical CRP gene activity



TYPICAL GENETICS

ARNTL (Circadian Rhythm)

Predisposed to typical ARNTL genetics



TYPICAL ACTIVITY

BHLHE41 (Sleep)

Predisposed to typical BHLHE41 activity



TYPICAL GENETICS

AANAT (Circadian Rhythm)

Predisposed to typical AANAT genetics



TYPICAL ACTIVITY

MTNR1A (Melatonin)

Likely typical MTNR1A activity



HIGHER

Skin Elasticity

Predisposed to higher skin elasticity



LESS LIKELY

Joint Pain

Less likely to have osteoarthritis



LOWER ACTIVITY

CLOCK (Sleep & Weight)

Likely lower CLOCK activity



LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity

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.

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 [\[R, R\]](#):

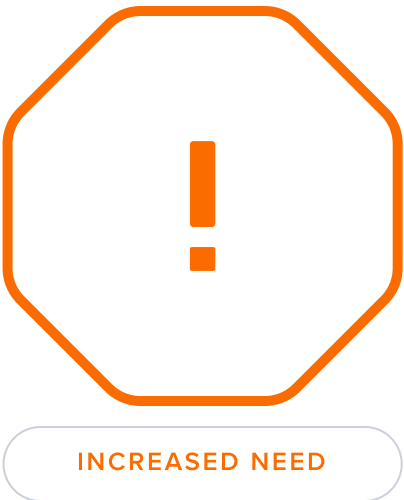
- Women
- Children
- Routine blood donors
- Vegetarians

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) [\[R\]](#)



INCREASED NEED

Likely increased 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	rs4820268	GG
TMPRSS6	rs855791	AA
ZDHHC14	rs181143083	TT
MAPRE1	rs146680938	CC
TMC5	rs4780797	AA
CDH19	rs181670562	CC
MOSPD3	rs7385804	CA
TF	rs1799852	CT
CLDN11	rs113286612	GG
DTWD2	rs2442120	CC
SLC24A2	rs142401741	GG
IRX2	rs62330869	AA
ERG	rs117910189	TT
HFE	rs1799945	CC
NOTCH4	rs41270472	AA
CNTN5	rs1398168	AG
H3C6	rs113507773	GG
ZFAT	rs2315834	CT
RAD18	rs113839317	CT
SCGN	rs115809796	AG
CARMIL1	rs111722075	CT
PLAAT1	rs9849045	TC
TF	rs8177240	TT
BMP4	rs210368	CG
TMPRSS6	rs228916	CC
IGLV4-60	rs987710	GG
TF	rs3811647	GG
SHISA9	rs78138925	GG
ESM1	rs150548770	TT

- 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
PROC	rs116946164	TT
GK2	rs12641027	TT
PLCG2	rs9934030	AA
HFE	rs1800562	GG
NCKAP5	rs7588567	CC

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

Anemia

Key Takeaways:

- Up to **90%** of differences in people's hemoglobin levels may be due to genetics.
- Other risk factors include iron or vitamin B deficiency, certain diseases and medications, infections, toxic chemicals, alcohol misuse, blood loss, pregnancy, and aging.
- About **1 out of 20** people in the United States may be anemic.
- If your genetic risk is high, you may reduce your overall risk by taking action on factors that you can change.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Red blood cells contain a protein called hemoglobin. This protein binds oxygen and transports it throughout the body. People with **anemia** don't have as much hemoglobin or red blood cells as others. This means that their tissues have trouble getting enough oxygen [\[R\]](#), [\[R\]](#).

About 1 out of 20 people in the United States may be anemic [\[R\]](#).

To produce hemoglobin and red blood cells, your body needs nutrients from the foods you eat. Vitamin and mineral deficiencies that may cause anemia include [\[R\]](#):

- **Iron deficiency**
- B vitamin (folate or vitamin B12) deficiency

The following may also cause or contribute to anemia [\[R\]](#):

- Some diseases (e.g., HIV/AIDS, cancer, or Crohn's disease)
- Infections
- Some medications
- Toxic chemicals
- Alcohol misuse
- Blood loss, including during a period
- Pregnancy
- Aging
- **Genetics** (e.g., sickle cell disease, thalassemia)

People with anemia may experience symptoms such as [\[R\]](#):

- Fatigue and weakness
- Pale or yellowed skin
- Irregular heartbeat
- Shortness of breath
- Dizziness
- Chest pain
- Cold hands and feet
- Headaches

Untreated anemia can cause extreme fatigue and make it difficult to live your day-to-day life. If severe, it can cause life-threatening complications [\[R\]](#), [\[R\]](#).

Treatment for anemia depends on the cause. For example, if it is caused by a deficiency of iron or vitamin B12, then getting more of the missing nutrient should solve the problem [\[R\]](#).

Other treatments for various types of anemia may include [\[R\]](#):

- Medication
- Blood transfusion



MORE LIKELY

More likely to have anemia based on 477,517 genetic variants we looked at

99th

PERCENTILE



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TMPRSS6	rs4820268	GG
TMPRSS6	rs855791	AA
TMPRSS6	rs228916	CC
ZDHHC14	rs181143083	TT
BCL11A	rs1427407	TG
/	rs79798837	CC
/	rs550503980	CC
TRIM33	rs576432148	AA
/	rs372345235	TC
CD101	rs141796902	GA
KAZN	rs141034704	CT
/	rs12070100	TC
IGLV4-60	rs987710	GG
TRIB2	rs118096157	TT
RNF43	rs199598395	CC
VMP1	rs143341655	CC
MXRA8	rs138300056	CC
MAN1A2	rs560838965	AA
CHD1L	rs141591111	AA
MAN1A2	rs563763393	CC
SLC16A1	rs12057664	CC

Up to 90% of differences in people's hemoglobin levels may be attributed to genetics. Genes involved in anemia may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Red blood cell shape, function, or survival
- Iron metabolism
- Immune system function

GENE	SNP	GENOTYPE
TAF3A	rs11102547	CC
/	rs181288106	CC
ACAP3	rs188074302	CC
NTNG1	rs78372720	CC
CSF1	rs17025003	CC
GOLPH3L	rs192747147	GG
PPM1J	rs149411762	GG
NGF	rs138035321	GG
PLEKHN1	rs532486531	GG
RNPC3	rs75283501	GG
ACAP3	rs114544631	CC
/	rs544873223	TT
CAPZA1	rs528523716	CC
SPAG17	rs186399968	TT
CELF3	rs184801923	CC
TMEM51	rs12073191	GG
ACP6	rs140851699	GG

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

Low Energy (Chronic Fatigue)

Key Takeaways:

- Up to **40%** of differences in people's chances of having chronic fatigue may be due to genetics.
- Other risk factors include: serious infections, thyroid and liver problems, and nutrient deficiencies.
- Chronic fatigue is a rare condition, so even if your genetic risk is high, your actual risk is low.
- Chronic fatigue can cause poor sleep, brain fog, weakness, pain, gut issues, and flu-like symptoms.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Fatigue is our body's way of telling us it's time to rest and recover. But what happens when that signal is sent too often, or all the time? What happens when normal, everyday activity is enough to drain you?

When fatigue goes on for more than 6 months, it's called *chronic fatigue* [R].

Chronic fatigue is often associated with [R, R, R, R, R, R, R, R]:

- Nutrient deficiency ([iron](#), [vitamin B12](#), [folate](#), [vitamin D](#))
- Thyroid problems
- Liver problems
- A recent serious infection

Chronic fatigue can lead to a decrease in social and physical activity. It can happen on its own or alongside chronic health conditions [R, R, R].

Some people can never seem to get their energy back, no matter how much they rest. This condition is known as *chronic fatigue syndrome*. It is a disabling condition that affects less than 1% of people [R, R].

Chronic fatigue can affect all parts of your body and may cause [R, R, R]:

- Poor sleep
- Brain fog
- Weakness
- Pain
- Gut issues
- Flu-like symptoms

Unfortunately, there are no standard treatments for chronic fatigue. Many people try to manage their symptoms with alternative strategies [R, R].

Chronic fatigue seems to run in families. **Up to 40% of differences in people's chances of having chronic fatigue may be attributed to genetics** [R, R, R, R].

Genes that contribute to fatigue tend to influence [R]:

- The immune system ([TNE](#), [IL1B](#), [IL4](#), [IL6](#))
- Stress response ([NR3C1](#), [POMC](#))
- Sleep cycles ([NPAS2](#))
- Brain chemistry ([TPH2](#), [GRIK2](#), [MAOA](#), [MAOB](#), [COMT](#))



MORE LIKELY

More likely to have fatigue based on 7,929 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADRB2	rs1042714	CC
IL17F	rs763780	CT
DRD2	rs6277	GA
SHISA4	rs2279681	CC
COMT	rs4680	GA
HTR2A	rs6313	GG
NR3C1	rs852977	AG
BLMH	rs2066713	GA
SPATA32	rs117228037	AA
SLC25A15	rs11147812	TT
ARSA	rs1858756	AA
MAOB	rs3027452	GG
MEGF9	rs10985013	TT
KCTD10	rs6606710	CC
NTM	rs4937651	CC
EXD2	rs4902704	CC
NMUR2	rs34299746	GG
TCF4	rs651350	AG
GRIA1	rs4644006	TC
NLGN1	rs529200	AG
IPO9	rs2820309	GA

GENE	SNP	GENOTYPE
MAPT	rs242924	GG
TNF	rs1800629	GG
TPH2	rs4570625	GG
DRD3	rs6280	CC
MAOA	rs1137070	CC
CFH	rs1061170	TT
GLRX3	rs148723539	GG
MAPKAPK3	rs12492113	GG
KRT32	rs139894014	GG
EPHA7	rs72914217	AA
SKAP1	rs7221416	AA
CFB	rs4151667	TT
ZKSCAN8	rs62620225	CC
/	rs185907577	TT
EXD3	rs73581580	GG
NRXN1	rs79927354	AA
CELF4	rs948536	AA
DCC	rs7233123	GG
/	rs4265114	AA
HTT	rs61348208	TT
CADM2	rs818215	CC

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

Back Pain

Key Takeaways:

- Up to **25%** of differences in people's chances of developing back pain may be attributed to genetics. It is more likely to occur as you get older.
- Risk factors: injuries, health conditions, poor posture, aging, smoking, lack of fitness, overweight, your genetics.
- If you have high genetic risk or symptoms, take action now on your modifiable risk factors to reduce your overall risk.
- Click the **next steps** tab for relevant lifestyle factors.

Back pain is extremely common. In fact, up to 1 in 4 adults suffer from chronic lower back pain. **Up to 84% of people are estimated to have back pain at some point in their lives** [R].

Back pain can be acute or chronic. Acute back pain is brief (days or weeks) and usually has a clear cause. It normally resolves on its own and is fairly easy to treat. Chronic back pain is long-lasting (months or years). The cause can be tough to determine, which makes it harder to treat. **About 1 in 5 cases of acute back pain becomes chronic** [R].

Risk factors for lower back pain include [R, R]:

- Injuries
- Health conditions
- Poor posture
- Aging
- Smoking
- Lack of fitness
- Weight gain
- **Genetics**

Back pain may come with other symptoms, such as increased sensitivity to pain and touch [R].

One type of back pain is called **sciatica**. Sciatica is pain in the lower back that radiates through the hips and down the back of the leg. It is caused by pressure on the sciatic nerve, which runs through these areas. Sciatica tends to occur on one side of the body [R, R, R].

Fortunately, mild sciatica often goes away on its own over time. However, more severe or long-lasting symptoms may need medical treatment [R].

Treatment options for back pain include [R, R, R]:

- Medication
- Hot or cold packs
- Physical therapy
- Surgery

Left untreated, some types of back pain can cause further problems. For example, severe sciatica can cause permanent nerve damage [R, R].

Up to 25% of differences in people's chances of developing back pain may be attributed to genetics. Genes involved in back pain may influence [R, R, R]:

- Bone and joint development ([NFIB](#), [COL11A2](#))
- Inflammation ([HLA-DRB5](#))
- Nerve function ([MYO5A](#))

Genetically high levels of omega-3s may be causally associated with a lower risk of back pain [R].



MORE LIKELY

More likely to have back pain based on 13,559 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GSDMC	rs6651255	TT
ITGA1	rs13174042	CT
MYC	rs7833174	TT
SOX5	rs12310519	TC
DIS3L2	rs1453867	CT
/	rs543634974	CC
MME	rs540690425	CC
DCC	rs4384683	AA
CTSC	rs217095	TT
CCDC196	rs144740416	CC
CACNB2	rs189997399	AA
COL12A1	rs146452235	CC
ERI3	rs150678734	TT
UROS	rs186296138	GG
LRP1	rs149305474	GG
GML	rs147507753	TT
EGFR	rs145967840	CC
LRATD1	rs374707240	CC
NUDT15	rs9652197	TT
U2SURP	rs116472002	AA
STARD3NL	rs114455186	GG

GENE	SNP	GENOTYPE
TBC1D32	rs554696508	TT
STXBP6	rs187396953	AA
LRATD1	rs111256748	GG
TRAPPC9	rs142493275	GG
STK39	rs532461789	TT
TAF3	rs542627407	AA
HS6ST1	rs116451852	CC
TTK	rs182976240	CC
FGF18	rs138330960	CC
/	rs140186882	CC
MRGPRF	rs150765085	GG
PACSIN1	rs141516472	AA
RRBP1	rs141587400	TT
/	rs185080745	GG
MAEA	rs145622120	GG
TRIM63	rs116908890	CC
CEP89	rs138295648	GG
EYS	rs186734416	AA

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

Anger

Up to **20%** of the differences in anger may be due to **genetics** [\[R\]](#).

People with certain genetic markers may be predisposed to aggressive behaviors or heightened anger responses. However, genes alone don't dictate behavior. The following factors also play significant roles in how anger is expressed and managed:

- Chronic stress
- A family environment where anger was expressed violently or aggressively
- Past trauma or abuse.
- Chronic pain or certain medical conditions.
- Certain mental health disorders (e.g., depression, ADHD, or borderline personality disorder)
- Substance misuse (alcohol or illegal) drugs



MORE LIKELY

More likely to feel angry based on 14 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FYN	rs2148710	TT
QSER1	rs16924133	AT
TRIM31	rs2844775	GG
GREM2	rs16840114	GA
UQCRFS1	rs8102754	TT
PLEK	rs7578047	AG
DPY19L1	rs6954895	TC
/	rs6834498	TC
PHEX	rs3752433	TC
E2F3	rs555017	GA
IYD	rs670292	CG
ABAT	rs1299926	AA
PNLIP	rs12249434	CC
CSE1L	rs6012564	AA

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

Pelvic Organ Prolapse

Symptoms of pelvic organ prolapse can significantly impact a woman's quality of life, causing discomfort, urinary problems like incontinence or retention, bowel issues, and painful intercourse. Factors increasing the risk of prolapse include pregnancy, childbirth, obesity, respiratory conditions with persistent coughing, and activities that put stress on the pelvic floor.

Treatment for pelvic organ prolapse varies depending on the severity and the organ involved, and can range from lifestyle modifications and pelvic floor exercises to fitting of a pessary device or surgical intervention.



MORE LIKELY

More likely to have pelvic organ prolapse based on 370 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IMPDH1	rs72624976	CC
CDC42	rs3820282	CC
HNRNPA1P48	rs12325192	CC
CFAP36	rs1430191	TT
FBN2	rs251215	AA
EFEMP1	rs3791675	CT
LDAH	rs9306894	GA
BMP6	rs11962800	GA
TBX5	rs1247943	GA
PML	rs12440667	TC
/	rs7682992	AA
WT1	rs3809060	TT

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

Postpartum Hemorrhage

While PPH can occur in any pregnancy, certain factors increase the risk [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Overdistended uterus (e.g., twins, polyhydramnios).
- Prolonged labor or very rapid labor.
- Use of labor-inducing medications (e.g., oxytocin).
- History of PPH in a previous pregnancy.
- Placental abnormalities (e.g., placenta previa or accreta).
- Operative deliveries (e.g., forceps or vacuum extraction).
- Maternal anemia or clotting disorders.
- Advanced maternal age or obesity.
- Genetic predisposition.

About 16% of the differences in PPH may be due to genetics [\[R\]](#).

Management of Postpartum Hemorrhage

Management depends on the cause and severity [\[R\]](#), [\[R\]](#), [\[R\]](#):

1. Initial response:
 - Monitoring vital signs and estimating blood loss.
 - Administering IV fluids and oxygen.
2. Treatment based on cause:
 - Tone: Uterotonics (e.g., oxytocin, misoprostol) to stimulate uterine contractions.
 - Tissue: Manual removal of retained placenta or surgical intervention.
 - Trauma: Repair of lacerations or surgical treatment for uterine rupture.
 - Thrombin: Addressing underlying coagulopathy with blood products or medications.
3. Advanced interventions:
 - Uterine balloon tamponade or compression sutures.
 - Surgical procedures, such as uterine artery ligation or hysterectomy, in life-threatening cases.

Prevention of Postpartum Hemorrhage

- Active management of the third stage of labor (e.g., early administration of uterotonics, controlled cord traction).
- Identifying and addressing risk factors during prenatal care.
- Adequate preparation for high-risk deliveries with blood products and skilled medical personnel.

Conclusion

Postpartum hemorrhage is a preventable and treatable condition when identified early. Comprehensive prenatal care and immediate postpartum monitoring are essential to reduce the risk of PPH and its associated complications. Proper training and preparedness among healthcare providers can significantly improve outcomes for mothers.



TYPICAL LIKELIHOOD

Typical likelihood of postpartum hemorrhage based on 7,246,352 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PHACTR2	rs12195857	AA
HAND2	rs13141656	CC
FRMD7	rs2747025	AA
ARHGAP12	rs11591307	GG
TBX3	rs11067228	AA

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

Hair Loss

Key Takeaways:

- About **60%** of differences in people's chances of having hair loss may be due to genetics.
- Risk factors include genetics, cancer treatments, excessive male hormone activity, and certain health conditions.
- Up to half of all men and women develop androgenetic alopecia. If you are experiencing hair loss, speak to your doctor.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Androgenetic alopecia is a common type of hair loss. You may know it as **male- or female-pattern baldness** [R].

Up to half of all men and women develop androgenetic alopecia. Men typically experience a receding hairline and hair loss at the top of the head. Women typically experience hair thinning at the top and crown of the head [R, R].

Androgenetic alopecia is fairly common and harmless. However, it may impact confidence and self-image in some people [R, R].

Androgenetic alopecia is usually caused by high activity of male sex hormones, like [dihydrotestosterone](#) (DHT). However, hair loss may also be caused by a health condition or exposure to cancer treatments [R, R].

Some people are at greater risk than others of losing their hair. This may be partly due to **genetics** [R].

Treatments for androgenetic alopecia include [R, R]:

- Topical medication
- Hair transplants
- Low-level laser therapy

Up to 60% of differences in people's chances of losing their hair may be attributed to genetics. Genes involved in hair loss may influence [R, R, R, R, R, R, R]:

- Hair follicle activity ([LGR4](#), [TWIST1](#), [PRKD1](#), [RUNX3](#))
- Hair cell death ([BCL2](#), [TOP1](#), [IRF4](#), [MAPT](#))
- Male sex hormone activity ([AR](#), [MEF2C](#))

Genetically high free testosterone levels may be causally associated with a high risk of androgenetic alopecia [R].



TYPICAL LIKELIHOOD

Typical based on 13,176 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PAX1	rs2180439	CC
ALX4	rs2863081	AA
TMEM50A	rs2064251	AA
FERD3L	rs2073963	GT
COPB2	rs7642536	TC
RREB1	rs675209	TT
ICE2	rs2028122	AA
COPB2	rs10212419	GG
PTHLH	rs10843026	GG
TCF4	rs1452787	AA
AUTS2	rs4718886	AA
LRMDA	rs10762668	TT
FADS2	rs1535	AA
SUPT3H	rs227808	CC
SLC14A2	rs10502861	CC
SLC14A2	rs34800162	TT
SLC14A2	rs8085664	CC
CLIC6	rs68088846	AA
/	rs382854	TT
TWIST1	rs13245206	GA
TWIST1	rs10225279	GT
WNT10A	rs74333950	TG
WNT10A	rs7349332	CT
PTHLH	rs805512	AC
KLF15	rs9850626	GT
KLF15	rs35892873	CT
/	rs2149150	CA
MEF2C	rs1366594	AC
AUTS2	rs6945541	TC

GENE	SNP	GENOTYPE
AUTS2	rs939963	CG
LRMDA	rs1907350	AG
FAM53B	rs3781458	TC
L3MBTL3	rs1415701	AG
TWIST2	rs11684254	GC
HDAC4	rs4075018	AG
ALX4	rs922017	TC
BCL11A	rs2540917	CT
RUNX3	rs760805	AT
SETBP1	rs9967367	CT
TWIST2	rs9287638	CC
LRMDA	rs117246174	AA
BCL2	rs7226979	CC
TCF4	rs2958184	AA
TWIST1	rs17140672	AA
BCL2	rs12457893	AA
PRDM1	rs12214131	GG
IRF4	rs12203592	CC
PAX1	rs1160312	GG
RORA	rs11071559	CC
ALX4	rs11037975	CC

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

Muscle Recovery

Muscle recovery is when the **body repairs the muscle fibers damaged or strained during exercise**. It is during this time that muscles grow and become stronger.

The exact **genetic influences** on muscle recovery are still being researched. Several genes play a role in this process (e.g. ACTN3, CKM, IL6), through their effects on muscle growth, muscle repair and inflammation [\[R\]](#), [\[R\]](#).

Other factors that affect muscle recovery, include [\[R\]](#), [\[R\]](#):

- Intensity and type of exercise
- Nutrition and hydration
- Sleep quality
- Stress
- Aging

Popular methods to aid muscle recovery include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Light stretching
- Massage
- Applying heat or cold to the muscle
- Compression

Adequate nutrition and hydration are important for muscle health. Our bodies need enough protein to repair and build new muscle, and enough carbs to restore depleted energy stores [\[R\]](#), [\[R\]](#), [\[R\]](#).

Interestingly, drinking cherry juice several days before exercise may help improve muscle recovery [\[R\]](#).



Predisposed to typical muscle recovery based on 15 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC
IGF2	rs3213221	GG
SOD2	rs4880	AG
CCR2	rs1799865	TT
IGF2	rs7924316	TT
IGF2	rs4244808	TT
IGF2	rs2230949	GG
SLC30A8	rs13266634	CC
COL5A1	rs12722	TC
IGF2	rs680	CC
CCR2	rs3918358	AA
CCL2	rs3917878	CC
TRIM63	rs2275950	TT
COL2A1	rs2070739	CC
TNF	rs1800629	GG

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

Muscle Cramps

Factors that might increase the risk of experiencing muscle cramps include:

- Dehydration
- Age, with older individuals being more susceptible
- Overuse of the muscle
- Muscle strains
- Holding a position for an extended period
- Mineral depletion, especially low levels of potassium, calcium, or magnesium
- Certain medications, such as diuretics, blood pressure drugs, and statins
- Medical conditions like poor circulation, kidney problems, and thyroid disorders
- Genetics

While muscle cramps are typically linked to external factors, genetics can play a role in muscle function and susceptibility to cramps. Some individuals may have a genetic predisposition to muscle cramping, either due to the way their muscles function or how their body regulates electrolytes.



TYPICAL LIKELIHOOD

Typical likelihood of having muscle cramps based on 1,672 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IKZF2	rs112988286	AA
MSI2	rs116924898	GG
/	rs35525189	GG
LMO7	rs73229904	TT
TBC1D4	rs76851570	TT
STK32A	rs35852718	AA
EPS8L2	rs201086107	GG
ST6GAL2	rs62155507	AA
RAB21	rs61754230	CC
MRPS34	rs11552434	CC
AGXT2	rs114286107	CC
CLEC18C	rs150702800	CC
PTK7	rs34021075	AA
TARS1	rs138936240	GG
DUOX2	rs151261408	GG
PCDHA3	rs141677026	CC
CHRNA5	rs2229961	GG
CC2D2A	rs144439937	AA
SLC36A2	rs77010315	CC
TMC3	rs150843673	GG
NEB	rs62167164	GG

GENE	SNP	GENOTYPE
KCTD18	rs565245989	AA
SPATA22	rs150770000	GG
MCM10	rs35114749	CC
PSCA	rs138377917	GG
TENM2	rs114898031	AA
GANC	rs35285091	CC
MCF2L	rs140657264	CG
AMPD1	rs17602729	GG
CGRRF1	rs34839928	CC
SPG11	rs78183930	CC
EFHC1	rs1570624	GG
ALDH5A1	rs62621664	GG
/	rs1369355526	AA
CACNA2D3	rs112362995	CC
OBSCN	rs62621832	TT
XIRP2	rs16853333	GG
CFHR2	rs41257904	GG
/	rs66906990	TT
DCHS2	rs546143621	AA
GLCE	rs12440300	AA
FAM193B	rs116293002	GG
FPGS	rs35789560	CC
RFX7	rs33984059	AA
KRT6A	rs62617089	GG
/	rs78767524	AA
CYP4B1	rs45467195	AA
BLVRA	rs1050916	AA
IQCH	rs62014646	GG
PDLIM5	rs75841704	AA

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

Breast Pain

Breast pain can be categorized as cyclic or non-cyclic. Cyclic mastalgia is closely related to the menstrual cycle and is characterized by a recurrent pain that intensifies during the premenstrual phase before gradually diminishing.

In contrast, non-cyclic mastalgia is not linked to menstrual patterns and can occur at any time, often localized to a specific area within the breast. Despite its discomforting nature, mastalgia is not typically indicative of a serious health issue; however, persistent or severe pain warrants professional medical evaluation to rule out any underlying conditions that may require attention.



TYPICAL LIKELIHOOD

Typical likelihood of breast pain based on 15,417 genetic variants we looked at



Breast Infection

Treatment of mastitis typically involves antibiotics to combat the underlying infection, along with measures to alleviate symptoms and maintain breast milk flow. It is important for breastfeeding mothers to continue breastfeeding or pumping to keep the milk flowing, which can help clear the blockage and reduce the risk of further infection.

Pain relief can be managed with over-the-counter pain relievers, and women are encouraged to rest and stay hydrated. Moreover, applying warm compresses to the affected area and adjusting breastfeeding techniques can aid in a quicker recovery.



TYPICAL LIKELIHOOD

Typical likelihood of mastitis based on 781 genetic variants we looked at



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



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
ADCY1	rs79209880	CT
VRK1	rs78807545	TG
RFX4	rs11610873	CG
KANSL1	rs1107820	TT
CDH13	rs111702115	GC
VGLL2	rs4946246	GT
/	rs71365296	CA
CASP3	rs7695597	GA
RALYL	rs118149821	CC
CHRM2	rs146885652	GG
FOXO6	rs2226263	TT
/	rs184060364	GG
TENM4	rs117191802	AA
TCF21	rs13201465	AA
RALYL	rs191939331	GG
FBN2	rs115375165	GG
ZNF626	rs6511152	GG
COQ8A	rs113207574	TC
FAM107B	rs74122981	AG
TJP2	rs7030480	TA
CHRM2	rs74757156	CC
/	rs111921861	AA
/	rs140707667	GG
FUT9	rs142123475	CC
UFL1	rs75842709	CC
COX7C	rs2964898	CC
ERCC4	rs74321030	TT
/	rs147738873	CC
MSX2	rs28450080	CC

GENE	SNP	GENOTYPE
TNF	rs1800629	GG
NREP	rs140529718	GG
EPB41L4A	rs146128029	TT
RBMS3	rs17023449	TT
SASH1	rs112390069	GG
PLK2	rs76395602	GG
RGS6	rs36032616	AA
PIGZ	rs4916588	CC
PLK2	rs170741	TT
ENC1	rs76768179	TT
CD36	rs4437584	TT
LAMA2	rs11962701	CC
PRICKLE1	rs11829548	GG

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

Insulin Resistance

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

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

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

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

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

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

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

The risk of insulin resistance may also increase due to:

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

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

Insulin resistance may increase the risk of:

- Diabetes
- Liver disease
- Metabolic syndrome

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



TYPICAL

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CSMD1	rs2407314	GG
GAS1	rs9792548	GA
IRS1	rs2943641	TC
PPARG	rs1801282	GC
FOXO3	rs2802288	AA
IGF1	rs35767	GG
TIMP4	rs13081389	AA
KLHL2	rs17046216	AA
FTO	rs9939609	TA
PPARG	rs3856806	TC
NAT2	rs1208	GA
FTO	rs1121980	GA
FTO	rs1421085	TC
ZC3H12C	rs475338	AA
FBXO21	rs2036313	GG
HAPLN1	rs1457105	CC
/	rs12969333	AA
MRPS31	rs4581585	TC
ME1	rs11967452	CC
KCNK17	rs10456469	GG
ORMDL3	rs939345	CC

GENE	SNP	GENOTYPE
ZIC2	rs7338383	GG
CSNK2A1	rs6053042	CC
RAB28	rs1197712	AA
ATP8B1	rs10439020	AA
MROH8	rs11698899	GG
RUNX3	rs803323	AA
TLR4	rs13290714	CC
DAAM2	rs4345393	GA
MPC1	rs2281056	AC
MDGA1	rs17589516	AA
CACNA1D	rs1401492	CC
SLC10A2	rs16962638	AA
ATP10A	rs6576507	CT
/	rs7043482	AC
FOXO3	rs13217795	CC
TCERG1L	rs7077836	GG
LEPR	rs1137101	GG
ADRB3	rs4994	AA
FABP2	rs1799883	CC
BRD1	rs13057821	CC
KL	rs9535766	TT
SORCS1	rs7088188	CC
UBR1	rs17776090	AA
BMP8A	rs710912	CC
/	rs2873975	GG
POLL	rs3730464	AA
RUNX1	rs17227476	GG
NINL	rs11698267	GG
FAM135B	rs10088248	CC

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

Psychological Trauma

Key Takeaways:

- Up to **40%** of differences in people's chances of developing PTSD may be due to genetics.
- Risk factors include being female, events that cause fear and/or helplessness, lack of support after trauma, additional stressful events, history of mental health conditions or substance abuse, genetics.
- If you have high genetic risk or symptoms, you may want to take action on your modifiable factors to reduce your overall risk.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Post-traumatic stress disorder (PTSD) is a mental health condition that commonly affects war veterans. **However, anyone who has experienced trauma can develop PTSD** [\[R\]](#), [\[R\]](#).

About 1 in 12 people develop PTSD in their lifetime. Women are more prone to PTSD than men [\[R\]](#).

Risk factors for PTSD include [\[R\]](#):

- Experiencing events that cause extreme fear or helplessness
- Lack of support after traumatic events
- Experiencing additional stressful events after the initial trauma
- A history of mental health conditions or substance abuse

Flashbacks are the classic symptom of PTSD. They cause a person to relive previous trauma. A common trigger is the sound of fireworks, which can remind war veterans of gunfire. Flashbacks can include **physical symptoms, such as sweating and fast heart rate** [\[R\]](#), [\[R\]](#).

Other symptoms of PTSD include [\[R\]](#), [\[R\]](#):

- Nightmares or frightening thoughts
- Avoiding places, situations, objects, or thoughts that remind you of the traumatic event
- Being easily startled
- Tension
- Poor or disrupted sleep
- Negative feelings about oneself or the world
- Feelings of guilt

It's normal to experience some of the above symptoms after a traumatic event. **However, it's important to seek professional help if the symptoms last for longer than one month and affect daily activities** [\[R\]](#).

People with PTSD may be at a higher risk of [\[R\]](#):

- Panic disorder
- Depression
- Substance abuse
- Suicide

Treatment for PTSD usually includes talk therapy and medication [\[R\]](#), [\[R\]](#), [\[R\]](#).

Up to 40% of differences in people's chances of developing PTSD may be attributed to genetics. Genes involved in PTSD may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- [Dopamine](#) activity ([DRD2](#), [PARK2](#))
- [Serotonin](#) activity ([SLC6A4](#))



TYPICAL LIKELIHOOD

Typical likelihood of PTSD based on 443,168 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
UST	rs10457838	CC
CRHR2	rs2267715	AG
FAAH	rs2295633	AG
SRR	rs4523957	TT
MAPT	rs12938031	GA
TULP1	rs3800373	AC
PTPN7	rs3100127	CA
PTPN7	rs4511180	GA
FBLL1	rs10038727	GG
OXTR	rs53576	GA
TBC1D2	rs7866350	GC
CSMD1	rs2616978	CT
RGS2	rs4606	CG
SH2D1B	rs386231	TC
LRRC4C	rs10768747	AG
NOS1	rs10744891	TT
ESR1	rs9340799	AA
TNF	rs1800629	GG
C10RF226	rs12027674	AG
BDNF	rs6265	CT
FAAH	rs324420	AC

- Brain cell communication ([PODXL](#))
- [Adrenaline](#) (epinephrine) activity ([ZDHHC14](#))

GENE	SNP	GENOTYPE
NOS1AP	rs10918936	GA
MLKL	rs62056018	AA
KIAA1109	rs45510091	AA
ARHGAP27	rs4792887	CT
IL1B	rs16944	AG
TERT	rs2736100	AC
FAM120AOS	rs10992729	CC
/	rs1246683	GA
ZNF804A	rs62176173	GG
TCF4	rs599550	AG
SERPING1	rs2509805	CT
/	rs11933210	CT
/	rs4233093	AG
ACE	rs4311	CC
IL6	rs1800795	GG
RORA	rs8041061	GG
DUSP23	rs1130864	GG
/	rs58649573	CC
POGK	rs2312236	CC
ATP10B	rs17504106	GG
ANKK1	rs1800497	GG
ADRB2	rs2400707	GG
/	rs61793204	GG
UNC13C	rs73419609	AA
TTC12	rs2075652	GG
PRTFDC1	rs1033962	TC
DUSP23	rs3091244	GG
TRIM27	rs145108206	GG
MAPT	rs62056789	AA

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

IL6 Gene (Inflammation)

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

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

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

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

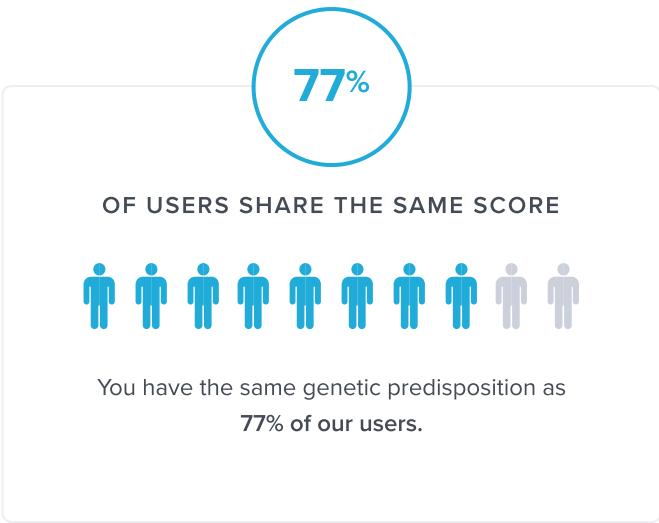
However, it may also increase the risk of some conditions such as:

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



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL6	rs1800795	GG

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

IL10 Gene (Autoimmunity)

IL10 gene variants are linked to different inflammatory and autoimmune conditions, especially [R, R, R, R, R, R, R]:

- [IBD](#)
- Type 1 diabetes
- [Lupus](#)

These variants likely **reduce** anti-inflammatory IL10 activity, enabling a stronger autoimmune response.



TYPICAL ACTIVITY

Predisposed to typical IL10 activity based on 666 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL19	rs3024498	TT
FCMR	rs3024493	CC
IL19	rs3024505	GG
IL19	rs3024496	AA
IL19	rs1800896	TT

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

TNF Gene (Inflammation)

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

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

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

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

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

- Crohn’s disease [\[R, R\]](#)
- Hashimoto’s disease [\[R\]](#)

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

- [IBD](#) [\[R, R, R\]](#)
- [Acne](#) [\[R\]](#)

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



TYPICAL ACTIVITY

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNF	rs1799724	CC
TNF	rs1800629	GG
TNF	rs1799964	TT

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

CRP Gene

The main SNP in the CRP gene is [rs1205](#) (also known as “1846 G>A”). The ‘**C**’ allele is linked to **higher CRP** levels, as well as [\[R\]](#):

- Heart disease [\[R\]](#)
- High blood sugar [\[R\]](#)
- Pneumonia [\[R\]](#)
- Overall and cardiovascular mortality [\[R, R\]](#).

However, a study found **lower** non-cardiovascular mortality in people with this variant, particularly from cancer [\[R\]](#).

Another well-known CRP variant is [rs1130864](#). The ‘**A**’ allele is linked to [\[R, R, R, R, R\]](#):

- Higher CRP levels
- Obesity
- Pneumonia
- PTSD

Other notable CRP variants include:

- [rs1800947](#): the 'G' allele is associated with lower CRP levels and lower odds of pneumonia, while the evidence for heart disease is mixed [\[R, R, R, R, R\]](#).
- [rs3091244](#): the ‘A’ allele is linked to higher CRP levels and pneumonia [\[R\]](#).
- [rs3093059](#): the ‘G’ allele is linked to higher CRP levels and a reduced risk of myocardial infarction [\[R, R\]](#).



TYPICAL ACTIVITY

Predisposed to typical CRP gene activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRP	rs1205	CC
CRP	rs1800947	CC
DUSP23	rs1130864	GG
CRP	rs3093059	AA
DUSP23	rs3091244	GG

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

ARNTL (Circadian Rhythm)

The best-researched *ARNTL* polymorphism is [rs2278749](#). Its minor ‘T’ allele has been associated with:

- Increased risk of disturbing dreams [\[R\]](#)
- Increased risk of miscarriages [\[R\]](#)
- Increased risk of Alzheimer’s disease (in [APOE](#) ε4 non-carriers) [\[R\]](#)
- Decreased seasonal variation of energy levels [\[R\]](#)
- Decreased risk of breast cancer in night shift workers [\[R\]](#)

Another variant, ‘T’ at [rs11022775](#), has been associated with an increased risk of type 2 diabetes but a decreased risk of gestational diabetes, dyslipidemia, and high blood pressure [\[R, R, R, R, R\]](#).

The minor ‘A’ allele of [rs2290035](#) has been associated with an increased risk of lung cancer and night shift-associated breast cancer [\[R, R\]](#).

Finally, the ‘T’ allele of [rs6486122](#) has been associated with an increased risk of coronary artery disease and type 2 diabetes, as well as with higher levels of CRP, triglycerides, and testosterone [\[R, R, R, R\]](#).



Predisposed to typical ARNTL genetics based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARNTL	rs6486122	TT
ARNTL	rs11022775	CT
BTBD10	rs2290035	TA
BTBD10	rs2278749	CC

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

BHLHE41 (Sleep)

Several BHLHE41 variants have been associated with a sleep disorder known as ‘familial natural short sleep’ (FNSS), in which individuals can sleep 6 hours or less per night without experiencing any negative symptoms of sleep deprivation. They include:

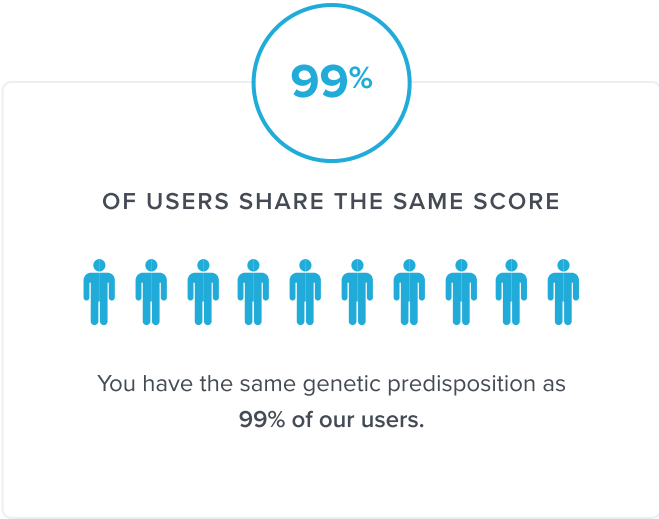
The rare ‘T’ allele of [rs121912617](#) (P384R) has been associated with a sleep disorder known as ‘familial natural short sleep’ (FNSS) in which an individual sleeps 6-6.5 per night without experiencing any negative symptoms of sleep deprivation [\[R\]](#).

This variant weakens the DEC2 protein's ability to suppress the activation of the CLOCK-BMAL1 complex, leading to increased orexin production and longer wakefulness [\[R\]](#).



TYPICAL ACTIVITY

Predisposed to typical BHLHE41 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BHLHE41	rs121912617	GG

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

AANAT (Circadian Rhythm)

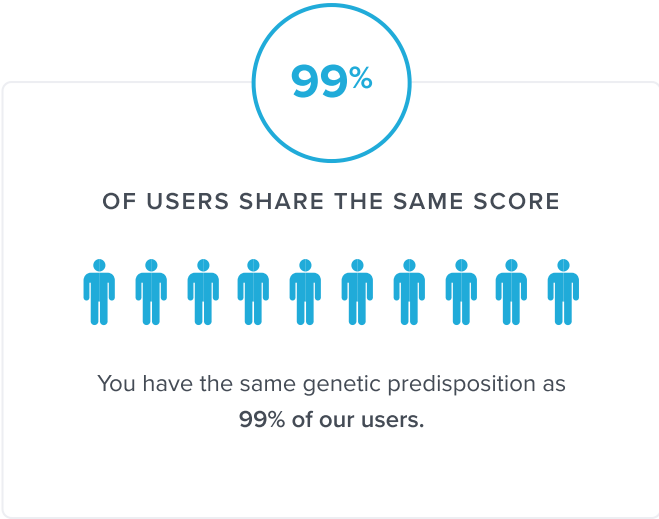
A study of 211 participants associated the rare ‘A’ allele of [rs28936679](#) (G619A) with an increased risk of delayed sleep phase disorder, a condition in which individuals have a sleep/wake cycle delayed by 2 hours or more from usual sleep patterns [\[R\]](#).

This variant has also been associated with abnormal biological rhythms in patients with bipolar disorder [\[R\]](#).



TYPICAL GENETICS

Predisposed to typical AANAT genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AANAT	rs28936679	GG

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

MTNR1A (Melatonin)

The most well-researched *MTNR1A* allele is [rs2119882](#). Its ‘C’ allele may prevent the binding of proteins that activate gene expression, resulting in a lower number of MT1 receptors. This variant has been associated with an increased risk and severity of:

- PCOS [\[R\]](#)
- Gestational diabetes [\[R\]](#)
- Liver cancer metastasis [\[R\]](#)

However, this allele has also been associated with a decreased risk of:

- Breast cancer in shift workers [\[R\]](#)
- Graves’ disease [\[R\]](#)

The ‘A’ allele of [rs12506228](#) reduces the number of MT1 melatonin receptors in the brain. This variant as been associated with:

- Job-related exhaustion in shift workers [\[R\]](#)
- Alzheimer’s disease in old age [\[R\]](#)
- Slower cognitive development in infants [\[R\]](#)

Another allele believed to prevent the binding of proteins that activate *MTNR1A* expression is ‘A’ at [rs13140012](#). This allele has been associated with

- Oral cancer and worse prognostic in betel quid chewers [\[R\]](#)
- Kidney stones [\[R\]](#)

The ‘G’ allele of [rs6553010](#) may also affect *MTNR1A* expression and has been associated with an increased risk of

- Aggressive urothelial cell carcinoma [\[R\]](#)
- Pain after root canal treatment [\[R\]](#)

However, this allele may also reduce the risk of kidney stones [\[R\]](#).

Finally, a study associated the ‘GG’ genotype of [rs7665392](#) with an increased risk of breast cancer in premenopausal women. The authors speculated that this variant impairs the function of the MT1 receptor, resulting in an activation of estradiol-induced genes linked to breast cancer [\[R\]](#).



Likely typical MTNR1A activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1A	rs2119882	TC
MTNR1A	rs6553010	GG
MTNR1A	rs12506228	CA
MTNR1A	rs13140012	AT
MTNR1A	rs7665392	TT

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

Skin Elasticity

Key Takeaways:

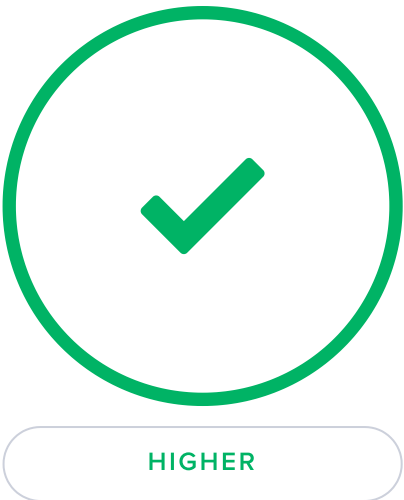
- Up to **60%** of differences in people's skin aging may be due to **genetics**.
- Other risk factors include age, excessive sun exposure, smoking, and pollution.
- If you have high genetic risk, you may lower overall risk by taking action on those factors that you can change.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Skin elasticity is the ability of it to stretch and then return to its original form. Losing elasticity is a natural part of the aging process, creating **loose skin and wrinkles**.

Risk factors for reduced skin elasticity and wrinkles include [\[R\]](#):

- Older age
- Excessive sun exposure
- Smoking
- Pollution

Up to **60%** of differences in people's skin aging may be due to **genetics**. Involved genes affect the **metabolism of collagen, elastin**, and other proteins involved in skin elasticity [\[R\]](#).



Predisposed to higher skin elasticity based on 15 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SGMS1	rs182035024	CC
/	rs61218791	AA
STXBP5	rs117444935	GG
FAM171A1	rs112251095	AA
ANAPC4	rs34293498	TT
RNF32	rs73499013	GG
MYO18A	rs8067915	GG
IL16	rs8027891	AG
TFRC	rs146095627	AA
CD96	rs9876163	TT
CEBPA	rs6510372	TT
GRAMD2B	rs170580	TT
KIF2B	rs12601165	AA
GAD2	rs3847380	TT
DIAPH3	rs1592108	TT

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

Joint Pain

Key Takeaways:

- Osteoarthritis will affect the majority of people over the age of 55. So, even with low genetic risk, the overall risk is still high for older people.
- About **50%** of the differences in people's chances of getting osteoarthritis may be due to genetics.
- Higher genetic risk may mean earlier onset and a greater impact from potential risk factors.
- Risk factors include: being female, joint injury or overuse, obesity, bone deformities, and diabetes.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Osteoarthritis tends to affect knees, hands, and hips. People with this condition may experience [\[R\]](#), [\[R\]](#):

- Joint pain and stiffness
- Difficulty moving
- Weakness and balance problems

Most people with osteoarthritis are over the age of 55. In fact, older age is the number one risk factor for this condition. Other risk factors include [\[R\]](#), [\[R\]](#):

- Being a woman
- Joint injury or overuse
- Obesity
- Bone deformities
- Diabetes
- **Genetics**

About 50% of the differences in people's chances of getting osteoarthritis can be attributed to genetics. Genes that contribute to osteoarthritis may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- [Collagen](#) production in the joints ([COL2A1](#), [COL11A1](#), and [COL1A1](#))
- Inflammation ([IL1B](#), [IL4R](#), [IL17A](#), [IL17F](#) and [IL6](#))
- Activity of joint cells ([ESR1](#))
- Bone formation ([FRZB](#), [VDR](#))
- Bone strength ([IGF1](#), [TGFB1](#), [TIMP3](#), and [ADAM12](#))

Genetically high levels of the following markers may be causally associated with a high risk of hip and knee osteoarthritis:

- IGF-1 [\[R\]](#), [\[R\]](#)
- Testosterone [\[R\]](#)

In contrast, genetically high ApoB levels may be associated with a lower risk [\[R\]](#).



LESS LIKELY

Less likely to have osteoarthritis based on 385,825 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
EPHA5	rs201194999	CC
TGFA	rs3771501	AG
ANAPC4	rs34811474	GG
HLA-DPB1	rs2856821	TT
CPNE1	rs2248393	CC
LTBP1	rs2061027	AA
RAB28	rs1913707	AA
DPEP1	rs1126464	GG
TGFB2	rs2820436	CC
SOCS2	rs2171126	TT
CDC5L	rs12154055	GG
GLIS3	rs10974438	AA
COL11A1	rs2622873	CT
ICA1L	rs62182810	GA
SRR	rs216175	AC
FAM53A	rs798726	TC
LYZ	rs317630	TC
TSKU	rs1149620	TA
KIF26B	rs10218792	GT
PRDM5	rs11729628	TG
TMEM241	rs10502437	GA

GENE	SNP	GENOTYPE
SGO1	rs62242105	GA
PARD6G	rs1039257158	CC
SCUBE1	rs528981060	GG
SLC39A8	rs13107325	CC
TGFB1	rs75621460	GG
H4C8	rs115740542	TT
COL27A1	rs919642	AA
CSK	rs35206230	CC
ERI1	rs330050	CC
TGFB2	rs2785988	CC
SLC44A2	rs1560707	GG
SLC44A2	rs10405617	GG
MPPED2	rs11031191	GG

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

CLOCK (Sleep & Weight)

The [rs1801260](#) polymorphism is the most studied SNP in the *CLOCK* gene. Its minor 'G' allele increases CLOCK activity and has been associated with many sleep-related traits, such as [\[R\]](#):

- Abnormal and less stable circadian rhythms [\[R\]](#), [\[R\]](#)
- Shorter sleep duration (≤6 h per day) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Being an evening person [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Less activity overall, being active later in the day, and being sleepier during the morning [\[R\]](#), [\[R\]](#)

This variant has also been linked to:

- Higher prevalence of obesity (mixed findings) [\[R\]](#), [\[R\]](#)
- Higher ghrelin (hunger hormone) levels and lower satiety [\[R\]](#), [\[R\]](#)
- Higher insulin and insulin resistance [\[R\]](#)
- Low compliance with dietary programs, such as the Mediterranean diet [\[R\]](#)
- More difficulty losing weight from diets or bariatric surgery [\[R\]](#), [\[R\]](#), [\[R\]](#)

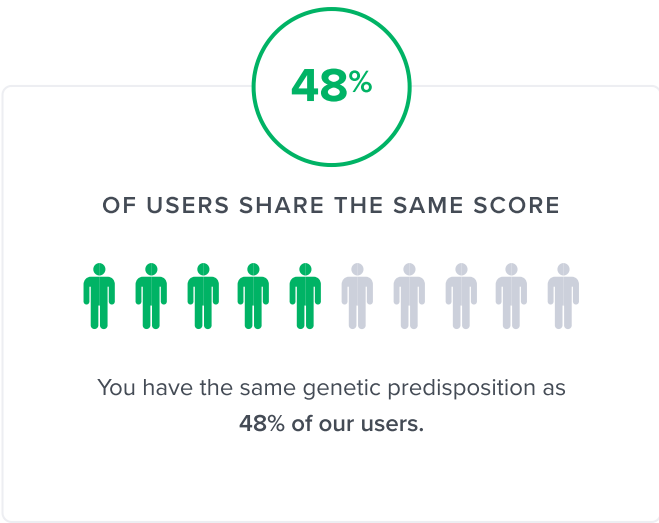
There is a link between how the *CLOCK* gene affects circadian rhythms and sleep on one hand, and metabolic balance and eating behavior on the other [\[R\]](#), [\[R\]](#).

Studies have found that sleep deprivation disrupts metabolism by increasing the levels of the stress hormone cortisol and decreasing insulin sensitivity. Furthermore, a lack of sleep increases the levels of the hunger hormone ghrelin, which increases hunger and appetite -- thereby increasing the risk of obesity [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CLOCK	rs1801260	AA

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

MTNR1B (Diet & Blood Sugar)

Recent years have brought fascinating insights into how our internal clock affects metabolism, particularly through the melatonin receptor gene MTNR1B. One genetic variant in this gene - [rs10830963](#) - has emerged as a key player in the connection between sleep timing and blood sugar control.

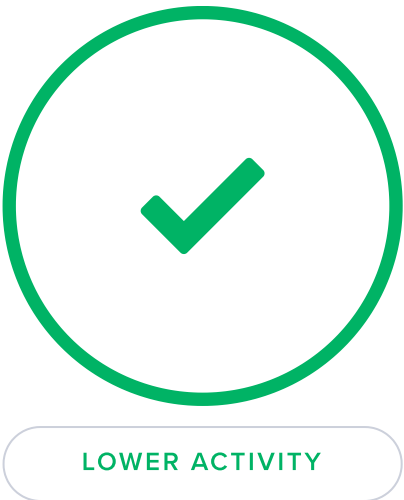
The **minor “G” allele** has one of the strongest links with **high blood sugar and type 2 diabetes**. It increases the expression of melatonin receptors in pancreatic beta cells. These beta cells release insulin, and when they have more melatonin receptors, they become more sensitive to melatonin's signals [\[R\]](#), [\[R\]](#).

Here's where timing becomes crucial: **Melatonin naturally suppresses insulin release** - a useful feature during our normal sleeping hours when we're not eating. However, people carrying the G allele have heightened sensitivity to this effect. For these individuals, **eating late at night can lead to a reduced insulin response and higher blood sugar levels** [\[R\]](#).

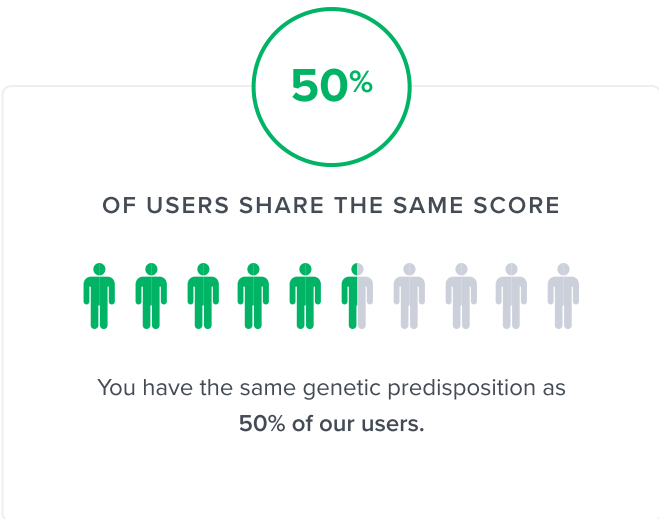
New research has uncovered something unexpected: carriers of this variant produce melatonin for about 41 minutes longer than non-carriers, and their melatonin offset (when melatonin levels drop in the morning) is **delayed by about 80 minutes** [\[R\]](#).

This finding has important implications, particularly for early risers. If you carry this variant and wake up early, you might still have elevated melatonin levels when you eat breakfast. Since melatonin suppresses insulin release, this could lead to **higher blood sugar levels during your morning meal**, contributing to diabetes [\[R\]](#).

Taken together, these studies suggest that people with rs10830963-G may particularly benefit from [intermittent fasting](#). By avoiding late dinners and early breakfasts, you lessen the negative impact of melatonin on blood sugar control [\[R\]](#).



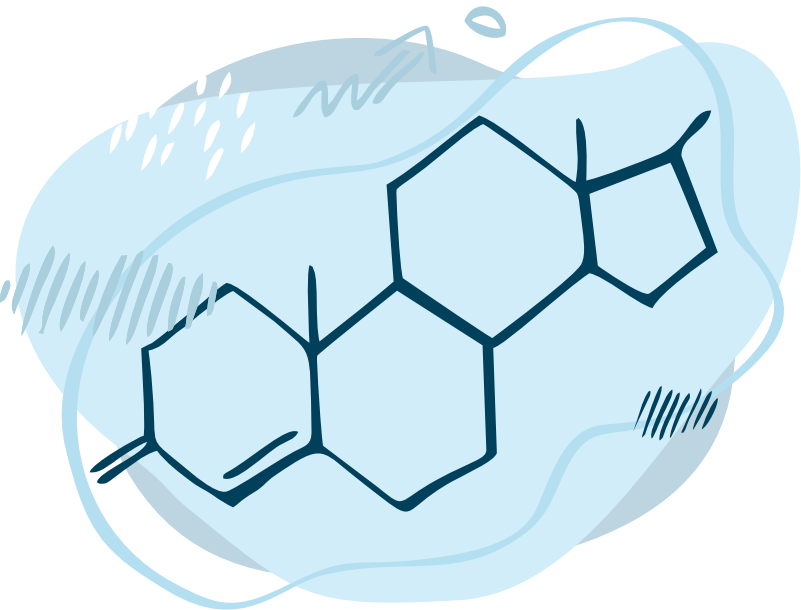
Predisposed to lower MTNR1B activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1B	rs10830963	CC

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



Hormones and Maternal Mental Health

This section focuses on genetic influences on neurotransmitters, stress response, and hormonal communication, offering insight into emotional regulation, mood stability, and mental resilience across the maternal journey.

 MORE LIKELY Insomnia More likely to have insomnia	 MORE LIKELY Stress More likely to feel stressed	 MORE LIKELY Anxiety More likely to have anxiety
 MORE LIKELY Anger More likely to feel angry	 MORE LIKELY Brain Fog More likely to have brain fog	 MORE LIKELY Suicidal Ideation More likely to have suicidal thoughts
 MORE LIKELY Agoraphobia More likely to have agoraphobia	 MORE LIKELY Caffeine-Related Anxiety More likely to experience caffeine-related anxiety	 HIGHER Caffeine Sensitivity Predisposed to higher caffeine sensitivity
 MORE LIKELY Sleep Apnea More likely to have sleep apnea	 HIGHER RISK Attention More likely to have ADHD	 LOWER ACTIVITY CRHR2 (Stress/HPA Axis) Likely lower CRHR2 activity

 HIGHER ACTIVITY FOX E1 (Thyroid) Predisposed to a higher FOX E1 activity	 LOWER ACTIVITY GC (Vitamin D) Likely lower GC activity	 HIGHER ACTIVITY TMPRSS6 (Iron) Predisposed to higher TMPRSS6 activity
 HIGHER ACTIVITY TFR2 (Iron) Predisposed to a higher TFR2 activity	 LOWER ACTIVITY AHR (Detox) Likely lower AHR activity	 LOWER ACTIVITY CYP2D6 (Mental Health, Detox) Predisposed to a lower CYP2D6 activity
 LOWER ACTIVITY CYP3A4 (Detox) Likely lower CYP3A4 activity	 LOWER ACTIVITY SOD1 (Oxidative Stress) Predisposed to lower SOD1 activity	 TYPICAL LIKELIHOOD Panic Attacks Typical likelihood of having panic attacks
 TYPICAL LIKELIHOOD Burnout Typical likelihood of burnout	 TYPICAL LIKELIHOOD Worrying Typical likelihood of worrying	 TYPICAL Aggression Predisposed to typical aggression
 TYPICAL LIKELIHOOD Cognitive Decline Typical likelihood of cognitive decline	 TYPICAL Memory Performance Predisposed to typical memory performance	 TYPICAL LIKELIHOOD Short-Term Memory Impairment Typical likelihood of short-term memory impairment
 TYPICAL Episodic Memory Predisposed to typical episodic memory	 TYPICAL LIKELIHOOD Emotional Blindness Typical likelihood of alexithymia	 TYPICAL LIKELIHOOD Phobias Typical likelihood of having a phobia



TYPICAL

Sleep Quality

Predisposed to typical sleep quality



TYPICAL

Deep Sleep (ADA)

Likely a typical sleeper



TYPICAL LIKELIHOOD

Daytime Sleepiness

Typical likelihood of daytime sleepiness



TYPICAL

Sleep Duration

Predisposed to typical sleep duration



INTERMEDIATE ACTIVITY

NR3C1 (Fatigue)

Likely intermediate NR3C1 activity



LOWER ACTIVITY

FKBP5 (Stress/ HPA Axis)

Likely lower FKBP5 activity



TYPICAL ACTIVITY

CRHR1 (Stress/HPA Axis)

Likely typical CRHR1 activity



TYPICAL GENETICS

ARNTL (Circadian Rhythm)

Predisposed to typical ARNTL genetics



TYPICAL GENETICS

AANAT (Circadian Rhythm)

Predisposed to typical AANAT genetics



TYPICAL ACTIVITY

MTNR1A (Melatonin)

Likely typical MTNR1A activity



SLIGHTLY LOWER ACTIVITY

DIO2 (Thyroid)

Slightly lower DIO2 activity



TYPICAL ACTIVITY

VDR (Vitamin D)

Likely typical VDR activity



TYPICAL ACTIVITY

TRPM6 (Magnesium & Calcium)

Predisposed to typical TRPM6 activity



TYPICAL ACTIVITY

CYP1A1 (Detox)

Likely typical CYP1A1 activity



TYPICAL ACTIVITY

CYP1B1 (Detox/ Skin Health)

Predisposed to typical CYP1B1 activity



TYPICAL ACTIVITY

GCLC (Glutathione & Detox)

Predisposed to typical GCLC activity



TYPICAL ACTIVITY

GCLM (Glutathione & Detox)

Predisposed to a typical GCLM activity



TYPICAL ACTIVITY

GSTP1 (Detox)

Likely typical GSTP1 activity



TYPICAL ACTIVITY

SOD2 (Oxidative Stress)

Likely typical SOD2 activity



HIGHER ACTIVITY

PON1 (Detox)

Likely higher PON1 activity



TYPICAL ACTIVITY

UGT1A1 (Detox)

Likely typical UGT1A1 activity



TYPICAL GENETICS

UGT2B15 (Sex Hormones)

Likely typical UGT2B15 genetics



LESS LIKELY

Borderline Personality

Less likely to have BPD



LESS LIKELY

Obsessive-Compulsive Tendencies

Less likely to have OCD



LOWER

Irritability

Predisposed to lower irritability



LESS LIKELY

Hallucinations

Less likely to have hallucinations



LESS LIKELY

Psychosis

Less likely to have psychosis



LESS LIKELY

Mania

Less likely to experience mania



LESS LIKELY

Social Anxiety

Less likely to have social anxiety



LESS LIKELY

Caffeine-Related Sleep Problems

Less likely to have caffeine-related sleep problems



LESS LIKELY

Sleep Movement

Less likely to move during sleep



LOWER ACTIVITY

CLOCK (Sleep & Weight)

Likely lower CLOCK activity



HIGHER ACTIVITY

PER2 (Dieting)

Likely higher PER2 activity



HIGHER ACTIVITY

ASMT (Mood, Neurodivergence)

Predisposed to a higher ASMT activity



LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity



BETTER

TPO (Thyroid)

Likely better TPO genetics



HIGHER ACTIVITY

DIO1 (Thyroid)

Likely higher DIO1 activity



EXTENSIVE METABOLIZER

CYP2C19 (Detox)

Likely an extensive metabolizer



HIGHER ACTIVITY

GSTA1 (Detox/
Glutathione)

Predisposed to higher GSTA1 activity



HIGHER ACTIVITY

UGT (Detox)

Likely higher UGT activity

Insomnia

Key Takeaways:

- About **40%** of differences in people's chances of getting insomnia may be due to genetics.
- Insomnia is common, affecting about **1 in 4 Americans**.
- Even if your genetic risk is low, your overall risk can still be high due to other factors.
- Risk factors include: depression, shift work, caffeine, inconsistent bedtimes, and more.
- Insomnia can contribute to fatigue, high blood pressure, obesity, heart disease, and diabetes.
- Click the **next steps** tab for relevant labs and lifestyle factors.

You have a 'clock' inside your body that regulates sleep and other 24-hour cycles. These cycles are called *circadian rhythms* [R].

If your internal clock is disrupted, it can lead to *insomnia*. People with insomnia have trouble falling asleep, staying asleep, or both [R, R].

Insomnia is the most common sleep condition in the US. In fact, **about 1 in 4 Americans are struggling with it** [R, R].

If you've ever struggled to fall or stay asleep, you're likely to [R, R]:

- Feel tired
- Have trouble focusing
- Have trouble remembering things
- Feel irritable

Insomnia may also lead to more serious problems, such as [R]:

- High blood pressure
- Heart disease
- Obesity
- Diabetes
- Asthma

Luckily, **there are many things you can try to potentially help with insomnia.** Doctors often recommend medication, talk therapy, or changing your sleep habits [R, R].

People are more likely to develop insomnia if they're under a lot of stress. Other risk factors for insomnia include [R, R]:

- Depression
- Shift or night work
- Noise or light at night
- Traveling to different time zones
- Going to bed at different times every night
- Taking a lot of naps during the day
- Genetics**

In fact, **about 40% of differences in people's chances of getting insomnia may be attributed to genetics.** Genes that may contribute to insomnia influence [R, R, R, R, R]:

- Circadian rhythm ([CLOCK](#), [PER2](#), [MTNR1A](#))
- Brain function ([CACNA1C](#), [RBFOX3](#))
- Stress response and alertness ([SLC6A4](#))

Moreover, genetically low L-carnitine levels may be causally associated with insomnia in Parkinson's disease [R].



MORE LIKELY

More likely to have insomnia based on 776,133 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
OXGR1	rs143612171	GG
BMP15	rs17315269	TT
TMEM25	rs1064939	AA
NAT8	rs62149809	AA
ZFP64	rs117028917	GG
UBA7	rs140864960	GG
ZBTB6	rs4838024	GG
OLFM4	rs117806190	GG
HYAL3	rs144954862	CC
ZBTB26	rs180801476	TT
RC3H2	rs12684080	CC
CPED1	rs62472321	AA
NPL	rs509476	CC
STRBP	rs1001774	CC
MDFIC2	rs115288777	AA
UHRF1BP1	rs111973424	GC
PER2	rs62194948	GG
THSD7B	rs532858227	GG
COL11A2	rs118109745	AA
MEIS1	rs62144053	GG
SDK1	rs75218827	CC

GENE	SNP	GENOTYPE
OR2J2	rs62405961	TT
SDK1	rs185529042	GG
MEIS1	rs72826719	GG
NEK7	rs58783316	AA
SDK1	rs139200930	GG
GTF2B	rs138805281	TT
MEIS1	rs115179220	CC
SDK1	rs78962708	GG
/	rs141283443	TT
HLA-E	rs55777621	GG
OLFM4	rs1867369	CC
MST1R	rs145439991	GG
NUAK2	rs138122366	CC
SDK1	rs187543070	AA
CSMD3	rs118137068	GG
MEIS1	rs76502257	GG
CNTN5	rs72984318	AA
DIAPH3	rs142634286	TT
C17ORF78	rs139986980	TT
SLC39A8	rs13107325	CC
SDK1	rs118171694	AA
ZSCAN9	rs113627971	AA
NEGR1	rs12750136	GG

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

Stress

Not everybody responds to stress in the same way. Some people seem to thrive under pressure. Others need a much calmer environment to be at their best [R].

Up to 45% of differences in the way we perceive stress may be attributed to genetics. Genes involved influence [R, R, R]:

- Stress hormones like cortisol ([NR3C1](#), [ACE](#), [ZNF366](#))
- Calming brain chemicals ([GABRA6](#), [OPRM1](#))
- Brain function ([BDNF](#))

There are many effective ways to reduce stress, including:

- **Physical activity.** Exercise boosts mood and lowers stress hormones [R].
- **Relaxation techniques.** Deep breathing, mindfulness or massage can help calm down your nervous system [R, R, R].
- **Time in nature.** Being in nature helps calm down our nervous system [R, R, R].
- **Connecting with others.** Having a social support network makes us more resilient to stress [R, R].
- **Hobbies.** Doing something you enjoy can improve your well-being [R].
- **Positive thinking.** Seeing the world through a more positive lens is linked to less chronic stress and may even help people live longer [R, R, R].



MORE LIKELY

More likely to feel stressed based on 7,226,795 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MPPED1	rs9614176	AG
MROH2A	rs7606893	CA
OXTR	rs53576	GA
STAC	rs112766131	GG
LMCD1	rs114122346	CT
CHRM3	rs10925907	AA
KCTD12	rs674041	CC
CDH12	rs1545967	TA
BDNF	rs6265	CT
RBM17	rs1073646	AC
DPYSL5	rs12474330	AG
OXTR	rs2254298	GG
SPG7	rs2292954	AA
SMARCA2	rs10965522	TC
HLA-DPB1	rs2064479	CT
PDCD6IP	rs2053425	CC
/	rs2650673	TT
RASGEF1B	rs10033652	TT
PTGS2	rs20417	GG
/	rs137970858	TT
/	rs150429966	AA

GENE	SNP	GENOTYPE
/	rs76192797	AA
PSMD7	rs7193343	CC

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.

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
- 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](#))



MORE LIKELY

More likely to have anxiety based on 807,582 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ATP8B4	rs2413998	AA
APOE	rs429358	CC
DNAH8	rs4714177	AA
NUP107	rs11177321	GG
CES1	rs1566652	TT
GAD1	rs3828275	TT
/	rs1435154	AC
/	rs16838980	TG
HTR2A	rs12584920	GG
ZNF281	rs12058730	GA
COMT	rs4680	GA
FUNDC1	rs5906966	GG
MAOA	rs6323	TT
MAGI1	rs35855737	TT
COMT	rs4633	CT
GAD1	rs2241165	TC
GAD1	rs12185692	AC
CACNA1C	rs2159100	TC
CACNA1C	rs1006737	AG
ZPLD1	rs1709393	TC
ANO2	rs12579350	GA

GENE	SNP	GENOTYPE
IL20RB	rs17374749	GA
PID1	rs10498237	GA
DMD	rs921896	CT
C6ORF118	rs9295300	AG
NOX4	rs17221829	CA
CAMTA1	rs11120917	CT
OR5P3	rs7112002	CA
SLC1A1	rs7855993	AG
NOX4	rs10830352	GA
SRBD1	rs2344662	CA
SSH2	rs6354	TT
AKAP6	rs17406568	GG
TBL1X	rs5934574	TT
DSCAM	rs1040315	AA
OSCP1	rs906228	CA
AGPAT4	rs3798943	CC
MFHAS1	rs12682352	CT
NPSR1	rs324981	TA
ETS1	rs2213018	GG
NPSR1	rs10237930	CT
ERCC6L2	rs7867155	TC
SLC1A1	rs13289148	TT
RGS2	rs10801153	GG
FLNB	rs9880603	GA
EFHC2	rs1562875	AA
LRRC63	rs259730	TC
ERAP2	rs7733541	CA
ADORA2A	rs5751876	TT
XKR6	rs6985109	AA

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

Anger

Up to **20%** of the differences in anger may be due to **genetics** [\[R\]](#).

People with certain genetic markers may be predisposed to aggressive behaviors or heightened anger responses. However, genes alone don't dictate behavior. The following factors also play significant roles in how anger is expressed and managed:

- Chronic stress
- A family environment where anger was expressed violently or aggressively
- Past trauma or abuse.
- Chronic pain or certain medical conditions.
- Certain mental health disorders (e.g., depression, ADHD, or borderline personality disorder)
- Substance misuse (alcohol or illegal) drugs



MORE LIKELY

More likely to feel angry based on 14 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FYN	rs2148710	TT
QSER1	rs16924133	AT
TRIM31	rs2844775	GG
GREM2	rs16840114	GA
UQCRFS1	rs8102754	TT
PLEK	rs7578047	AG
DPY19L1	rs6954895	TC
/	rs6834498	TC
PHEX	rs3752433	TC
E2F3	rs555017	GA
IYD	rs670292	CG
ABAT	rs1299926	AA
PNLIP	rs12249434	CC
CSE1L	rs6012564	AA

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

Brain Fog

Key Takeaways:

- Brain fog is a common symptom of chronic fatigue syndrome.
- It manifests as memory problems, difficulty focusing, jumbled or hazy thoughts, and confusion.
- Risk factors include stress, sleep problems, air pollution, smoking, and your genetics.
- A high genetic risk may be mitigated by addressing modifiable risk factors.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and next steps for relevant labs.

Brain fog is a feeling of mental slowness and fatigue. People with brain fog may experience [\[R\]](#), [\[R\]](#):

- Memory problems
- Difficulty focusing
- Jumbled or hazy thoughts
- Confusion

The exact cause of brain fog is unknown. Factors that may contribute to it include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Stress
- Sleep problems
- Air pollution
- Smoking
- Genetics**

Brain fog is a common symptom of **chronic fatigue syndrome**. People with this condition are tired even after getting lots of rest [\[R\]](#), [\[R\]](#).

Other conditions that may cause brain fog include:

- Autoimmune disease [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Some infections [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Pain [\[R\]](#), [\[R\]](#)
- Conditions affecting the brain [\[R\]](#), [\[R\]](#), [\[R\]](#)

You may be able to improve brain fog by addressing its cause. If the cause is sleep deprivation, for example, it should go away with enough rest [\[R\]](#), [\[R\]](#).

If you are struggling with brain fog, work with your doctor to figure out the cause.



MORE LIKELY

More likely to have brain fog based on 5,554 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
EXOC5	rs565429549	AA
/	rs77332613	GG
CNTN2	rs114589565	CC
/	rs148678515	TT
MRPS9	rs185526961	TT
CCDC138	rs115847251	AA
MRPS9	rs181406718	GG
OOSP1	rs115901332	CC
PSG9	rs115749421	CC
PSD3	rs113714584	TT
MRPS9	rs145642147	TT
MRPS9	rs138753234	GG
ACTL7B	rs190045124	GG
CNOT2	rs142649262	CC
PKD2L2	rs10070991	TT
RAB1A	rs185175713	TT
/	rs193120535	TT
MRO	rs143628339	TT
ADAMTS16	rs139940967	GG
ATXN3	rs10137541	GG
GBE1	rs57463270	TT

GENE	SNP	GENOTYPE
PTPRN2	rs75917522	TT
CHGA	rs147711399	GG
/	rs376394962	TT
MEIS1	rs116270157	TT
KLF5	rs112829029	CC
/	rs181434062	AA
UBASH3B	rs192926887	TT
BCL9	rs190129535	CC
N4BP2L2	rs75423524	TT
ADAM2	rs141786817	GG
ASAH2B	rs183843763	CC
FOXA2	rs191545966	CC
POT1	rs140241460	AA
ASAH2B	rs112784518	GG
POMZP3	rs186085204	GG
SNTG2	rs75614170	TT
FOXA2	rs187277830	CC
PAX1	rs190927285	GG
TCF12	rs147774332	TT
CNR1	rs1049353	CC

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

Suicidal Ideation

The presence of suicidal thoughts is a sign of extreme distress and should not be taken lightly. It is a critical risk factor for suicide attempts and completions, making early intervention and support crucial. Management includes crisis intervention, counseling, and addressing underlying mental health conditions or stresses.

Family and social support, along with professional help, can aid individuals in overcoming these thoughts. It is essential to create a safe environment for those experiencing suicidal ideation and to provide resources and outlets for emotional expression and relief.



MORE LIKELY

More likely to have suicidal thoughts based on 6,999 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LTBP2	rs12100626	CC
LTBP2	rs17101543	CC
/	rs17750193	TT
KCTD8	rs2613142	GG
/	rs2722149	AA
/	rs2715651	TT
/	rs2613149	GG
/	rs1460608	TT
/	rs2613152	GG
/	rs2613155	CC
/	rs2715640	CC
/	rs2678763	AA
/	rs2722152	TT
/	rs2715662	GG
/	rs2715652	GG
/	rs2715654	AA
/	rs2715653	AA
/	rs2613151	TT
KCTD8	rs1841397	CC
/	rs1460607	TT
/	rs13151415	CC

GENE	SNP	GENOTYPE
KCTD8	rs2613143	TT
/	rs2715650	AA
/	rs2613150	GG
SF3A1	rs2070889	GG

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

Agoraphobia

Agoraphobia is an anxiety disorder characterized by an intense fear of entering open or crowded places, being in situations where escape may be difficult, or where help might not be available in the event of a panic attack. Individuals with agoraphobia often experience extreme distress when they encounter these situations, which can lead to avoidance behaviors.

As a result, they may avoid places like public transport, shopping centers, or even open areas. The fear is disproportionate to the actual danger of the place or situation but is persistent and can be incapacitating.

This disorder can severely limit a person’s ability to function in daily life, impacting their social interactions, employment, and overall quality of life. Agoraphobia can occur on its own or coexist with other panic disorders. Treatment typically involves a combination of cognitive-behavioral therapy (CBT), which focuses on changing thought patterns and behaviors, as well as medication to manage symptoms.

Exposure therapy, a subset of CBT that involves gradual exposure to feared situations, is often effective. Support from family and friends, along with professional guidance, is essential to recovery.



MORE LIKELY

More likely to have agoraphobia based on 1,660 genetic variants we looked at



Caffeine-Related Anxiety

People drink coffee for an energy and mood boost. Caffeine is the main ingredient responsible for these effects. However, caffeine can make some people feel jittery and have trouble falling asleep. Caffeine may also increase the risk of anxiety and other mental health problems [R, R, R].

A gene called [ADORA2A](#) may change the way caffeine affects your body [R].

The *ADORA2A* gene makes a protein that allows the brain to use a compound called adenosine. This compound helps make you sleepy and calm. Caffeine works by blocking the ADORA2A protein. Then adenosine can't work on your brain, and you feel more awake [R].

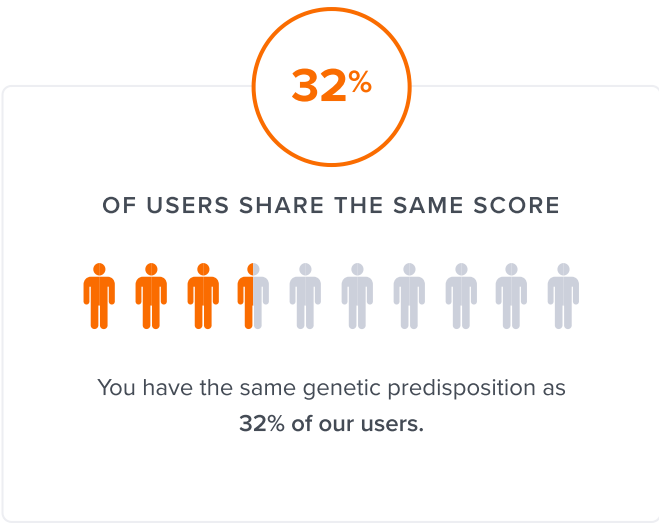
For example, one *ADORA2A* gene variant may change the way you respond to caffeine. Caffeine may make people with this variant more anxious. Women tend to be affected more strongly than men [R, R, R].

People with this variant may be able to build up a kind of tolerance to caffeine. If they drink caffeinated drinks every day, it may not trigger anxiety anymore [R].



MORE LIKELY

More likely to experience caffeine-related anxiety based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADORA2A	rs5751876	TT

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

Caffeine Sensitivity

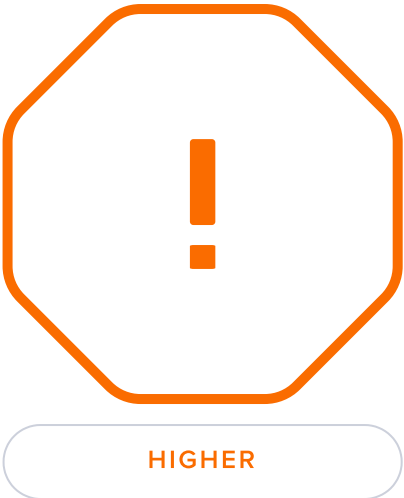
Genetic variants may explain about **70%** of the difference in caffeine sensitivity [R, R]. Genes associated with caffeine sensitivity impact how quickly caffeine is broken down and the strength of its effects in different parts of the body.

The **CYP1A2** gene is a **key enzyme responsible for caffeine breakdown**. The **rs762551** variant (-163 A>C) determines whether someone is a “fast” or “slow” caffeine metabolizer. Carriers of the “C” allele are slow metabolisers. This means they caffeine stays in their body for a longer time, increasing their caffeine sensitivity [R, R, R, R].

Other notable genes and variants include:

- **AHR (rs4410790)**: The AHR gene regulates the expression of **CYP1A2**, mentioned above. Certain variants at AHR slow down caffeine metabolism, prolonging the effects caffeine has on the body [R].
- **ADORA2A (rs5751876)**: This ADORA2A gene encodes the adenosine A2A receptor, a primary target of caffeine in the brain. Caffeine may make those with the “T” variant more anxious, especially women. Interestingly, this variant seems to have the opposite effects on sleep problems (“C” carriers may be more affected) [R, R, R, R].
- **COMT (rs4680)**: The COMT gene is involved in the breakdown of the neurotransmitter dopamine. The rs4680 variant (Val158Met G>A) may increase sensitivity to both positive and negative effects of caffeine [R].
- **NAT2 (R/S, rs1495741)**: NAT2 helps break down various substances, including caffeine. Individuals with a “slow” acetylator status in the NAT2 gene may break down caffeine more slowly, leading to prolonged effects and increased sensitivity [R].

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



Predisposed to higher caffeine sensitivity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

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

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

Sleep Apnea

Key Takeaways:

- About 10-40% of differences in people's chances of developing sleep apnea may be due to genetics.
- Other important risk factors include being male, older, overweight, nasal congestion issues, a smoker, and drinking alcohol.
- If you are at high genetic risk, be aware of symptoms indicating sleep apnea, and take action on those risk factors you can control.
- Click the **next steps** tab for relevant labs.

Sleep apnea is a disorder that interrupts your breathing while you sleep. A person with sleep apnea might wake up dozens of times to restore normal breathing, leading to daytime sleepiness. Left untreated, sleep apnea can affect your health, quality of life, and driving safety [\[R\]](#), [\[R\]](#).

About 10-40% of differences in people's chances of developing sleep apnea may be due to genetics. Genes involved in sleep apnea may influence [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- **Weight**
- Upper airway structure
- Sleep duration and quality

However, keep in mind that genetics is just one of many risk factors, along with [\[R\]](#):

- Male sex
- Older age
- Excess weight
- Nasal congestion
- Smoking
- Drinking alcohol



MORE LIKELY

More likely to have sleep apnea based on 1,227,186 genetic variants we looked at



PERCENTILE



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FOXP2	rs1006437246	GG
LMX1A	rs140743827	GG
GPR83	rs116791765	TT
NRG1	rs10097555	GA
ARRB1	rs35329661	CC
LAX1	rs116133558	TC
RGMA	rs148024591	CC
/	rs11610782	GG
RGS18	rs11588454	TC
/	rs11074782	CT
FTO	rs11075985	CA
LRATD1	rs2033354	TT
TDRD15	rs11897825	AG
TDRD15	rs11897825	AG
NEDD1	rs10507084	CT
PLCB1	rs2743173	CC
FTO	rs9937053	GA
INSIG2	rs4849682	TC
UBE3A	rs72699765	GA
SLC35F3	rs75108997	GG
YIPF5	rs111942351	AA

GENE	SNP	GENOTYPE
CAMK1D	rs185932673	CC
SLC35F3	rs75108997	GG
SERTAD2	rs999944	GG
TSPAN18	rs74472562	CC

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

Attention

Key Takeaways:

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

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

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

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

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

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

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

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

- Substance abuse
- Car accidents
- Money problems

Treatment for ADHD usually includes talk therapy and medication [\[R\]](#).

The cause of ADHD is unknown. Risk factors include [\[R\]](#):

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

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

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



HIGHER RISK

More likely to have ADHD based on 263,165 genetic variants we looked at

99th

PERCENTILE



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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL10RB	rs77224013	AA
ESD	rs7984966	TC
DLC1	rs2410116	GG
ANAPC4	rs28612433	CC
COMT	rs4680	GA
LPCAT1	rs27072	TC
TNR	rs6686722	TC
TPH2	rs1843809	TT
SPATA7	rs61975260	GC
HERC2	rs4778174	AG
NRP2	rs4673294	AG
FBN3	rs35624673	TC
BDNF	rs56164415	GG
/	rs9545903	TC
HTR2C	rs3813929	CC
EMP2	rs11074889	AG
CHRNA4	rs1044396	GG
CLPTM1L	rs11564750	GG
CES1	rs1566652	TT
BMPRI1B	rs1859156	GT
PLXDC2	rs10828015	TC

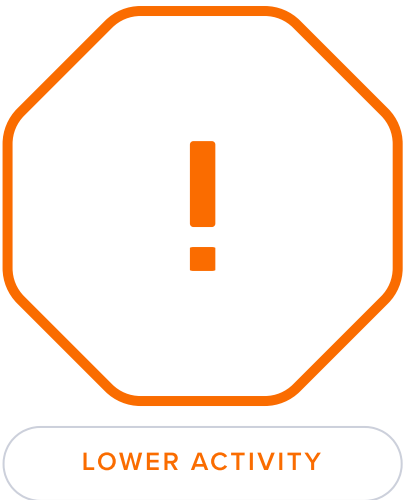
GENE	SNP	GENOTYPE
/	rs438259	AG
ELOVL6	rs10011926	CT
BLOC1S2	rs35835615	CC
TPH2	rs1386497	AA
AXIN2	rs8074751	GA
CACNA1C	rs1006737	AG
SNAP25	rs3746544	TT
ZNF584	rs35782676	TT
BDNF	rs6265	CT
COMT	rs4633	CT
SLC6A3	rs27048	TC
DRD1	rs265981	AG
DEAF1	rs11246226	CA
KCTD3	rs6540899	AG
MTHFR	rs1801131	TG
LGR4	rs11030104	AG
PFKP	rs1537617	GA
OR5H14	rs75311156	CT
SNAP25	rs362987	CA
CNTLN	rs6475111	TC
SNAP25	rs363039	GG
DTNBP1	rs760761	GA
HTR1B	rs6296	CG
DTNBP1	rs2619528	CT
DTNBP1	rs2619522	AC
DTNBP1	rs1018381	GA
MTHFR	rs2274976	CT
SLC6A2	rs3785143	CC
C21ORF62	rs112686226	AA

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

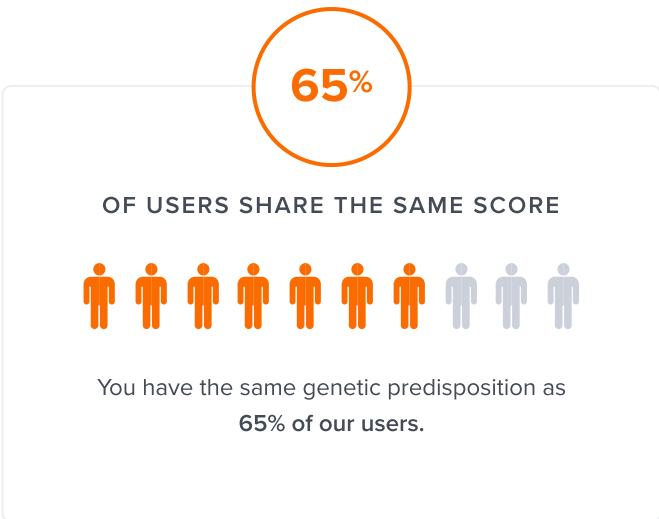
CRHR2 (Stress/HPA Axis)

A study of 491 veterans exposed to trauma and their partners associated the ‘A’ allele of [rs2267715](#) and [rs2190242](#) with an increased risk of [PTSD](#) in women. The study speculated that both variants may decrease *CRHR2* activity, thereby stimulating the stress response [\[R\]](#).

The rs2267715 variant was associated with PTSD symptom severity in a study of 1132 earthquake survivors [\[R\]](#).



Likely lower CRHR2 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRHR2	rs2190242	AA
CRHR2	rs2267715	AG

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

FOXE1 (Thyroid)

In a study with 6,300 participants, the minor alleles of the following four *FOXE1* variants were associated with a decreased risk of [hypothyroidism](#) [R]:

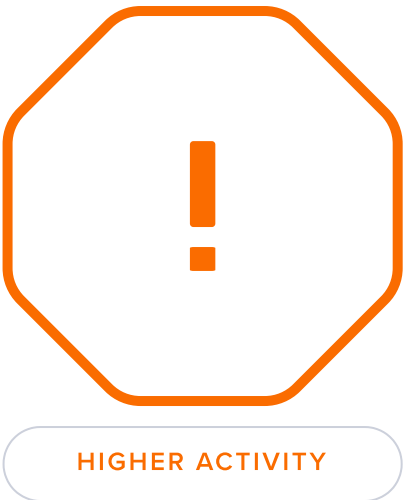
- ‘C’ of [rs925489](#)
- ‘A’ of [rs7850258](#)
- ‘A’ of [rs965513](#)
- ‘A’ of [rs10759944](#)

Of them, rs7850258 showed the strongest connection, with carriers of the ‘A’ allele showing 26% lower rates.

Scientists suggest that the above variants reduce *FOXE1* expression and allow for improved thyroid hormone production (T4) [R, R].

The effect allele carriers also had lower rates of autoimmune thyroiditis or [Hashimoto’s disease](#), which suggests autoimmunity as another potential mechanism [R].

On the other hand, some of these variants are associated with thyroid cancer, indicating a tumor-suppressor role of the *FOXE1* gene [R].



Predisposed to a higher FOXE1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRMO	rs925489	TT
FOXE1	rs7850258	GG
TRMO	rs965513	GG
TRMO	rs10759944	GG

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

GC (Vitamin D)

In a meta-analysis of 15 clinical trials and over 30,000 European descendants, [rs2282679](#) showed the strongest association with vitamin D status. The minor “G” allele correlated with 63% and 49% higher odds of vitamin D insufficiency and deficiency, respectively [\[R\]](#).

The link of this variant with vitamin D deficiency may be independent of age, weight, and other risk factors [\[R\]](#).

This variant may also influence the outcomes of vitamin D supplementation during pregnancy; in 682 white women, each “T” allele correlated with 4.2 nmol/L higher vitamin D levels upon delivery [\[R\]](#).

Two studies of nearly 4,000 participants associated the ‘G’ allele with lower DBP levels [\[R\]](#), [\[R\]](#).

Another SNP, [rs4588](#), showed comparable effects due to a nearly perfect overlap with rs2282679, so it wasn’t an independent genetic factor [\[R\]](#).

Another SNP with a meaningful impact on vitamin D status is [rs7041](#). The above meta-analysis and another review of 17 studies confirmed the association between the “A” allele and lower vitamin D levels [\[R\]](#), [\[R\]](#).

This variant may reduce the efficacy of vitamin D supplementation [\[R\]](#), [\[R\]](#).

Other GC variants have shown links with vitamin D levels, but the supporting evidence is weak:

- [rs17467825](#)
- [rs1155563](#)
- [rs222020](#)
- [rs2298849](#)



LOWER ACTIVITY

Likely lower GC activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GC	rs2282679	TG
GC	rs7041	CA
GC	rs4588	GT

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

TMPRSS6 (Iron)

At least three *TMPRSS6* variants have been associated with blood iron levels and incidence of iron deficiency: [rs4820268](#), [rs855791](#), and [rs228916](#) [R, R].

At rs4820268, the less common ‘G’ allele is associated with lower blood iron levels and possible iron deficiency. Similarly, the less common ‘A’ allele at rs855791 is associated with relatively lower blood iron levels in the majority of studies, though its effect may vary with population [R, R, R].

At rs228916, the rare ‘C’ allele is associated with slightly higher blood iron than the common ‘T’ allele. Here, the ‘C’ allele may be somewhat protective against iron deficiency, but more common in those prone to iron overload [R].



Predisposed to higher **TMPRSS6** activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TMPRSS6	rs4820268	GG
TMPRSS6	rs855791	AA
TMPRSS6	rs228916	CC

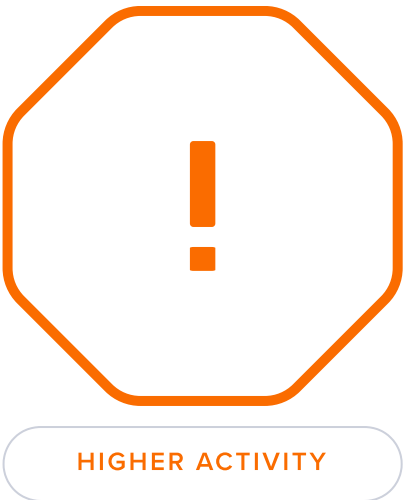
The number of "risk" variants in this table doesn't necessarily reflect your overall result.

TFR2 (Iron)

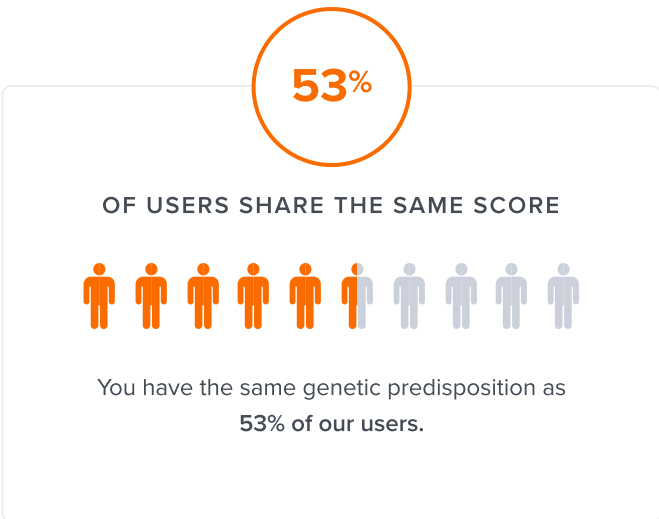
The main *TFR2* polymorphism is [rs7385804](#). Its ‘C’ allele has been associated with higher soluble transferrin receptor levels and a lower iron status, resulting in [\[R, R, R, R, R, R, R, R, R\]](#):

- Lower blood iron levels
- Lower serum transferrin levels
- Lower transferrin saturation measurement
- Lower hematocrit
- Lower MCV
- Lower MCHC
- Higher red blood cell count

However, a study failed to associate this variant with iron-deficiency anemia. Interestingly, a study of 680 pregnant women found that supplementation with folic acid plus iron increased neonatal birth weight more if the woman had the ‘AA’ genotype [\[R, R\]](#).



Predisposed to a higher TFR2 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MOSPD3	rs7385804	CA

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

AHR (Detox)

The “**A**” allele of [rs2066853](#) decreases AhR levels. Lower levels of AhR would mean less protection from toxins, oxidative stress, and inflammation [\[R\]](#).

This variant may be linked to:

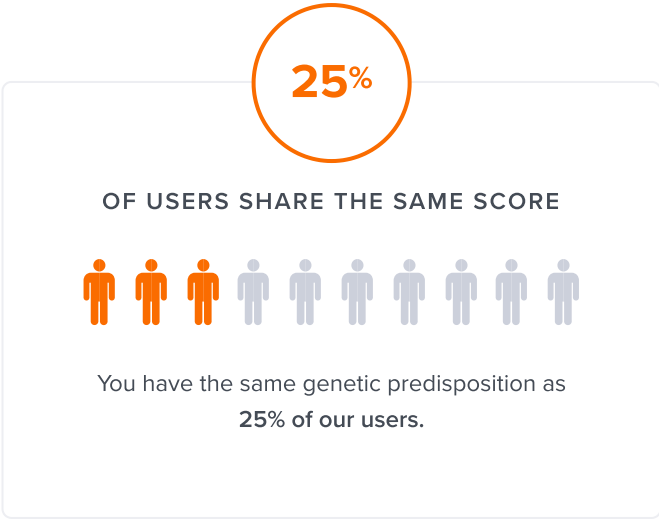
- Colorectal polyps in people exposed to toxins from well-done meat [\[R\]](#)
- Lung cancer in smokers [\[R\]](#)
- [Acute lung failure \(ARDS\)](#) [\[R\]](#)
- Reduced sperm quality [\[R\]](#), [\[R\]](#)

Interestingly, people with this variant may also have slower caffeine metabolism and thus consume less coffee and tea [\[R\]](#).



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AHR	rs2066853	AG

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

CYP2D6 (Mental Health, Detox)

PLEASE NOTE: This test did not evaluate for CYP2D6 copy number variations, such as gene deletions or duplications. CNVs are a primary factor influencing CYP2D6 enzyme activity and are essential for a complete assessment of metabolizer status. The results presented should be interpreted with this significant limitation in mind [R].

The *CYP2D6* gene has more than 100 known variants. These include [R, R]:

- Normal enzyme function variants (e.g., *1 and *2) [R, R]
- Reduced function variants (e.g., *9, *10, *17, and *41) [R, R]
- Non-functional variants (e.g., *3, *4, *5, *6, and *7) [R, R]

*CYP2D6**1 is the wild-type variant. The change from an ‘A’ to a ‘G’ at [rs16947](#) encodes *CYP2D6**2. Although its activity is indistinguishable from that of *CYP2D6**1, having several copies of this variant can result in an ultrafast phenotype. This variant has been associated with tyramine intolerance, suggesting a slightly lower metabolic efficiency for this substrate [R, R].

The ‘T’ allele of [rs3892097](#) corresponds to *CYP2D6**4. This is the most frequent non-functional variant in Europeans and North Americans (18.0%), accounting for 70-90% of cases [R].

Another non-functional variant is *CYP2D6**6, consisting of the deletion of an ‘A’ at [rs5030655](#). This variant is generally rare, but may be slightly more common in Europeans (around 1%) [R, R, R].

Finally, the ‘G’ allele of [rs5030867](#) encodes the non-functional *CYP2D6**7 variant. This allele is very rare but may be slightly more common in South East Asians (around 1%) [R].

The ‘A’ allele of [rs1065852](#) encodes the intermediate-activity *CYP2D6**10 variant. This variant is especially common in Thai (50%) and East Asians (42%) [R, R].

Another intermediate-activity variant is *CYP2D6**17, encoded by the ‘A’ allele of [rs28371706](#). This variant is most common in Africans (20%-35%) [R, R].

Studies suggest that people with low CYP2D6 enzyme activity may be more prone to anxiety and less successful at socializing than extensive metabolizers. Reduced activity has also been associated with impulsivity or novelty seeking [R, R, R].

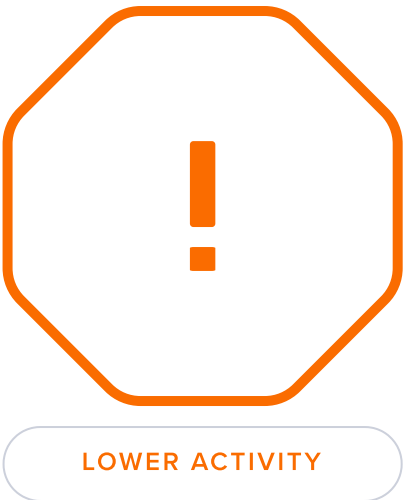
Alternatively, poor metabolizers may perform better in cognitive tasks that demand sustained attention or vigilance and spatial working memory. They may also have higher conscientiousness, responsibility, orderliness, and perseverance [R, R, R].

Low-activity variants have been associated with an increased risk of developing the following conditions:

- Alzheimer’s disease [R]
- Parkinson’s disease [R]
- Systemic sclerosis [R, R]
- Lupus [R]
- Ankylosing spondylitis [R]
- Pesticide toxicity [R]
- Adverse effects from antidepressants [R]

In contrast, they have been linked to a reduced risk of:

- Schizophrenia [R]
- Bulimia [R]



Predisposed to a lower CYP2D6 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP2D6	rs1065852	AG
CYP2D6	rs5030867	TT
CYP2D6	rs5030655	CC
CYP2D6	rs3892097	CC
CYP2D6	rs28371706	GG
CYP2D6	rs16947	AA

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

- Heavy smoking [\[R\]](#)
- Adverse effects from codeine and tramadol [\[R\]](#)

CYP3A4 (Detox)

The ‘A’ allele of [rs35599367](#), also known as CYP3A4*22, reduces CYP3A4 levels and activity by approximately half, resulting in slower drug metabolism [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Similarly, the minor alleles ‘C’ of [rs12721627](#) (CYP3A4*16) and ‘G’ of [rs55785340](#) (CYP3A4*2) have been associated with lower enzyme activity [\[R\]](#), [\[R\]](#).

Two other variants with decreased enzyme activity are ‘C’ at [rs2740574](#) (CYP3A4*1B) and ‘T’ at [rs2242480](#) (CYP3A4*1G) [\[R\]](#), [\[R\]](#).

The minor ‘G’ allele of [rs680055](#) (CYP3A4*3) encodes a protein with an amino acid change believed to reduce enzyme activity [\[R\]](#).

In carriers of these variants, the breakdown of cannabinoids such as THC and CBD may be slower. Moreover, people with these variants shouldn’t use cannabis if they are being treated with ketoconazole, fluconazole, or diltiazem, which are CYP3A inhibitors [\[R\]](#), [\[R\]](#).

In contrast, the ‘G’ allele of [rs28371759](#) (CYP3A4*18) increases enzyme activity [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

Likely lower CYP3A4 activity based on 7 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP3A5	rs2242480	TT
CYP3A4	rs28371759	AA
TRIM4	rs2740574	CT
CYP3A43	rs680055	CC
CYP3A4	rs55785340	AA
TRIM4	rs35599367	GG
/	rs12721627	GG

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

SOD1 (Oxidative Stress)

The best-characterized *SOD1* polymorphism is [rs2070424](#). Its minor ‘G’ allele is believed to increase the expression of the gene, resulting in lower oxidative stress. This variant has been associated with a decreased risk of:

- Alzheimer’s disease [\[R\]](#)
- Stomach cancer [\[R\]](#)
- Ulcerative colitis [\[R\]](#)
- PCOS [\[R\]](#)
- Type 2 diabetes [\[R\]](#)
- Myelomeningocele [\[R\]](#)

However, this variant has been linked to an increased risk of

- Breast cancer [\[R\]](#)
- Noise-induced hearing loss [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Parkinson’s disease [\[R\]](#)
- Hepatitis from antituberculosis drugs [\[R\]](#)
- Cataracts in patients with type 2 diabetes [\[R\]](#)

A variant possibly reducing SOD1 activity, ‘T’ at [rs1041740](#), has been associated with an increased risk of:

- Breast cancer [\[R\]](#)
- Diabetic nephropathy [\[R\]](#)
- Microalbuminuria [\[R\]](#)
- Cardiovascular disease and mortality [\[R\]](#), [\[R\]](#)
- Peritonitis [\[R\]](#)

However, this variant has been associated with a decreased risk of type 1 diabetes and lower total and LDL cholesterol levels [\[R\]](#), [\[R\]](#).

Finally, the ‘G’ allele of [rs10432782](#) has been associated with decreased prostate cancer risk and severity, suggesting increased SOD1 activity [\[R\]](#), [\[R\]](#).

However, this variant has been linked to an increased risk of noise-induced hearing loss and cardiovascular death in type 2 diabetes patients [\[R\]](#), [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

Predisposed to lower SOD1 activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SCAF4	rs2070424	AA
SOD1	rs10432782	TT
SOD1	rs1041740	CT

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

Panic Attacks

Factors that might increase the risk of developing panic attacks include:

- Family history of panic attacks or panic disorder
- Major life stressors, such as the death of a loved one or a traumatic event
- History of physical or sexual abuse
- Experiencing a traumatic event, such as an accident or a natural disaster
- History of other mental health disorders, such as depression or anxiety
- Smoking or excessive caffeine consumption
- Certain medical conditions, including thyroid problems or heart issues
- Genetics

There is evidence to suggest a genetic predisposition to panic attacks and panic disorder. Individuals with a family history of these conditions are more likely to experience them. Genetic factors can influence the brain's response to stress and anxiety, making certain individuals more prone to experiencing panic attacks when faced with triggers.



TYPICAL LIKELIHOOD

Typical likelihood of having panic attacks based on 1,664 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LGSN	rs6914428	GG
TMEM132D	rs11060369	AC
SSH2	rs6354	TT
BLMH	rs140701	TC
CERS5	rs685012	CT
COMT	rs4680	GA
/	rs25531	TT
TFAP2C	rs79919349	GG
SMAD1	rs144783209	GG
SUSD1	rs41280169	CC
SNURF	rs2554444	AA
CCK	rs1799923	AG
BLMH	rs4583306	AA
TPH1	rs1800532	GG
HTR2A	rs6313	GG

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

Burnout

The adverse effects of burnout spill over into every area of life—including home, work, and social life. Burnout can cause long-term changes to your body that make you vulnerable to illnesses like colds and flu. Due to its primary cause being chronic workplace stress, it's often intertwined with feelings of ineffectiveness and lack of accomplishment.

The symptoms of burnout can be subtle at first, but become worse over time. People experiencing burnout often don't see any hope of positive change in their situations. If left untreated, burnout can lead to serious physical and psychological illnesses such as depression and cardiovascular disease.



TYPICAL LIKELIHOOD

Typical likelihood of burnout based on 75 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARSB	rs12054837	CC
ARSB	rs10514108	TT
UHRF1BP1	rs6912327	CC
C10ORF53	rs1153799	AA
RFC3	rs17080169	AA
EDA2R	rs7878229	TC
AR	rs962458	AG
AR	rs12010636	TC
UHRF1BP1	rs205265	GA
UHRF1BP1	rs9469814	CT
UHRF1BP1	rs7764921	CA
UHRF1BP1	rs6908462	CT
UHRF1BP1	rs7761391	TC
CCDC60	rs2727733	AG
MCF2	rs10521801	CA
HDAC2	rs12526401	GA
HDAC2	rs12660968	GA
RFC3	rs1329669	CT
MTNR1A	rs1376534	CA
ZNF484	rs2281714	GG
ZNF484	rs3739602	CC

GENE	SNP	GENOTYPE
AR	rs4484837	AA
KANK2	rs755237	CC
KANK2	rs754528	TT
AR	rs1337080	AA
UHRF1BP1	rs2296362	TT
UHRF1BP1	rs2296361	GG
UHRF1BP1	rs13205210	TT
HNF4G	rs1564067	TT
UHRF1BP1	rs3734266	TT
PCYOX1L	rs352340	TT
FZD1	rs1429529	AA
UHRF1BP1	rs6457797	GG
ARSB	rs16875940	TT
YIPF6	rs7052964	TT
HS3ST5	rs1889555	AA
INPP5D	rs13021302	GG
NXPH1	rs10280502	GG
/	rs5915540	GG
/	rs12556688	CC

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

Worrying

The physical manifestations of worrying are part of the body’s fight-or-flight response, a primitive survival mechanism that can be overactive in individuals who worry excessively. If this condition persists, it can lead to difficulties in concentration, sleep disturbances, and a generally heightened state of stress which can exacerbate other health conditions.

The chronic stress associated with long-term worrying is linked to digestive disorders, a weakened immune system, and cardiovascular health issues, making it crucial for individuals suffering from excessive worrying to seek psychological assistance or stress management strategies.



TYPICAL LIKELIHOOD

Typical likelihood of worrying based on 494,121 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PAM	rs187580	TT
DENND1B	rs17642632	AA
/	rs61957597	AA
/	rs4444227	CC
STAG1	rs6791142	CC
MSL2	rs1729951	GG
KCTD10	rs7132057	CC
COMT	rs4680	GA
CADM2	rs62250713	AG
CADM2	rs1551042	AC
ITIH4	rs6798941	CT
ITIH4	rs12489490	CA
AS3MT	rs4919695	AG
NT5C2	rs7077291	CT
AS3MT	rs943035	TC
DENND1B	rs2488398	GC
HLA-DQA1	rs12055445	AG
DENND1B	rs2759663	CG
DENND1B	rs10737693	CT
STAB1	rs11130306	GA
LRRC4	rs3808072	TC

GENE	SNP	GENOTYPE
UBE3B	rs11067376	AG
MC4R	rs58084604	CT
TCF4	rs7228159	AT
GLYCTK	rs353547	CT
LRRC4	rs17151377	AC
ST3GAL3	rs2367724	CT
PAX6	rs3026389	CG
TNXB	rs2269426	GG
CRHR1	rs17688916	TT
CELF4	rs72893199	TT
RBFOX1	rs55997507	GG
AREL1	rs7152906	TT
NOTCH4	rs520692	TT
BAG6	rs1077393	AA
KANSL1	rs2696457	CC
KANSL1	rs62062288	GG
CRHR1	rs62057151	CC
DLST	rs3759741	GG
LSMEM2	rs57462170	GG
FAM76B	rs10765762	TT
SND1	rs806166	TT

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

Aggression

Aggression is the instinct that drives humans and animals to anger and violence. It is helpful for animals in the wild to protect themselves or to hunt. A bit of aggression may be beneficial in humas as well, but it generally causes major problems if not controlled [R].

About 50% of differences in aggression may be due to genetics. Genes that impact aggression may influence [R, R, R]:

- Reward signals
- The fight or flight response

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



TYPICAL

Predisposed to typical aggression based on 2,792 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FYN	rs2148710	TT
QSER1	rs16924133	AT
TRIM31	rs2844775	GG
IYD	rs670292	CG
ABAT	rs1299926	AA
GREM2	rs16840114	GA
PLEK	rs7578047	AG
PNLIP	rs12249434	CC
DPY19L1	rs6954895	TC
/	rs6834498	TC
E2F3	rs555017	GA
PHEX	rs3752433	TC
UQCRFS1	rs8102754	TT
CSE1L	rs6012564	AA

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].



TYPICAL LIKELIHOOD

Typical likelihood of cognitive decline based on 272,168 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
APOE	rs429358	CC
CDCA7	rs182734936	CC
ANXA5	rs141005242	CC
ALCAM	rs34476301	GG
SIRT1	rs3758391	CC
/	rs200668351	GG
TEK	rs147486058	AA
DUSP15	rs6089150	CC
CTBP2	rs61869228	CC
HHEX	rs60320343	AA
TNF	rs1799724	CC
CRP	rs1205	CC
APOE	rs7412	CC
SNRPB	rs2076650	CC
KIF11	rs6583817	CC
DPP4	rs6741949	GG
/	rs11706133	TT
WDFY2	rs9535753	TT
CEMIP2	rs12237894	GG
LAMP3	rs630527	GG
FOXJ2	rs7138264	GG

GENE	SNP	GENOTYPE
/	rs72956174	TT
B3GALNT1	rs4455332	CC
C3ORF56	rs11716691	AA
IRX2	rs72720951	AA
ZNF799	rs4804181	AA
SALL3	rs7231688	GG
HSD11B1	rs60686175	TT
BDNF	rs6265	CT
/	rs62477365	TC
APBB2	rs13133980	CG
BCHE	rs1803274	TC
CLU	rs11136000	CT
MS4A6A	rs610932	TG
TRIM32	rs7852872	CG
LHFPL6	rs9315702	AC
PRR16	rs3991625	CT
SALL1	rs2075199	TC
OPCML	rs11606197	CT
MRPS18C	rs10004897	GA
MECR	rs742801	CG
CHD6	rs6072411	GA
/	rs57169846	AG
FGF12	rs28636751	GC
/	rs10457441	TC
TNS1	rs13013766	GG
BCL11A	rs6545794	GG
IFNL3	rs73050457	CC
ABCA2	rs908832	GG
SELL	rs6703865	GG

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

Memory Performance

Memory performance refers to how good your brain is at storing and recalling information [R, R, R].

About 30-70% of differences in people’s memory performance may be due to genetics. Genes involved in memory may influence [R, R, R, R]:

- The way brain cells grow and develop
- Brain cell communication

Ways to boost your memory performance include [R, R, R, R]:

- Being physically active
- Getting 7-9 hours of good-quality sleep every night
- Eating a healthy diet
- Spending time with family and friends
- Engaging your mind (e.g, reading, solving puzzles, learning new skills)

If you want to go the extra mile, there are specific techniques you can use to train your memory (e.g. mind palace). There is even a world memory championship!



Predisposed to typical memory performance
based on 7,166,380 genetic variants we looked at

Your top variants that most likely
impact your genetic predisposition:

GENE	SNP	GENOTYPE
HDGFL1	rs9358578	GG
HTATIP2	rs10741845	AT
/	rs9345419	TT
WWC1	rs17070145	TC
HDGFL1	rs9466427	GT
HDGFL1	rs9348530	AG
TMEM63A	rs6426075	GA
SFXN5	rs17348624	AG
LRTM1	rs10510775	AA
PRNP	rs1799990	GG
APOE	rs4420638	GA
NT5DC2	rs4687625	CT
NT5DC2	rs2015971	CT
NT5DC2	rs11711421	CT
ITIH1	rs3774354	GA
ITIH1	rs1961958	AG
ITIH1	rs3774355	GA
ITIH1	rs6778844	TC
ITIH1	rs12487445	AC
ITIH1	rs6798246	GA
ITIH1	rs1961959	GC
PBRM1	rs17264436	TA
ITIH1	rs2289249	GA
GNL3	rs11177	GA
ITIH1	rs10865973	AT
TEK	rs581724	TT
ITIH1	rs2118540	TC
ITIH1	rs11717836	AG
ITIH1	rs6976	CT

GENE	SNP	GENOTYPE
ITIH1	rs2268027	GA
ITIH1	rs2239551	GA
CGGBP1	rs12492805	TG
ITIH1	rs2268025	AT
NEK4	rs1029871	GC
NECTIN2	rs6857	TC
ITIH1	rs2286798	AC
LRTM1	rs1526590	GC
TEK	rs633903	GT
ZNF804A	rs1344706	AC
COMT	rs4680	GA
RELN	rs661575	CT
DTNBP1	rs2619522	AC
SYNJ2	rs10945973	AG
MAT1A	rs4933327	AG
MAT1A	rs3851059	AG
SYNJ2	rs9356200	CT
STARD3	rs879606	GA
SORL1	rs3824968	AT
SYNJ2	rs6455937	AC
SYNJ2	rs10455935	GA

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

Short-Term Memory Impairment

Key Takeaways:

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

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

- Brain development
- Brain chemicals
- Blood vessel health

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



TYPICAL LIKELIHOOD

Typical likelihood of short-term memory impairment based on 1,038,899 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

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

GENE	SNP	GENOTYPE
PCDH20	rs4884391	GG
PCDH20	rs9539273	AA
PCDH20	rs7319561	AA
PCDH20	rs9528383	AA
PCDH20	rs1417465	CC
PCDH20	rs9539246	CC
PCDH20	rs7324265	TT
PCDH20	rs6562204	TT
PCDH20	rs1538918	CC
PCDH20	rs2875068	AA
PCDH20	rs9528373	CC
PCDH20	rs7985087	GG

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

Episodic Memory

Episodic memory enables us to **relive experiences from our past**. It is sometimes referred to as “**mental time travel**” [R, R, R].

About **60%** of people’s differences in episodic memory may be due to **genetics** [R, R].

Other factors that affect our episodic memory include:

- Age [R]
- Stress [R, R, R]
- Lack of sleep [R]
- Psychoactive substances, including alcohol and certain drugs and medications [R, R]
- Conditions such as depression, PTSD and anxiety [R, R, R, R]
- Diseases and injuries that affect the brain (e.g. Alzheimer’s) [R]

There are a number of things that have a beneficial effect on your episodic memory [R, R, R, R]:

- Engaging in social, leisure and physical activities
- Eating a healthy diet
- Getting enough sleep
- Challenging your mind



Predisposed to typical episodic memory based on **7,286,902** genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WWC1	rs17070145	TC
BACE2	rs146756105	GG
/	rs62529410	CC
SEMA3C	rs114908661	GG
ESR1	rs9340799	AA
HTR2A	rs73485231	GG
COASY	rs615942	AA
GRIN2A	rs7205428	AA
ARSJ	rs75864335	GG
APOE	rs429358	CC
ESR1	rs2234693	TT
GPATCH2L	rs10138361	GG
TRHDE	rs4426171	GG
CEP350	rs59621235	GA
LRATD1	rs2033352	CT
CLSTN2	rs6439886	AA
MOXD1	rs9321334	GA
/	rs10128294	GA
UFM1	rs604312	TC
RXFP2	rs277187	AC
SLC24A3	rs1033549	TG
FCHO2	rs116140617	GG
/	rs140372794	CC
FOXC2	rs115291988	CC
RPRM	rs4664134	GG
TRPM6	rs78943450	TT
METRNL	rs34596959	TT

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

Emotional Blindness

Up to 13% of the population may experience alexithymia, with the condition being more common in males than females [R].

Alexithymia is commonly observed in various psychiatric disorders such as autism spectrum disorder (ASD), post-traumatic stress disorder (PTSD), or certain personality disorders. It can also be present in depression, anxiety disorders, or eating disorders.

Other risk factors for alexithymia include:

- Brain damage to a region called *insula*
- History of childhood trauma
- Advancing age
- Low level of education
- Low socioeconomic status
- Low emotional intelligence

Research on twins indicates that there is a genetic component to alexithymia. People are more likely to have alexithymia if a close relative also has it [R].

The condition is typically diagnosed through self-report questionnaires and clinical interviews. It's important for healthcare professionals to distinguish between alexithymia and conditions with similar symptoms, such as ASD and depression.

Understanding and managing alexithymia involves recognizing the unique challenges it presents and developing strategies to enhance emotional awareness and expression. Collaboration with mental health professionals can provide valuable support for individuals with alexithymia. Management strategies typically include:

- Therapy: Psychological therapies, particularly those focusing on emotional regulation and recognition.
- Mindfulness and emotional awareness exercises: Practices that encourage individuals to focus on their internal emotional state.
- Communication skills training: Helping individuals articulate their emotions more effectively.



Typical likelihood of alexithymia based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
BDNF	rs6265	CT
COMT	rs4680	GA
RNF180	rs6295	CC

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

Phobias

Factors that might increase the risk of developing phobias include:

- Traumatic experiences, e.g., nearly drowning leading to fear of water
- Childhood environment, especially overly anxious parents
- Illness or another stressful event
- Other anxiety disorders or depression
- Parents with a history of phobias or other mental health disorders
- Genetics

There's evidence to suggest that phobias have a genetic component. Individuals with a family history of specific phobias or other anxiety disorders are at an increased risk of developing similar conditions. Certain genes might affect neurotransmitters that regulate mood and the body's response to stress, making an individual more susceptible to phobias.



TYPICAL LIKELIHOOD

Typical likelihood of having a phobia based on 1,662 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ESR1	rs9340799	AA

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

Sleep Quality

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

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

Some strategies that may improve sleep quality include [R]:

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



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
ADCY1	rs79209880	CT
VRK1	rs78807545	TG
RFX4	rs11610873	CG
KANSL1	rs1107820	TT
CDH13	rs111702115	GC
VGLL2	rs4946246	GT
/	rs71365296	CA
CASP3	rs7695597	GA
RALYL	rs118149821	CC
CHRM2	rs146885652	GG
FOXO6	rs2226263	TT
/	rs184060364	GG
TENM4	rs117191802	AA
TCF21	rs13201465	AA
RALYL	rs191939331	GG
FBN2	rs115375165	GG
ZNF626	rs6511152	GG
COQ8A	rs113207574	TC
FAM107B	rs74122981	AG
TJP2	rs7030480	TA
CHRM2	rs74757156	CC
/	rs111921861	AA
/	rs140707667	GG
FUT9	rs142123475	CC
UFL1	rs75842709	CC
COX7C	rs2964898	CC
ERCC4	rs74321030	TT
/	rs147738873	CC
MSX2	rs28450080	CC

GENE	SNP	GENOTYPE
TNF	rs1800629	GG
NREP	rs140529718	GG
EPB41L4A	rs146128029	TT
RBMS3	rs17023449	TT
SASH1	rs112390069	GG
PLK2	rs76395602	GG
RGS6	rs36032616	AA
PIGZ	rs4916588	CC
PLK2	rs170741	TT
ENC1	rs76768179	TT
CD36	rs4437584	TT
LAMA2	rs11962701	CC
PRICKLE1	rs11829548	GG

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

Deep Sleep (ADA)

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

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

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

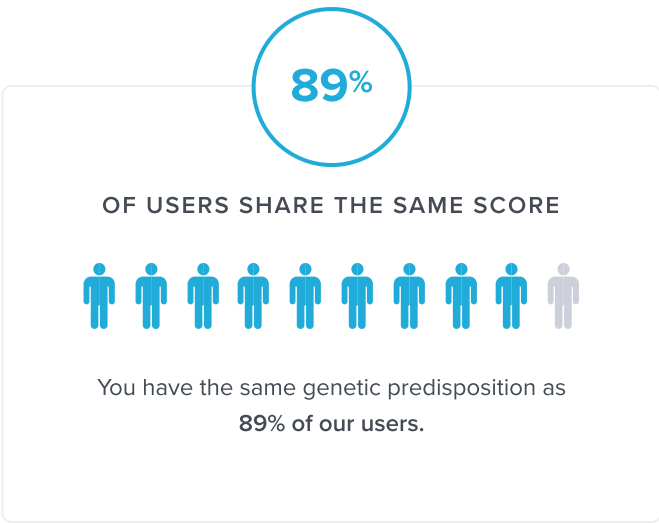
People with at least one copy of this variant tend to [R, R, R]:

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

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



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADA	rs73598374	CC

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

Daytime Sleepiness

Daytime sleepiness is the feeling of excessive sleepiness during the day. People with excessive daytime sleepiness often complain of not feeling well-rested, having difficulty waking up, or accidentally falling asleep during the day, among others [R, R, R].

Daytime sleepiness is usually a consequence of poor sleep duration or quality. Other risk factors include [R]:

- Shift work [R]
- Sleep disorders (obstructive sleep apnea, narcolepsy) [R, R]
- Mood disorders (depression, bipolar disorder) [R]
- Allergies (asthma, hay fever) [R, R]
- GERD [R]
- Parkinson’s disease [R]
- Epilepsy [R]
- Obesity [R]
- **Genetics**

Up to 40% of differences in people’s chances of experiencing daytime sleepiness may be due to genetics. Genes involved may influence the sleep/wake cycle and sleep duration or quality [R, R, R, R].

Interventions aimed at improving sleep duration and quality may also reduce daytime sleepiness. These include [R, R, R, R]:

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



TYPICAL LIKELIHOOD

Typical likelihood of daytime sleepiness based on 999,088 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ASB3	rs76645968	GG
PATJ	rs12140153	GG
/	rs920065	CC
TMEM144	rs115320831	GA
FGGY	rs371398972	AA
AR	rs73536079	GG
/	rs573716401	GG
/	rs553962214	TT
SLC24A3	rs565444861	GG
PTPRM	rs558006880	GG
LBP	rs6099524	CC
SLC2A9	rs543431433	TT
TENT5A	rs189689339	CC
FGGY	rs192315283	TT
TMEM132B	rs142261172	GG
/	rs182765975	GG
AP3B2	rs17507216	GG

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

Sleep Duration

The amount of sleep you need depends on many factors, such as your age. Adults typically need 7-9 hours of sleep per night [R, R, R].

How much sleep you actually get may depend both on your genes and the environment. Around 50% of the differences in sleep duration between people may be due to genetics [R].

Many of the genes that affect sleep duration are involved in the circadian clock. This is our internal clock that helps control and adjust the sleep-wake cycle to the 24-hour cycle of the Earth’s day [R, R, R, R].

Strategies that may help you get the recommended amount of sleep include [R]:

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



TYPICAL

Predisposed to typical sleep duration based on 7,192,262 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs12791153	AA
VRK2	rs116219610	CC
IGKV1OR2-108	rs62158206	CT
RBFOX1	rs77684884	AA
ZSCAN23	rs34388845	GG
VRK2	rs11682175	TT
PAM	rs6889592	GG
COG5	rs6979198	TT
LPCAT1	rs365663	GG
ZCCHC7	rs10973207	TG
TCF4	rs12607679	CT
FTO	rs8047587	GT
TTC21B	rs12463754	CG
ZFP57	rs1633063	TC
FOXP2	rs1668331	TG
GPD2	rs11883686	AT
BANK1	rs13109404	TT
ERC2	rs112230981	AA
MBOAT2	rs79512144	GG
NRXN3	rs11621908	CC
ACTR1A	rs144625846	AA
CLOCK	rs2070062	AA
CLOCK	rs12649507	GG
MRM2	rs3823624	CC
SEMA6D	rs13329140	GG
H2BC12	rs12215241	GG
MAPT	rs62061734	TT
PM20D2	rs9451146	CC
PRKG2	rs41501452	AA

GENE	SNP	GENOTYPE
COG5	rs7778250	AA
/	rs9362971	TT
DAB1	rs540431	AA
ANKK1	rs17601612	GG
PAX8	rs2863244	AA
/	rs4688116	TT
BUD13	rs1263056	AA

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

NR3C1 (Fatigue)

Variants of *NR3C1* have been associated with chronic fatigue syndrome, an illness characterized by prolonged low energy. These variants may lower the sensitivity or activity of the glucocorticoid receptor, thus resulting in dysregulated HPA axis activity, excess cortisol release, and inflammation. They include [\[R, R, R, R\]](#):

- ‘A’ at [rs852977](#) [\[R, R, R\]](#)
- ‘A’ at [rs1866388](#) [\[R, R, R\]](#)
- ‘C’ at [rs6188](#) [\[R, R, R\]](#)
- ‘T’ at [rs2918419](#) [\[R, R, R\]](#)
- ‘A’ at [rs6196](#) [\[R, R, R\]](#)
- ‘C’ at [rs41423247](#) [\[R, R\]](#)



INTERMEDIATE ACTIVITY

Likely intermediate NR3C1 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NR3C1	rs852977	AG
NR3C1	rs1866388	AG
NR3C1	rs6188	CA
NR3C1	rs2918419	TC
NR3C1	rs6196	AG
NR3C1	rs41423247	GC

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

FKBP5 (Stress/ HPA Axis)

The following variants increase *FKBP5* expression and impair stress response. People carrying the risk alleles have a harder time recovering from childhood or early life traumas, leading to increased severity of PTSD [R, R, R]:

- ‘C’ at [rs3800373](#)
- ‘T’ at [rs1360780](#)
- ‘T’ at [rs9470080](#)

In contrast, these variants have also been associated with a reduced susceptibility to chronic pain, such as back pain and neuralgia [R, R, R].

Another variant believed to increase FKBP5 activity, ‘G’ at [rs9394314](#), was found to be protective against chronic neuralgia. However, this allele was associated with overall and neck pain after trauma [R, R].



LOWER ACTIVITY

Likely lower FKBP5 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FKBP5	rs1360780	CC
TULP1	rs9470080	CC
TULP1	rs3800373	AC
FKBP5	rs9394314	AG

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

CRHR1 (Stress/HPA Axis)

Two variants, ‘A’ at [rs12938031](#) and ‘C’ at [rs4792887](#), have been associated with increased odds and severity of [PTSD](#). These variants are believed to increase *CRHR1* expression or activity [\[R, R\]](#).

Another variant believed to increase CRHR1 activity, ‘G’ at [rs12944712](#), has been associated with acute PTSD symptoms in children. However, the ‘A’ allele at this polymorphism is the one associated with [depression](#) [\[R, R\]](#).

The ‘G’ variant of [rs17689882](#), which may also increase CRHR1 activity, has been associated with depression due to childhood trauma in young adulthood [\[R\]](#).

The ‘A’ variant of [rs110402](#) is believed to decrease *CRHR1* expression. This variant has been associated with relatively higher rates of [chronic fatigue](#). However, this variant may protect from depression linked to childhood abuse and [IBS](#). In IBS patients, the ‘A’ variant is associated with predomination of diarrhea in men and constipation or mixed symptoms in women [\[R, R, R, R, R, R\]](#).

Finally, the ‘G’ allele of [rs242924](#), which may increase CRHR1 activity, has been associated with higher IBS rates and associated anxiety. This variant has also been associated with major depression in adults who suffered from childhood abuse. However, this variant may be protective against chronic fatigue [\[R, R, R\]](#).



TYPICAL ACTIVITY

Likely typical CRHR1 activity based on 6 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRHR1	rs17689882	GG
MAPT	rs110402	GG
MAPT	rs242924	GG
MAPT	rs12938031	GA
ARHGAP27	rs4792887	CT
MAPT	rs12944712	AG

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

ARNTL (Circadian Rhythm)

The best-researched *ARNTL* polymorphism is [rs2278749](#). Its minor ‘T’ allele has been associated with:

- Increased risk of disturbing dreams [\[R\]](#)
- Increased risk of miscarriages [\[R\]](#)
- Increased risk of Alzheimer’s disease (in [APOE](#) ε4 non-carriers) [\[R\]](#)
- Decreased seasonal variation of energy levels [\[R\]](#)
- Decreased risk of breast cancer in night shift workers [\[R\]](#)

Another variant, ‘T’ at [rs11022775](#), has been associated with an increased risk of type 2 diabetes but a decreased risk of gestational diabetes, dyslipidemia, and high blood pressure [\[R, R, R, R, R\]](#).

The minor ‘A’ allele of [rs2290035](#) has been associated with an increased risk of lung cancer and night shift-associated breast cancer [\[R, R\]](#).

Finally, the ‘T’ allele of [rs6486122](#) has been associated with an increased risk of coronary artery disease and type 2 diabetes, as well as with higher levels of CRP, triglycerides, and testosterone [\[R, R, R, R\]](#).



TYPICAL GENETICS

Predisposed to typical ARNTL genetics based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARNTL	rs6486122	TT
ARNTL	rs11022775	CT
BTBD10	rs2290035	TA
BTBD10	rs2278749	CC

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

AANAT (Circadian Rhythm)

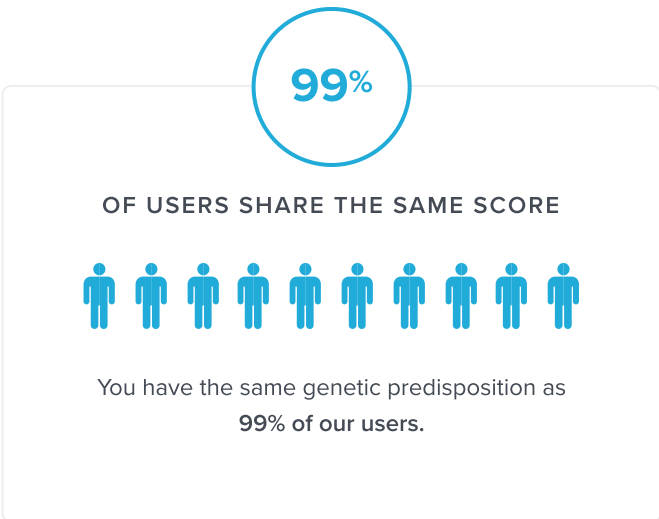
A study of 211 participants associated the rare ‘A’ allele of [rs28936679](#) (G619A) with an increased risk of delayed sleep phase disorder, a condition in which individuals have a sleep/wake cycle delayed by 2 hours or more from usual sleep patterns [\[R\]](#).

This variant has also been associated with abnormal biological rhythms in patients with bipolar disorder [\[R\]](#).



TYPICAL GENETICS

Predisposed to typical AANAT genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AANAT	rs28936679	GG

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

MTNR1A (Melatonin)

The most well-researched *MTNR1A* allele is [rs2119882](#). Its ‘C’ allele may prevent the binding of proteins that activate gene expression, resulting in a lower number of MT1 receptors. This variant has been associated with an increased risk and severity of:

- PCOS [\[R\]](#)
- Gestational diabetes [\[R\]](#)
- Liver cancer metastasis [\[R\]](#)

However, this allele has also been associated with a decreased risk of:

- Breast cancer in shift workers [\[R\]](#)
- Graves’ disease [\[R\]](#)

The ‘A’ allele of [rs12506228](#) reduces the number of MT1 melatonin receptors in the brain. This variant as been associated with:

- Job-related exhaustion in shift workers [\[R\]](#)
- Alzheimer’s disease in old age [\[R\]](#)
- Slower cognitive development in infants [\[R\]](#)

Another allele believed to prevent the binding of proteins that activate *MTNR1A* expression is ‘A’ at [rs13140012](#). This allele has been associated with

- Oral cancer and worse prognostic in betel quid chewers [\[R\]](#)
- Kidney stones [\[R\]](#)

The ‘G’ allele of [rs6553010](#) may also affect *MTNR1A* expression and has been associated with an increased risk of

- Aggressive urothelial cell carcinoma [\[R\]](#)
- Pain after root canal treatment [\[R\]](#)

However, this allele may also reduce the risk of kidney stones [\[R\]](#).

Finally, a study associated the ‘GG’ genotype of [rs7665392](#) with an increased risk of breast cancer in premenopausal women. The authors speculated that this variant impairs the function of the MT1 receptor, resulting in an activation of estradiol-induced genes linked to breast cancer [\[R\]](#).



Likely typical MTNR1A activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1A	rs2119882	TC
MTNR1A	rs6553010	GG
MTNR1A	rs12506228	CA
MTNR1A	rs13140012	AT
MTNR1A	rs7665392	TT

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

DIO2 (Thyroid)

At first glance, one might think DIO2 doesn’t have much of an impact on thyroid health. Multiple studies failed to make a connection between variations in this gene and thyroid hormone levels [R, R].

However, many people have symptoms of [low thyroid hormones](#) despite their lab results being in the normal range (‘[hidden hypothyroidism](#)’). That *might be* because their thyroid hormones don’t function well on a cellular and tissue level, which cannot be measured by blood tests.

One *DIO2* variant may be involved in this phenomenon. The less common "C" allele on [rs225014](#) (Thr92Ala) is associated with:

- Poor response to thyroid meds [R, R]
- Obesity and [insulin resistance](#) [R]
- Inadequate blood sugar control [R]
- Impaired cognitive development (lower [IQ](#)) [R]

All of the above may indicate low thyroid hormones in DIO2 target tissues such as the brain, fat tissue, and muscles.

The same DIO2 variant (rs225014) is associated with an inadequate response to thyroid meds in some people. Out of 45 patients, those who carried at least one “C” allele didn’t respond as well to standard T4 treatment and were significantly more depressed. They preferred a combination of T4 and T3 (liothyronine) instead [R].

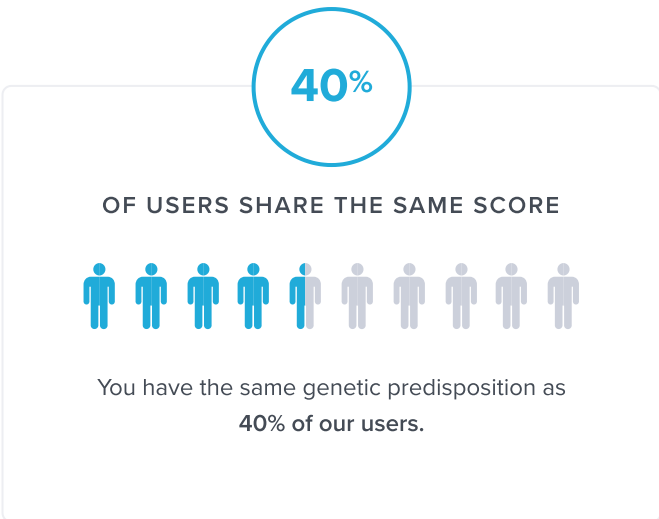
A larger trial came to a similar conclusion, though the effects were significant only for patients who had both copies of the “C” allele [R].

A Dutch study with over 12,600 participants found no connection between DIO2 and thyroid treatment response. However, they didn’t investigate the effects of the T4+T3 combination [R].



SLIGHTLY LOWER ACTIVITY

Slightly lower DIO2 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DIO2	rs225014	TC

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

VDR (Vitamin D)

Among the different *VDR* polymorphisms, [rs2228570](#), also known as FokI, has been most widely researched. Its minor ‘A’ variant encodes a slightly longer version of the protein associated with decreased VDR levels and activity. In line with this, the major ‘G’ variant has been associated with [\[R\]](#), [\[R\]](#):

- Better response to vitamin D supplementation
- Better calcium absorption
- Higher bone mineral density
- Reduced risk of fractures

The major variant has also been associated with:

- [Increased fat mass](#) [\[R\]](#), [\[R\]](#)
- [Increased longevity](#) (with mixed results) and better cognition in the elderly [\[R\]](#), [\[R\]](#), [\[R\]](#)

Another important *VDR* polymorphism is [rs1544410](#), also known as BsmI. Its minor ‘T’ allele may have decreased VDR activity and has been associated with:

- Lower BMD and increased risk of osteoporosis [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Increased risk of scoliosis [\[R\]](#)
- Decreased risk of breast cancer [\[R\]](#)
- Decreased risk of metabolic syndrome [\[R\]](#)

Other *VDR* variants include [rs7975232](#) (ApaI) and [rs731236](#) (TaqI).

Potential effects of VDR variants on dopamine:

- Reduced VDR activity can lead to lower dopamine production because vitamin D helps activate genes that make dopamine
- This may affect dopamine-related functions like mood, focus, and motivation
- The body might have trouble maintaining stable dopamine levels

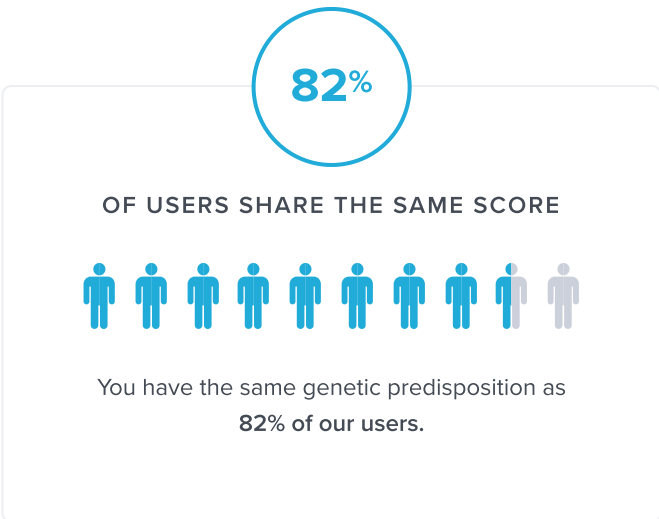
Potential effects of VDR variants on methylation:

- When VDR activity is reduced, it can affect methylation cycles
- This might impact how well your body processes certain chemicals and nutrients
- The methylation of genes involved in dopamine production and function may be affected



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
VDR	rs2228570	GA
VDR	rs1544410	TC
VDR	rs7975232	AC
VDR	rs731236	AA

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

TRPM6 (Magnesium & Calcium)

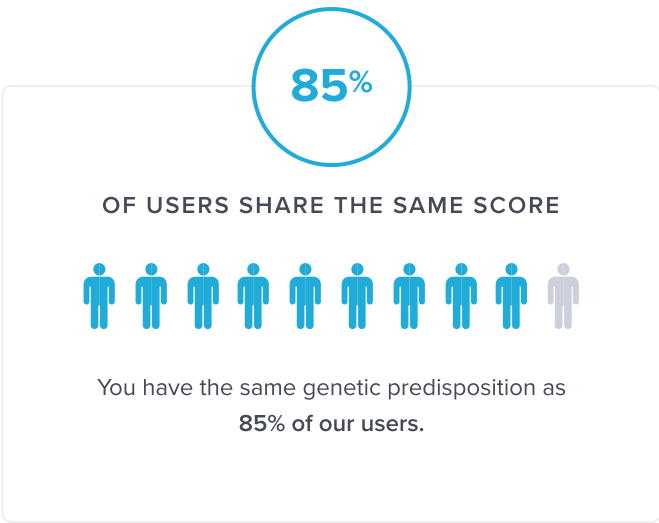
The main TRPM6 variant is [rs11144134](#). Its minor “**C**” **allele** is linked to **higher magnesium** levels. This variant may increase TRPM6 activity, boosting magnesium reabsorption in the kidneys [\[R\]](#).

However, this variant is also linked to **higher blood pressure, kidney stones, and weaker bones**. It may disrupt the balance of other minerals, more precisely **reduce calcium** and increase phosphate levels [\[R\]](#).



TYPICAL ACTIVITY

Predisposed to typical TRPM6 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRPM6	rs11144134	TT

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

CYP1A1 (Detox)

The ‘G’ allele of [rs4646903](#), linked to higher CYP1A1 levels, has been associated with an increased risk of leukemia, cervical, hepatocellular, lung, prostate, colorectal, breast and head and neck cancers, possibly by turning PAHs into cancer-causing chemicals. This variant may also increase the risk of PCOS, recurrent pregnancy loss, and male infertility through its role in estrogen metabolism [\[R, R, R, R, R, R, R, R, R\]](#).

Similarly, the ‘C’ variant of [rs1048943](#) increases CYP1A1 activity and has been associated with an increased risk of lung cancer, laryngeal cancer, oral cancer, colorectal cancer, cervical cancer, hepatocellular carcinoma, prostate cancer, and leukemia. In the case of lung cancer, the risk may be even higher in smokers carrying this variant [\[R, R, R, R, R, R, R, R, R\]](#).

The ‘A’ allele of [rs2606345](#) may decrease CYP1A1 levels. This variant has been associated with an increased risk of lung conditions such as pneumonia or ARDS, possibly by increasing inflammation and oxidative stress in the lungs. In contrast, the ‘C’ allele has been associated with esophageal and testicular cancer [\[R, R, R, R, R, R, R, R\]](#).

The ‘T’ allele of [rs2472297](#) may increase CYP1A1 activity. This variant has been associated with greater coffee consumption, as well as with a decreased increment in blood glucose after consuming caffeine [\[R, R, R, R\]](#).

Finally, the ‘A’ allele of [rs4646421](#) has been associated with hepatocellular carcinoma, endometrial cancer (especially in women with abdominal obesity), esophageal cancer (in hot tea drinkers), laryngeal cancer, decreased lung function in elderly people exposed to PAHs, and chronic hepatitis B infection [\[R, R, R, R, R, R\]](#).



TYPICAL ACTIVITY

Likely typical CYP1A1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CSK	rs2606345	AC
ULK3	rs2472297	CC
ARID3B	rs4646421	GA
CYP1A1	rs4646903	AA
CYP1A1	rs1048943	TT

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

CYP1B1 (Detox/ Skin Health)

The main *CYP1B1* variant is [rs1056836](#) (Leu432Val). The **G (Val) allele** seems to **increase** the enzyme's activity. This may lead to increased production of toxic metabolites of hormones and toxins.

In line with this, studies have found a link between this allele and higher odds of multiple myeloma and lung cancer [\[R, R\]](#).

On the other hand, increased CYP1B1 activity may protect the skin against excessive UV radiation. The high-activity G allele may be linked to lower odds of skin cancer [\[R\]](#).

Other important *CYP1B1* variants include:

- [rs1800440](#): The “C” allele may increase enzyme activity. It’s linked to lower odds of skin cancer but also lower vitamin D levels and higher odds of asthma [\[R\]](#)
- [rs10012](#): The “C” allele may increase enzyme activity. It’s linked to lower odds of skin cancer but higher odds of bladder cancer [\[R, R\]](#)



TYPICAL ACTIVITY

Predisposed to typical CYP1B1 activity based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP1B1	rs1056836	CG
CYP1B1	rs1800440	TC
CYP1B1	rs10012	GG

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

GCLC (Glutathione & Detox)

One GCLC variant, [rs17883901-A](#), showed a link with higher levels of mercury in hair and blood in several studies. The effects were particularly big for people with two copies (AA). However, one small study found the opposite effect [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

This variant may also be linked to:

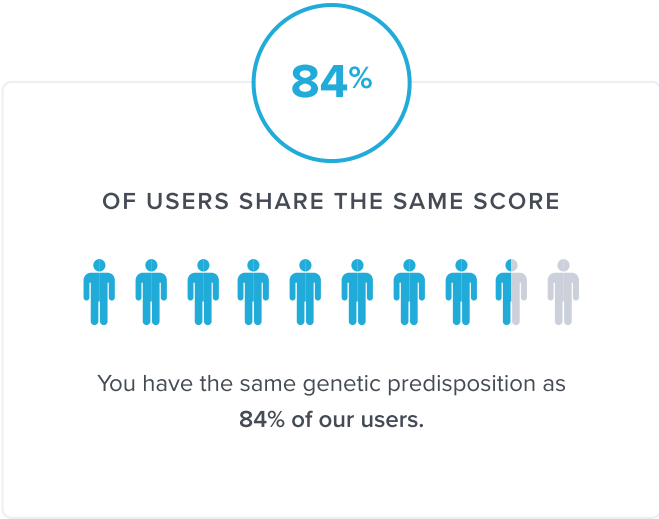
- Diabetic eye disease (retinopathy) [\[R\]](#)
- Reduced kidney function in people with diabetes [\[R\]](#)
- Fatty liver (NASH) [\[R\]](#)
- Reduced lung function [\[R\]](#)
- High blood pressure in pregnancy (preeclampsia) [\[R\]](#)

Another less-studied GCLC gene variant, [rs761142-A](#), may affect mercury levels and toxicity. In one study, mothers with two copies of this variant (AA) had higher hair mercury levels. Also, increased blood mercury levels during pregnancy were linked to developmental issues in their children [\[R\]](#).



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GCLC	rs761142	AA
GCLC	rs17883901	GG

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

GCLM (Glutathione & Detox)

The main GCLM variant is [rs41303970](#). Studies have linked its **“A” allele** to:

- Improved urinary clearance of mercury [\[R\]](#)
- Lower hair mercury levels (“AA”) [\[R\]](#)
- Better lead detox and lower blood levels [\[R\]](#)
- Higher glutathione levels in people with diabetes [\[R\]](#)

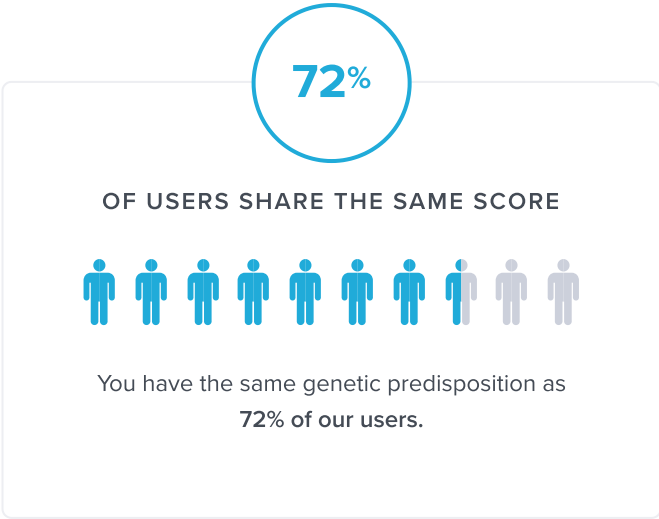
However, other studies have linked it to:

- Higher odds of diabetes and heart disease [\[R\]](#)
- Thyroid inflammation [\[R\]](#)
- Higher blood mercury levels infrequent fish consumers [\[R\]](#)
- Higher odds of liver disease due to hepatitis infection [\[R\]](#)



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GCLM	rs41303970	GG

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

GSTP1 (Detox)

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

Studies have linked it to:

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

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

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

Another important GSTP1 variant is [rs1138272](#) or **Ala114Val**. Its minor “**T**” allele may be linked to:

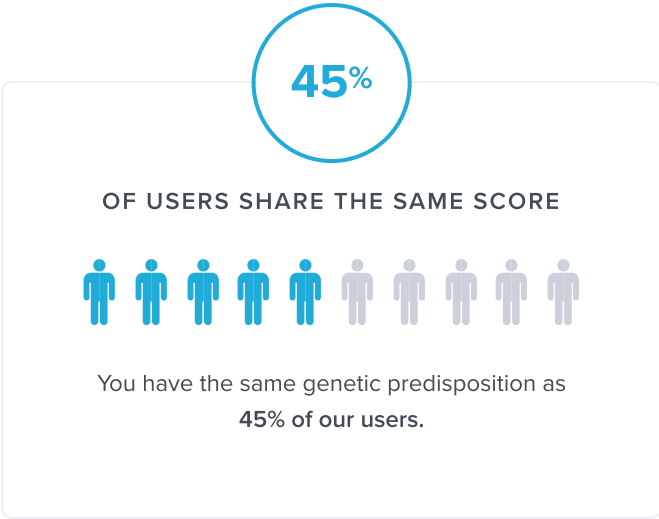
- Stronger effects of smoking on Parkinson’s disease [\[R\]](#)
- Increased mercury toxicity [\[R\]](#)
- Nerve problems [\[R\]](#)

However, many studies **didn’t find the negative effects** of this variant on detox ability and cancer [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GSTP1	rs1695	GA
GSTP1	rs1138272	CC

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

SOD2 (Oxidative Stress)

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

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

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

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

- Cardiomyopathy
- Atherosclerosis
- Lung cancer

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

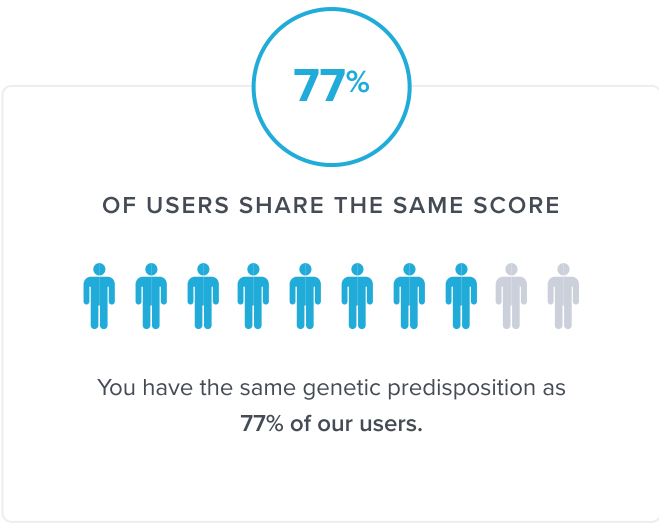
A second SNP, [rs2758331](#), has also been associated with lifespan. In one study of exceptionally long-lived people in New England, the ‘C’ allele of rs2758331 was significantly more common in the oldest old than in the general population [\[R\]](#).

This SNP is nowhere near as well-studied as rs4880, and only a single study has investigated its effect on lifespan so far. Furthermore, while the ‘A’ allele of rs2758331 has been associated with prostate cancer (thereby supporting the idea of a beneficial ‘C’ allele), the ‘C’ allele has been associated with liver damage after bisphenol A (BPA) exposure [\[R\]](#), [\[R\]](#).



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SOD2	rs4880	AG
TCP1	rs2758331	CA

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

PON1 (Detox)

The [rs662](#) variant influences how active the PON1 enzyme is. The risk allele “T” reduces the activity of the protein, resulting in less breakdown (and more potential buildup) of toxins [\[R\]](#).

Another *PON1* variant, [rs854560](#), controls the levels of this protein in the blood. Carriers of the risk allele “A” have lower blood levels of PON1. This means they have a reduced ability to detox [\[R\]](#).

In line with this, a large analysis of 9 studies associated both variants with an [increased risk of organophosphate toxicity](#). While carriers of the rs662 variant had 74% higher risk of organophosphate toxicity, the rs854560 increased the risk by 82%. In both cases, the risk was even higher in Caucasians [\[R\]](#).

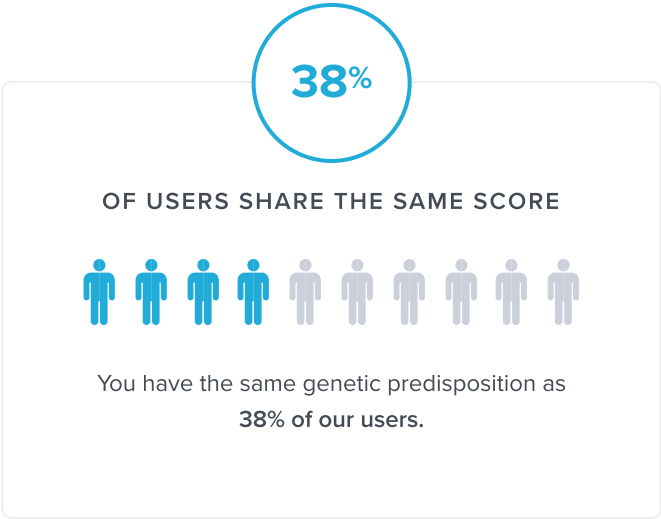
Possibly due to their decreased breakdown of oxidized lipids, harmful bacteria, and organophosphate pesticides, these variants have also been associated with:

- [Increased risk of heart disease](#)
- [Decreased longevity](#)



HIGHER ACTIVITY

Likely higher PON1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PON1	rs854560	AA
PON1	rs662	CC

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

UGT1A1 (Detox)

Certain genetic variations in *UGT1A1* reduce the enzymatic activity of UGT, which [impairs the body's ability to detox](#) and results in a buildup of toxic substances in the body. The normal version of *UGT1A1* (the one with normal detox activity) is called *UGT1A1*1*, or the “wild” type allele [\[R\]](#).

One of the most important and well-studied genetic variants is ***UGT1A1*28*** ([rs34983651](#)). This variant causes an “insertion” mutation, which means it adds an extra ‘TA’ into the gene where there should be none. According to some reports, ***UGT1A1*28* causes a 70% reduction in enzyme activity**, leading to 10 times slower removal of BPA from breast tissues, as well as an increased risk of adverse reactions from the following drugs [\[R, R, R, R, R\]](#):

- Irinotecan, used to treat colon and lung cancer
- Raloxifene, used to treat osteoporosis and prevent breast cancer
- Raltegravir, used to treat HIV
- Indinavir, used to treat HIV
- Atazanavir, used to treat HIV
- Sorafenib, used to treat various cancers

Other variants include ***UGT1A1*6*** ([rs4148323](#)) and ***UGT1A1*27*** ([rs6742078](#)), which also lower enzyme activity, leading to a reduced ability to detox. All of these variations in *UGT1A1* can lead to toxicity disorders. The minor variants of *UGT1A1*27* and *UGT1A1*28* are usually inherited together [\[R\]](#).

The minor ‘A’ variant of *UGT1A1*6* has been associated with:

- High bilirubin in adults and bilirubin toxicity in infants [\[R, R, R, R, R\]](#)
- Adverse reactions of irinotecan chemotherapy [\[R\]](#)
- Risk of congenital heart disease in babies born to mothers exposed to polycyclic aromatic hydrocarbons [\[R\]](#)
- Reduced risk of anti-tuberculosis drug-induced hepatotoxicity [\[R\]](#)

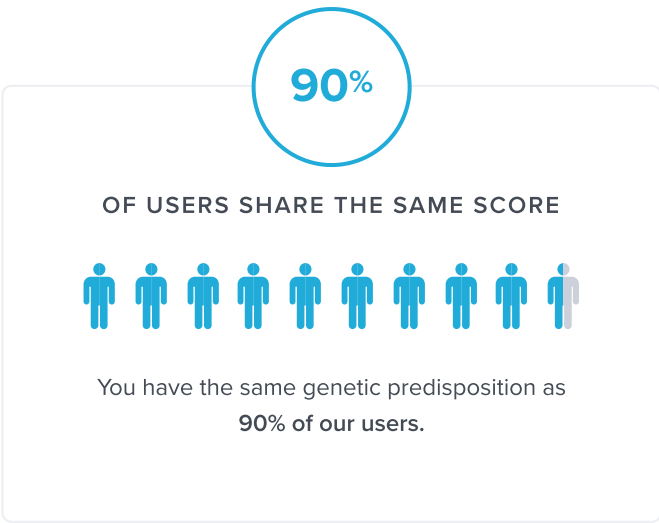
In turn, the minor ‘T’ variant of *UGT1A1*27* has been linked to:

- High bilirubin in adults [\[R, R\]](#)
- Increased risk of gallstones [\[R, R\]](#)
- Faster clearance of telmisartan [\[R\]](#)



TYPICAL ACTIVITY

Likely typical UGT1A1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
UGT1A6	rs6742078	GG
UGT1A1	rs4148323	GG

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

UGT2B15 (Sex Hormones)

The best-characterized *UGT2B15* variant is ***UGT2B15*2*** ([rs1902023](#)), commonly referred to as Y85D or G253T. The enzyme encoded by the minor "A" allele may be **more efficient** at breaking down sex hormones such as androstanediol and DHT [[R](#), [R](#)].

In line with the association of DHT with prostate cancer, the ‘A’ allele has been associated with a **decreased risk** of this disease [[R](#)].

However, the same has been associated with slower metabolism of chemicals such as bisphenol A, S-oxazepam, parabens, sipoglitazar, and norandrosterone. Researchers suggest that the effects of this variant are substrate-specific [[R](#), [R](#), [R](#), [R](#), [R](#), [R](#), [R](#)].

Another well-researched variant is ***UGT2B15*5*** ([rs4148269](#)), commonly referred to as K523T. Its minor ‘G’ allele has been associated with a **decreased risk of prostate cancer and colorectal cancer**, but slower bisphenol A metabolism [[R](#), [R](#), [R](#), [R](#)].



TYPICAL GENETICS

Likely typical UGT2B15 genetics based on 2 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
UGT2B15	rs1902023	CA
UGT2B15	rs4148269	GT

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

Borderline Personality

Factors that might increase the risk of developing BPD include:

- Childhood abandonment, neglect, or abuse
- A family history of BPD or other mental health disorders
- Brain abnormalities, particularly in regions related to emotion regulation, impulsivity, and aggression
- Neurochemical imbalances in the brain
- Genetics

There is evidence suggesting that genetics plays a role in BPD development. Having a close family member, such as a parent or sibling, with the disorder can increase the risk of developing BPD. Research has indicated that certain genetic variants might be linked to BPD, affecting how the brain regulates emotions and impulsivity.



LESS LIKELY

Less likely to have BPD based on 17,840 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs150592717	TT
DPYD	rs187785463	GG
MYCN	rs57726666	AA
SNX9	rs6922614	TT
SKP2	rs34416917	GG
SYT1	rs11110253	AA
TRDN	rs2145737	TT
GAP43	rs283386	GA
FAM155A	rs9520569	TC
MAML3	rs13136239	GA
GAS1	rs7859734	CT
/	rs76695126	CT
METTL21C	rs675828	AG
TWIST1	rs114497090	GG
/	rs115689122	TT
/	rs62127626	CC
GDF6	rs11784341	CC
CLEC4C	rs113507694	AA
/	rs187058036	TT
FOXK1	rs6975373	CC
EME1	rs1985762	CC

GENE	SNP	GENOTYPE
TSPAN14	rs7074356	GG
DPRX	rs8104156	GG

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

Obsessive-Compulsive Tendencies

Key Takeaways:

- OCD is affected by genes impacting impulse control, learning, and decision making.
- OCD is a rare condition, so even if your genetic risk is high, the overall risk is low.
- High levels of stress and/or trauma can be a factor in raising the risk. If you have a high genetic risk, you may want to address these issues if they are relevant.
- Click the **next steps** tab for relevant labs.

People with OCD have recurrent obsessions, which cause anxiety, and compulsions, which are supposed to relieve the anxiety. Many factors may play a role in the development of OCD. These include [R](#), [R](#), [R](#), [R](#), [R](#):

- Stressful or traumatic life events
- **Genetics**

Genes that may play a role in OCD may influence parts of the brain that help people [R](#), [R](#), [R](#), [R](#):

- Learn
- Make decisions
- Control their impulses



LESS LIKELY

Less likely to have OCD based on 4,117 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
KIF16B	rs6034559	CC
PCDH18	rs11735612	AA
DLC1	rs75216060	AG
FOXB1	rs8032150	GC
UFL1	rs767619	GT
FAM76B	rs11021169	GG
CYLC2	rs7848024	AA
ANKRD18A	rs10973956	CA
CLN5	rs11149058	TC
NECTIN1	rs4271390	TC
TXNL1	rs12959570	AG
CHMP2B	rs4988462	CT
CAMTA1	rs7524258	TC
FANCL	rs35881094	TG
/	rs859980	CT
SSH2	rs6354	TT
TCF25	rs4785741	CC
DRAXIN	rs12045323	CC
IMPA2	rs2075824	CC
RHOJ	rs59093387	GG
CDH2	rs12605662	GG

GENE	SNP	GENOTYPE
PTH2R	rs78907274	AA
CCN1	rs72722664	GG
EIF4EBP2	rs9731813	AA
FBXW12	rs17080138	CC
TNF	rs1800629	GG
LSAMP	rs149183310	AA
ATP9A	rs55797066	TT
ARPP21	rs73070160	CC
ADGRA3	rs61792199	AA
/	rs25531	TT
TRPC4	rs6563569	TT

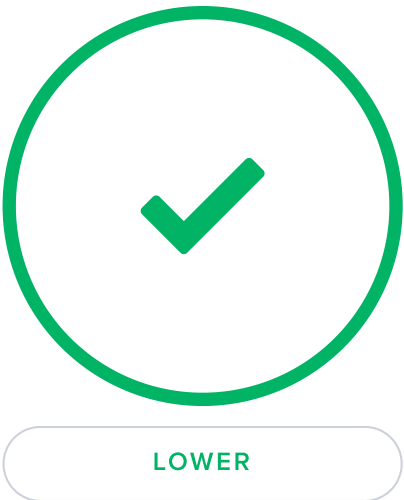
The number of "risk" variants in this table doesn't necessarily reflect your overall result.

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].



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs10905638	CC
DPYD	rs4411173	AA
MSRA	rs17151565	CC
/	rs1158960	AA
/	rs10905619	AA
LRP12	rs4734804	AA
CAMKMT	rs343949	AT
TCF4	rs4570961	CT
CADM2	rs6549048	AG
ICOS	rs6711058	GA
/	rs58446129	CT
ERCC4	rs4781534	GC
TCF4	rs28758902	CT
CELF4	rs2217127	TG
BBX	rs507078	TG
DPYS	rs2959025	GA
CRHR1	rs2106785	CC
CRHR1	rs62055701	GG
CFAP77	rs999483	TT
MAPT	rs17650842	AA
PLEKHM1	rs62065453	CC

GENE	SNP	GENOTYPE
MEF2C	rs1422192	GG
KANSL1	rs17661015	TT
WNT3	rs70600	CC
NCOA6	rs62211616	GG
MAP1LC3A	rs6087607	GG
FOXP2	rs6969188	GG
/	rs631140	GG
NCOA6	rs7265992	GG
SIX3	rs4953152	GG
AUTS2	rs13223152	GG
ASIP	rs62212173	CC
AMT	rs4499638	GG
SIM1	rs9403716	GG
TEF	rs4820434	GG
LYRM9	rs9630740	GG
/	rs17592462	CC
MMP16	rs16884419	GG
PANK4	rs7535528	GG
/	rs12886000	GG
ARVCF	rs9332377	CC

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

Hallucinations

Managing hallucinations often involves treating the underlying condition causing them. For instance, in the case of schizophrenia, antipsychotic medications are a cornerstone of treatment, while sleep hygiene might be the focus for those caused by lack of sleep.

Aside from medicinal interventions, cognitive behavioral therapy and other psychotherapeutic approaches can be effective in helping individuals distinguish between what is real and what is not, thereby reducing the impact of hallucinations on day-to-day life. When hallucinations are drug-induced, cessation of the substance can lead to a reduction or complete stop of the hallucinations.



LESS LIKELY

Less likely to have hallucinations based on 9,096 genetic variants we looked at



Psychosis

The exact cause of psychosis isn't known, but a combination of genetic, physical, psychological, and environmental factors can contribute:

- **Genetics:** A family history of psychotic disorders increases the risk.
- **Brain chemistry and structure:** Alterations in brain chemistry, particularly involving neurotransmitters like dopamine and serotonin, and structural changes in the brain have been linked to psychosis.
- **Substance use:** Abuse of substances such as marijuana, LSD, amphetamines, and alcohol can trigger psychosis.
- **Trauma:** Severe stress or traumatic events, especially during early childhood, can precipitate the onset of psychotic disorders.
- **Physical illness or injury:** Certain conditions like brain tumors, brain infections, stroke, and Alzheimer’s disease can cause psychosis.

Treatment for psychosis may include:

- **Medication:** Antipsychotic drugs are the cornerstone of treatment, helping to manage symptoms by affecting brain neurotransmitters.
- **Psychotherapy:** Cognitive-behavioral therapy (CBT) and other forms of therapy can help manage and interpret reality.
- **Hospitalization:** In severe cases, hospitalization may be necessary to ensure safety, proper nutrition, and sleep, and to stabilize the condition.
- **Supportive services:** Social and vocational training to help those with psychosis live more independently.

Early intervention and treatment are crucial for improving the prognosis of psychotic disorders, potentially allowing individuals to lead fulfilling and productive lives. Ongoing research continues to expand the understanding of psychosis, leading to more effective treatments and supportive approaches.



LESS LIKELY

Less likely to have psychosis based on 18,099 genetic variants we looked at



Mania

Risk factors for mania include:

- Bipolar disorder
- Family history
- Stress
- Drug use
- Sleep deprivation

Treating mania typically involves a combination of medication, psychotherapy, and lifestyle adjustments. Mood stabilizers such as lithium, anticonvulsants like valproate or carbamazepine, and atypical antipsychotics are often prescribed to manage manic episodes and prevent their recurrence. Psychotherapy, particularly cognitive-behavioral therapy (CBT) or psychoeducation, can help individuals recognize triggers, develop coping strategies, and improve insight into their condition. In acute situations, hospitalization may be necessary for safety and stabilization.

Additionally, maintaining a regular sleep schedule, avoiding drugs and alcohol, and reducing stress through relaxation techniques or mindfulness practices can complement medical treatment in managing manic symptoms.



LESS LIKELY

Less likely to experience mania based on 12,980 genetic variants we looked at



Social Anxiety

The exact cause of social anxiety disorder is not fully understood, but it is believed to result from a complex interplay of genetic and environmental factors. Social anxiety typically begins in the early to mid-teens, though it can also start in childhood or even in adulthood.

Various treatment options are available for those with social anxiety, including cognitive behavioral therapy, which helps individuals change negative thought patterns and behaviors, and medication, such as selective serotonin reuptake inhibitors (SSRIs). With appropriate treatment, people with social anxiety can learn to manage their symptoms and significantly improve their ability to function in social and performance situations.



LESS LIKELY

Less likely to have social anxiety based on 705,967 genetic variants we looked at



Caffeine-Related Sleep Problems

Caffeine is a well-known stimulant. It can promote wakefulness and interrupt sleep by reducing the activity of [adenosine](#), a sleep-promoting compound that builds up while we are awake and decreases while we sleep. **Caffeine’s effects on sleep tend to be strongest in the evening, before bedtime.** Older people and those who sleep less may be more sensitive to caffeine [\[R\]](#), [\[R\]](#), [\[R\]](#).

Up to **40%** of differences in caffeine-related sleep problems may be due to genetics. Interestingly, the majority of these genetic factors are specific to caffeine, and they don’t affect sleep in general [\[R\]](#).

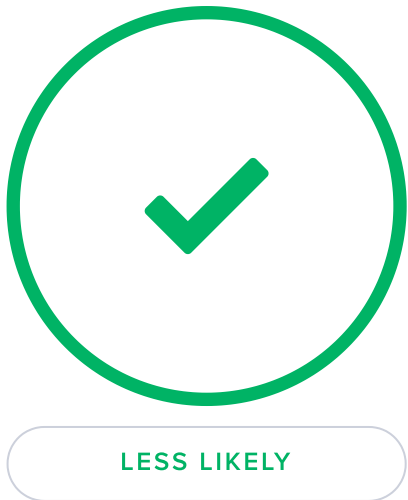
A gene called [ADORA2A](#) helps make a receptor for adenosine. Caffeine promotes wakefulness and interrupts sleep by blocking this receptor. Unsurprisingly, a variant belonging to this gene, [rs5751876](#), is linked to caffeine-related sleep problems [\[R\]](#), [\[R\]](#), [\[R\]](#).

What’s surprising is the opposite effect of this variant on caffeine-related anxiety. **People carrying the “T” allele may be less prone to sleep problems but more prone to anxiety due to caffeine intake** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Other gene variants linked to caffeine-related sleep problems may affect:

- Melatonin ([MTNR1B](#))
- Compounds similar to adenosine ([GBP1](#), [GBP4](#))
- Brain function ([ADGRL2](#))
- Heart function ([NEBL](#))

Please note: Your other gene variants, lifestyle, and environment may also affect caffeine-related sleep problems.



Less likely to have caffeine-related sleep problems based on 18 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NEBL	rs9665295	CC
ALDH7A1	rs13172305	GG
TMEM51	rs2103117	AA
KCTD15	rs11878836	TT
ADRA2A	rs2065779	CG
SLC7A1	rs2388082	CG
MDFIC2	rs7628219	CT
COMT	rs4680	GA
PRIMA1	rs6575353	AG
PRIMA1	rs12895096	GT
NEDD4L	rs158856	CT
ADORA2A	rs5751876	TT
FCHSD2	rs1791933	CC
/	rs16905439	CC
GBP7	rs521704	CC
GBP3	rs12407812	CC
ADGRL2	rs12725617	CC
MTNR1B	rs10830964	CC
LRTM1	rs11706236	AA

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

Sleep Movement

Have you ever been told you move while you sleep? Sleep movements are common. They don't usually disturb the mover's sleep. However, when they do disrupt sleep, they can make a person sleepy during the day [R, R].

People may be more likely to experience periodic limb movements as they age. About 1 in 3 people over the age of 60 experience sleep movements [R, R]

Other factors that may influence sleep movement include [R, R]:

- **Sex** – men tend to move more in their sleep
- **Diet** – a lack of iron in the diet may make sleep movements worse
- **Genetics**

Scientists have linked several genes to increased sleep movement. For example:

- *MEIS1* gene, which influences the iron metabolism in the brain [R, R, R, R, R].
- *BTBD9* gene, which may influence the brain dopamine metabolism [R, R, R, R, R].
- *TOX3* gene, which may play an important role in nerve cell activity [R, R, R].



LESS LIKELY

Less likely to move during sleep based on 7,138,059 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GLO1	rs3923809	GA
TOX3	rs3104788	CT
MEIS1	rs2300478	TT
MEIS1	rs113851554	GG

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

CLOCK (Sleep & Weight)

The [rs1801260](#) polymorphism is the most studied SNP in the *CLOCK* gene. Its minor 'G' allele increases CLOCK activity and has been associated with many sleep-related traits, such as [\[R\]](#):

- Abnormal and less stable circadian rhythms [\[R\]](#), [\[R\]](#)
- Shorter sleep duration (≤6 h per day) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Being an evening person [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Less activity overall, being active later in the day, and being sleepier during the morning [\[R\]](#), [\[R\]](#)

This variant has also been linked to:

- Higher prevalence of obesity (mixed findings) [\[R\]](#), [\[R\]](#)
- Higher ghrelin (hunger hormone) levels and lower satiety [\[R\]](#), [\[R\]](#)
- Higher insulin and insulin resistance [\[R\]](#)
- Low compliance with dietary programs, such as the Mediterranean diet [\[R\]](#)
- More difficulty losing weight from diets or bariatric surgery [\[R\]](#), [\[R\]](#), [\[R\]](#)

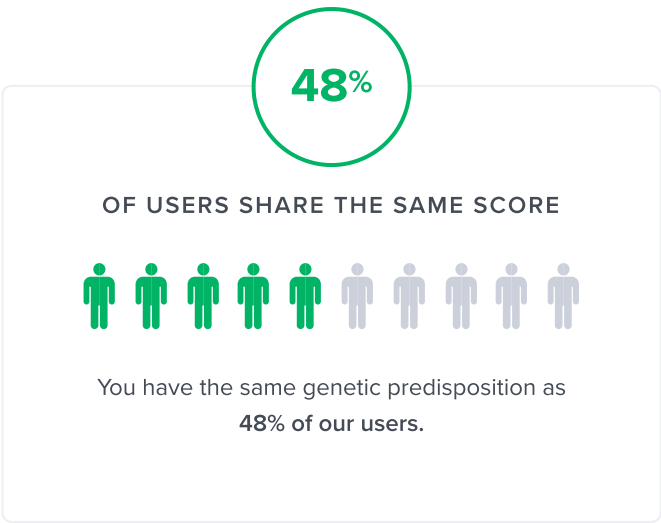
There is a link between how the *CLOCK* gene affects circadian rhythms and sleep on one hand, and metabolic balance and eating behavior on the other [\[R\]](#), [\[R\]](#).

Studies have found that sleep deprivation disrupts metabolism by increasing the levels of the stress hormone cortisol and decreasing insulin sensitivity. Furthermore, a lack of sleep increases the levels of the hunger hormone ghrelin, which increases hunger and appetite -- thereby increasing the risk of obesity [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



LOWER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CLOCK	rs1801260	AA

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

PER2 (Dieting)

Scientists put 454 overweight and obese Spanish people on a Mediterranean diet. They found that people who were carrying the minor “**C**” **allele** for the [rs2304672](#) variant in the PER2 gene were more likely to [\[R\]](#):

- Drop out from the diet/study
- Experience [stress](#) when dieting
- Be extreme snackers
- Eat when bored
- Skip breakfast

People with another PER2 variant, [rs4663302-T](#), were more likely to drop out from the study. They also had more belly fat [\[R\]](#).

Researchers found that mice that lack the PER2 gene develop the so-called "**night eating syndrome**", which combines features of a circadian rhythm disorder and an eating disorder. On a high-fat diet, these mice eat as much during their rest period as they do during their active period and that's how they become obese [\[R\]](#).



HIGHER ACTIVITY

Likely higher PER2 activity based on 2 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HES6	rs2304672	GG
ASB1	rs4663302	CC

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

ASMT (Mood, Neurodivergence)

The main ASMT polymorphisms are [rs4446909](#) and [rs5989681](#). Their minor alleles, ‘A’ and ‘C’ respectively, may increase ASMT activity, resulting in higher melatonin and 5-HTP production [\[R, R\]](#).

These variants have been associated with a decreased risk of:

- Autism spectrum disorder [\[R\]](#)
- Bipolar disorder [\[R\]](#)

The minor rs4446909 allele has also been associated with a decreased risk of recurrent depressive disorder and milder depressive symptoms in people with delayed sleep disorder. In contrast, the rs5989681 variant associated with a decreased risk of recurrent depressive disorder is the major ‘G’ allele [\[R, R\]](#).

When it comes to sleep and circadian rhythms, only the rs4446909 polymorphism has been investigated. Its minor ‘A’ allele has been associated with shorter sleep duration, lower activity during active periods of sleep, and decreased circadian rhythm stability [\[R\]](#).



HIGHER ACTIVITY

Predisposed to a higher ASMT activity based on 2 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AKAP17A	rs4446909	GG
ASMT	rs5989681	GC

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

MTNR1B (Diet & Blood Sugar)

Recent years have brought fascinating insights into how our internal clock affects metabolism, particularly through the melatonin receptor gene MTNR1B. One genetic variant in this gene - [rs10830963](#) - has emerged as a key player in the connection between sleep timing and blood sugar control.

The **minor “G” allele** has one of the strongest links with **high blood sugar and type 2 diabetes**. It increases the expression of melatonin receptors in pancreatic beta cells. These beta cells release insulin, and when they have more melatonin receptors, they become more sensitive to melatonin's signals [\[R\]](#), [\[R\]](#).

Here's where timing becomes crucial: **Melatonin naturally suppresses insulin release** - a useful feature during our normal sleeping hours when we're not eating. However, people carrying the G allele have heightened sensitivity to this effect. For these individuals, **eating late at night can lead to a reduced insulin response and higher blood sugar levels** [\[R\]](#).

New research has uncovered something unexpected: carriers of this variant produce melatonin for about 41 minutes longer than non-carriers, and their melatonin offset (when melatonin levels drop in the morning) is **delayed by about 80 minutes** [\[R\]](#).

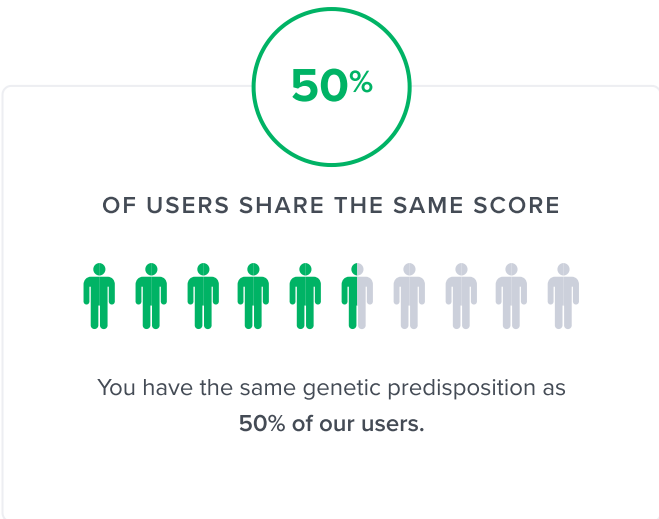
This finding has important implications, particularly for early risers. If you carry this variant and wake up early, you might still have elevated melatonin levels when you eat breakfast. Since melatonin suppresses insulin release, this could lead to **higher blood sugar levels during your morning meal**, contributing to diabetes [\[R\]](#).

Taken together, these studies suggest that people with rs10830963-G may particularly benefit from [intermittent fasting](#). By avoiding late dinners and early breakfasts, you lessen the negative impact of melatonin on blood sugar control [\[R\]](#).



LOWER ACTIVITY

Predisposed to lower MTNR1B activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1B	rs10830963	CC

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

TPO (Thyroid)

In a trial of 500 European subjects, one SNP in the *TPO* gene showed a significant association with [Hashimoto's disease](#) (HD). This form of autoimmune hypothyroidism was 31% more common among people with the minor 'T' allele at [rs11675434](#) [R].

In 1400 Polish subjects, the same variant correlated with 64% higher rates of eye complications in [Graves' disease](#) patients (Graves' ophthalmopathy). This group of authors conducted further research on over 2,300 and found the significant impact of rs11675434 only in older male patients [R, R].

Comprehensive studies have confirmed the link between this variant and anti-TPO antibody positivity. In over 18,000 European subjects, those with rs11675434-T were 21% more likely to be positive and also had higher antibody levels [R].

A clinical trial of 400 Indian subjects identified another *TPO* variant in connection with thyroid health. Carriers of the 'C' allele at [rs732609](#) (Thr725Pro) had 45% higher rates of hypothyroidism [R].

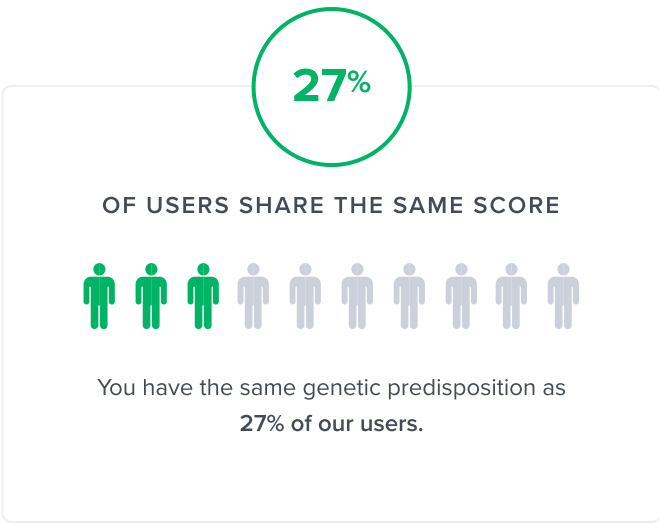
Doctors from Iran came to a similar conclusion after conducting a small study of 150 participants. The 'C' allele correlated with subclinical or "hidden" hypothyroidism [R].

The 'C' allele of rs732609 changes one amino acid (threonine to proline) in the TPO enzyme, which may interrupt its secondary structure. The immune system can mistakenly flag such enzymes as foreign structures and produce antibodies to destroy them [R].



BETTER

Likely better TPO genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TPO	rs732609	AC
TPO	rs11675434	CC

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

DIO1 (Thyroid)

Based on the data from over 3,000 individuals, the researchers identified one variant, [rs2235544](#), that correlates with [low thyroid hormones](#). More precisely, carriers of the “A” allele have lower levels of T3, which is the active form of thyroid hormones [\[R\]](#).

Carriers of the "A" allele on rs2235544 have reduced expression of *DIO1* (compared with the “C” allele), which may lower the activity of thyroid hormones. People with low T3 can experience the symptoms of hypothyroidism despite having normal, or even slightly elevated T4 levels [\[R, R, R\]](#).

Studies have identified another variation on the same gene, [rs11206244](#), but its effects are less significant and stem from a correlation with the SNP mentioned above [\[R, R\]](#).



HIGHER ACTIVITY

Likely higher DIO1 activity based on the genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DIO1	rs2235544	CC

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

CYP2C19 (Detox)

There are more than 30 known *CYP2C19* variants. Based on the variants they carry, individuals can be categorized as [\[R\]](#), [\[R\]](#):

- Ultrarapid metabolizers (*1 /*17 or *17 /*17)
- Extensive metabolizers (*1/*1)
- Intermediate metabolizers (*1 /*2, *1 /*3, or *2 /*17)
- Poor metabolizers (*2 /*2 or *2 /*3)

The normal version of the gene is called CYP2C19*1.

The two most common polymorphisms associated with reduced CYP2C19 activity and clopidogrel resistance are CYP2C19*2 ([rs4244285](#)) and CYP2C19*3 ([rs4986893](#)). Carriers of one copy of the minor ‘A’ alleles have a reduced ability to break down drugs, including CBD. Those with two copies can metabolize very little or none of the drug and are classified as poor metabolizers [\[R\]](#), [\[R\]](#), [\[R\]](#).

The [rs12248560](#) polymorphism, also known as CYP2C19*17, is located in the region that controls gene expression (the *promoter*). Its minor allele ‘T’ is associated with increased gene expression and protein activity. People with this variant are classified as ultrarapid metabolizers [\[R\]](#), [\[R\]](#).

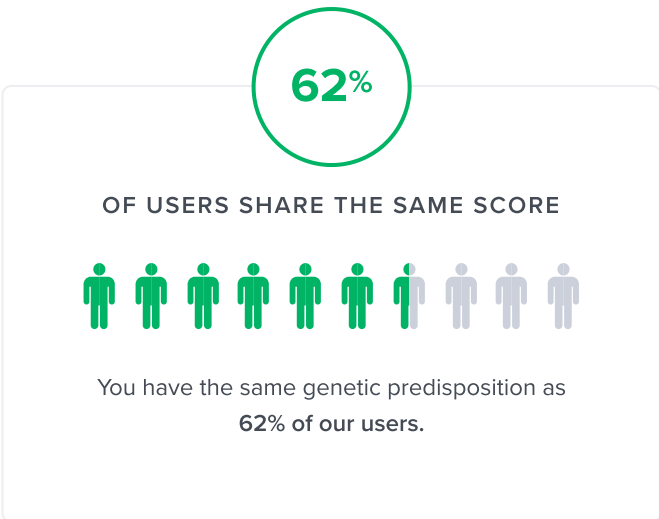
The following supplements and chemicals may decrease CYP2C19 activity [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Propolis
- Caffeic acid
- Quercetin
- Ginger
- Kale
- African lettuce
- Saint John's wort
- Astaxanthin
- Canthaxanthin
- Hops
- Licorice
- Berberine
- Capsaicin
- Bulbocapnine, canadine, and protopine
- Fluconazole



EXTENSIVE METABOLIZER

Likely an extensive metabolizer based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP2C19	rs4244285	AG
NOC3L	rs12248560	CT
CYP2C19	rs4986893	GG

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

GSTA1 (Detox/ Glutathione)

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

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

This variant may also be linked to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

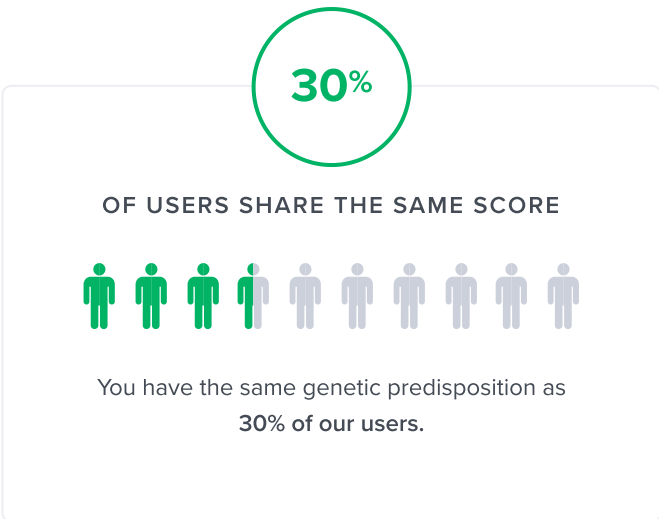
- Higher odds of liver cancer
- Stronger adverse effects of chemo
- Higher odds of asthma and allergies
- Lower hemoglobin levels
- Lower free testosterone levels

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



HIGHER ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GSTA1	rs3957357	GG

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

UGT (Detox)

Certain genetic variations in [UGT1A1](#) reduce the enzymatic activity of UGT, which [impairs the body’s ability to detox](#) and results in a buildup of toxic substances in the body. The normal version of *UGT1A1* (the one with normal detox activity) is called *UGT1A1*1*, or the “wild” type allele [\[R\]](#).

One of the most important and well-studied genetic variants is ***UGT1A1*28*** ([rs34983651](#)). This variant causes an “insertion” mutation, which means it adds an extra ‘TA’ into the gene where there should be none. According to some reports, ***UGT1A1*28* causes a 70% reduction in enzyme activity** [\[R\]](#).

Other variants include ***UGT1A1*6*** ([rs4148323](#)) and ***UGT1A1*27*** ([rs6742078](#)), which also lower enzyme activity, leading to a reduced ability to detox. All of these variations in *UGT1A1* can lead to toxicity disorders. The minor variants of *UGT1A1*27* and *UGT1A1*28* are usually inherited together [\[R\]](#).

Other, less well-researched *UGT1A1* variants with reduced enzyme activity include:

- ‘A’ at [rs10929302](#) (*UGT1A1*93*) [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- ‘T’ at [rs887829](#) (*UGT1A1*80*) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- ‘G’ at [rs4124874](#) (*UGT1A1*60*) [\[R\]](#), [\[R\]](#), [\[R\]](#)
- ‘T’ at [rs4148325](#) [\[R\]](#), [\[R\]](#)
- ‘T’ at [rs199539868](#) [\[R\]](#)
- ‘T’ at [rs114982090](#) [\[R\]](#)

A *UGT2A1* variant, ‘G’ at [rs10518065](#), has been associated with poorer [cognitive performance](#). The negative effects of this allele are likely due to decreased production of glutathione, leading to increased oxidative stress in the brain [\[R\]](#), [\[R\]](#), [\[R\]](#).

The low-activity *UGT1A6* variants ‘G’ at [rs2070959](#) and ‘C’ at [rs1105879](#) have been associated with higher bilirubin levels and increased risk of toxicity from aspirin, benzene, and vinyl chloride [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Finally, two *UGT2B7* variants, ‘G’ at [rs7438135](#) and ‘T’ at [rs7439366](#), have been associated with increased enzyme activity and decreased effectiveness of opioids [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



HIGHER ACTIVITY

Likely higher UGT activity based on 11 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
UGT2B7	rs7438135	AA
UGT2B7	rs7439366	CC
USP40	rs4124874	GT
UGT1A6	rs34983651	CC
UGT1A6	rs887829	CC
UGT1A6	rs6742078	GG
UGT1A6	rs4148325	CC
UGT1A1	rs4148323	GG
UGT2A1	rs10518065	AA
UGT1A6	rs2070959	AA
UGT1A6	rs1105879	AA
UGT1A6	rs10929302	GG
UGT1A1	rs199539868	CC
UGT1A1	rs114982090	CC

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

Recommendations Details

1



Aerobic Exercise (Cardio)

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE
1 hour

Helps with these DNA Risks:

-  Anxiety

 Insomnia

 Stress

 Acid Reflux

 Agoraphobia

 Anger

 Attention

 Back Pain
-  Brain Fog

 Irregular Periods

 Low Energy (Chronic Fatigue)

 Ovarian Cysts

 Painful Periods

 PCOS
-  Sleep Apnea

 Suicidal Ideation

How it helps

 Anxiety

IMPACT3 / 5

EVIDENCE4 / 5

Health authorities emphasize the beneficial effects of exercise on anxiety [R, R, R].

People who [exercise](#) regularly are less prone to anxiety and other mood problems. Both cardio and resistance training seem to reduce anxiety [R, R, R].

Multiple meta-analyses concluded that exercise modestly helps reduce anxiety in people of all ages, both healthy and diagnosed with anxiety disorders such as generalized anxiety and panic disorder. Aerobic exercise may be most effective [R, R, R, R, R, R, R, R, R, R, R].

Exercise may relieve anxiety by improving [R]:

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

 Insomnia

IMPACT3 / 5

EVIDENCE3 / 5

In 5 non-placebo-controlled trials of 155 people with primary insomnia, aerobic exercise training (both acute and for 4-6 months) improved sleep onset latency, wake time after sleep onset, total sleep time, sleep efficiency, and feeling of being rested in the morning. Exercise also improved mood and reduced anxiety [R, R, R, R, R].

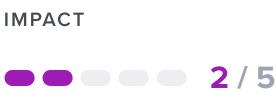
Aerobic exercise also improved some sleep quality parameters in 3 non-placebo-controlled trials of 114 elderly people with insomnia [R, R, R].

In a non-placebo-controlled trial of 41 cancer patients, a 6-week aerobic exercise reduced insomnia severity and improved sleep quality. However, it was less effective than cognitive-behavioral therapy [R].

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

- Regulating the internal clock
- Reducing [anxiety](#)
- Improving [mood](#)
- Reducing inflammation

Stress



Getting **2.5-5 hours of combined cardio and strength training per week** may [\[R, R, R, R, R\]](#):

- Reduce stress
- Improve your quality of life
- Improve your mental health

Cardio in particular may lower stress-related blood pressure and [cortisol](#) levels [\[R, R\]](#).

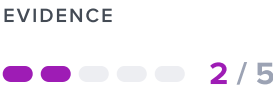
Acid Reflux



Taking part in regular exercise (including cardio) is associated with a lower risk of GERD. Engaging in light or short sessions (at least 90 mins total/week) may be best [\[R, R, R\]](#).

Please note: *Some exercises, such as sit-ups, leg-lifts, and stomach crunches, can worsen acid reflux. In addition, intense exercise may trigger acid reflux in some people* [\[R, R\]](#).

Agoraphobia



Regular physical activity may reduce the risk of agoraphobia [\[R\]](#).

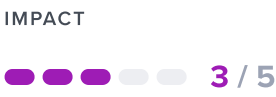
In people with panic disorder and agoraphobia, aerobic exercise may enhance the effectiveness of CBT. Aerobic exercise alone may improve the symptoms, but less effectively than clomipramine [\[R, R, R\]](#).

Anger



Aerobic exercise can reduce anger by releasing endorphins, which elevate mood and reduce stress. Regular physical activity also improves overall emotional regulation.

Attention



Two meta-analyses found that the regular practice of aerobic exercise causes modest improvements in attention and other areas of cognitive function in healthy adults. Acute high- to moderate-intensity and resistance exercise may have smaller effects on attention or none at all according to 4 meta-analyses [\[R, R, R, R, R, R\]](#).

Aerobic exercise may help by improving social skills, behavior, executive function, and mood [\[R\]](#).

 Back Pain



Experts recommend exercise to prevent back pain. Chronic back pain is less likely to develop in people who exercise regularly [\[R, R, R, R, R, R, R, R, R, R, R\]](#).

Exercise may also help reduce pain intensity and improve mobility. **Low-impact exercises may be best.** Aerobic exercise such as walking may help [\[R, R, R, R, R, R\]](#).

Exercise may help by:

- Strengthening core muscles that support the back [\[R, R\]](#)
- Increasing pain-relieving chemicals in the brain [\[R\]](#)

 Brain Fog



Regular exercise may improve attention, processing speed, and other cognitive functions. Cardio may be the most helpful [\[R, R, R, R, R, R, R, R\]](#).

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

- Improving brain cell communication (neuroplasticity)
- Reducing inflammation
- Reducing oxidative stress

 Irregular Periods



Not being physically active is a risk factor for irregular periods [\[R, R, R, R\]](#).

Regular, moderate aerobic exercise (about 30 min/day, 5-7 times per week) may [\[R, R, R\]](#):

- Support regular periods
- Decrease blood loss during periods

Interestingly, **getting a lot of exercise may also increase the risk.** Menstrual problems tend to be more common among athletes. This may be because intense exercise can alter sex hormone levels [\[R, R, R, R, R, R, R\]](#).

 Low Energy (Chronic Fatigue)

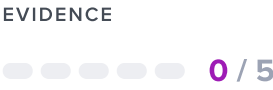


Higher levels of aerobic capacity in people with multiple sclerosis are associated with lower fatigue [\[R\]](#).

In line with this, practicing aerobic exercise 850 min/session or exercise two sessions/week for 8-24 weeks) may reduce fatigue, according to studies in people with [\[R, R, R, R, R, R, R\]](#):

- Multiple sclerosis
- Rheumatoid arthritis
- Cancer

 Ovarian Cysts



Regular aerobic exercise can help manage symptoms of ovarian cysts by improving overall hormonal balance and reducing body fat, which can influence cyst formation.

!

Painful Periods

IMPACT

4 / 5

EVIDENCE

4 / 5

Regular physical activity (including cardio) may help reduce period pain. It may also improve the quality of life for people with painful periods. **Exercising 3-5 days per week may be best.** Activities that may help include [R, R, R, R, R, R, R].

Some may find it hard to exercise during their period. **Gentle activities like walking** may be easier to do while dealing with pain and fatigue. In fact, low-intensity activities may be just as beneficial as more intense exercises for improving period pain [R, R, R].

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

- Increasing levels of the body’s own painkillers ([endorphins](#))
- Balancing sex hormones
- Reducing inflammation and contractions in the uterus

!

PCOS

IMPACT

2 / 5

EVIDENCE

3 / 5

Aerobic exercise helps manage PCOS by improving insulin sensitivity, aiding in weight loss, and enhancing overall metabolic health. It also helps regulate menstrual cycles and can reduce levels of androgens, which are often elevated in PCOS.

A [meta-analysis of 10 trials and 533 patients](#) found **moderate-certainty evidence** that aerobic exercise **reduces BMI in women with PCOS** [R].

Another [meta-analysis \(10 trials\)](#) found that exercise **lowers CRP levels in women with PCOS (by 0.43 mg/L), especially if aerobic** [R].

!

Sleep Apnea

IMPACT

2 / 5

EVIDENCE

2 / 5

Regular aerobic exercise can improve sleep quality by strengthening your respiratory system and reducing obstructive sleep apnea symptoms. It aids in weight loss, which can help eliminate some of the excess tissues in the throat that might be causing sleep apnea.

[Two meta-analyses \(the largest one with 9 trials and 444 patients\)](#) concluded that exercise training **decreases the apnea/hypopnea index, Epworth sleepiness scale, and BMI, while increasing minimum oxygen saturation and VO2 peak** in patients with obstructive sleep apnea. The combination of **aerobic and strength training was most effective** [R, R].

!

Suicidal Ideation

IMPACT

0 / 5

EVIDENCE

0 / 5

Aerobic exercise has been shown to release endorphins, improve mood, and reduce symptoms of depression and anxiety, which can help mitigate suicidal thoughts.

2



Exercise At Least One Hour a Day

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Helps with these DNA Risks:

⚠️ Anxiety

⚠️ Insomnia

⚠️ Stress

⚠️ Acid Reflux

⚠️ Attention

⚠️ Back Pain

⚠️ Brain Fog

⚠️ CRHR2 (Stress/HPA Axis)

⚠️ Gestational Weight Gain

⚠️ LDL Cholesterol in Pregnancy

⚠️ Low Energy (Chronic Fatigue)

⚠️ Painful Periods

⚠️ PCOS

⚠️ Sleep Apnea

⚠️ Total Cholesterol in Pregnancy

How it helps

⚠️ Anxiety

IMPACT3 / 5

EVIDENCE4 / 5

Health authorities emphasize the beneficial effects of exercise on anxiety [R, R, R].

People who [exercise](#) regularly are less prone to anxiety and other mood problems. Both cardio and resistance training seem to reduce anxiety [R, R, R].

You can even be physically active and practice relaxation techniques at the same time. A Chinese martial art called ***tai chi*** combines exercise and meditation. It may reduce stress and help with anxiety [R, R, R, R].

Exercise may relieve anxiety by improving [R]:

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

⚠️ Insomnia

IMPACT3 / 5

EVIDENCE3 / 5

[Exercise](#) tires you out and makes it easier for you to fall asleep at night. People who are active during the day also tend to feel more rested when they wake up [R, R, R, R, R].

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

- Regulating the internal clock
- Reducing [anxiety](#)
- Improving [mood](#)
- Reducing inflammation

Just one session of exercise may improve sleep the following night. In the long run, **4-6 months of cardio** may improve overall sleep quality [R, R, R, R, R, R].

You can even exercise and practice relaxation techniques at the same time. A Chinese martial art called ***tai chi*** combines exercise and meditation. It may improve sleep quality and fatigue [R, R, R, R].

 Stress



Getting **2.5-5 hours of combined cardio and strength training per week** may [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce stress
- Improve your quality of life
- Improve your mental health

Cardio in particular may lower stress-related blood pressure and [cortisol](#) levels [\[R\]](#), [\[R\]](#).

Other forms of exercise that may relieve stress include [yoga](#) and [tai chi](#). They combine physical activity with meditation [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



PERSONALIZED TO YOUR GENES

Your [SERPINA6](#) gene variant is linked to higher cortisol, the main stress hormone. Regular exercise may help by decreasing cortisol [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
SERPINA1	rs9989237	CT	

 Acid Reflux



Engaging in physical exercise for at least 30 minutes and 3 times a week may reduce the risk of acid reflux by about 40% [\[R\]](#).

 Attention



Regular exercise may improve attention and other cognitive functions. Cardio may be the most helpful [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

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



PERSONALIZED TO YOUR GENES

Your [ST3GAL3](#) gene variant is linked to ADHD. It likely impairs brain cell communication. Exercise may help by improving brain cell communication [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
ST3GAL3	rs112361411	CC	

!

Back Pain

IMPACT

4 / 5

EVIDENCE

5 / 5

Experts recommend exercise to prevent back pain. Chronic back pain is less likely to develop in people who exercise regularly [R, R, R, R, R, R, R, R, R, R, R].

Exercise may also help reduce pain intensity and improve mobility. **Low-impact exercises may be best** [R, R, R, R, R, R, R, R, R, R, R].

Types of exercises that may help with back pain include:

- Core-strengthening exercises [R, R, R, R, R]
- Aerobic exercise (e.g., walking) [R, R, R, R, R, R]
- Resistance training [R]
- Pilates [R, R, R, R]
- Tai chi [R, R]

Exercise may help by:

- Strengthening core muscles that support the back [R, R]
- Increasing pain-relieving chemicals in the brain [R]

Please note: *Intense exercise may increase the risk of lower back pain. Be careful to avoid exercises that can increase pain (e.g., heavy weight lifting, toe touches, sit-ups)* [R, R].

⌵

PERSONALIZED TO YOUR GENES

People with your **COMT** gene variant may benefit more from interventions for back pain, including exercise [R].

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
COMT	rs4680	GA	

!

Brain Fog

IMPACT

3 / 5

EVIDENCE

4 / 5

Regular exercise may improve attention, processing speed, and other cognitive functions. Cardio may be the most helpful [R, R, R, R, R, R, R, R].

Exercise may help with brain fog by [R, R, R, R]:

- Improving brain cell communication (neuroplasticity)
- Reducing inflammation
- Reducing oxidative stress

!

CRHR2 (Stress/HPA Axis)

IMPACT

3 / 5

EVIDENCE

3 / 5

Regular [exercise](#) may reduce stress and balance the HPA axis by increasing CRHR2 activity [R, R].

Getting **2.5-5 hours of combined cardio and strength training per week** may [R, R, R, R, R]:

- Reduce stress
- Improve your quality of life
- Improve your mental health

Cardio in particular may lower stress-related blood pressure and [cortisol](#) levels [\[R, R\]](#).

Other forms of exercise that may relieve stress include [yoga](#) and [tai chi](#). They combine physical activity with meditation [\[R, R, R, R, R\]](#).

 Gestational Weight Gain

IMPACT5 / 5

EVIDENCE5 / 5

Regular exercise during pregnancy improves both maternal and fetal health outcomes, reduces the risk of complications like gestational diabetes, and prepares the body for a smoother labor process.

Most experts agree that getting 150-300 minutes of exercise per week can help you control your weight. For best results, try to push yourself a bit with **moderate or intense exercise** [\[R, R\]](#).

Exercise helps by burning calories and boosting your metabolism. It may also lower your appetite [\[R, R\]](#).

However, it might take a while to see the results of your hard work. **The benefits of moderate or intense exercise may only show after 12 weeks** [\[R, R, R, R, R\]](#).

Note that exercise may be less effective at helping you lose weight than limiting your calorie intake. However, **it will likely help you maintain a lower weight in the long run** [\[R, R, R\]](#).

 LDL Cholesterol in Pregnancy

IMPACT3 / 5

EVIDENCE5 / 5

Regular exercise during pregnancy helps manage LDL while improving circulation, reducing swelling, and preparing the body for labor.

Exercise is one of the best things you can do to lower LDL cholesterol. Experts say you should get 150 minutes of exercise a week to help lower cholesterol [\[R, R, R, R\]](#).

Many types of exercise may help lower LDL cholesterol. These include:

- Aerobic exercise [\[R, R, R, R\]](#)
- Strength training [\[R, R\]](#)
- Aquatic exercise [\[R\]](#)
- Low-intensity exercise, such as tai chi and [yoga](#) [\[R, R, R\]](#)

Working out for longer and doing harder exercises may help with LDL cholesterol even more [\[R, R, R, R\]](#).

Exercise may also be more effective when combined with a healthy diet [\[R, R\]](#).

Exercise may help lower LDL cholesterol by helping your muscles use fat as energy [\[R\]](#).

 Low Energy (Chronic Fatigue)

IMPACT4 / 5

EVIDENCE5 / 5

Experts agree that exercise may help reduce fatigue. People with chronic fatigue may find it challenging to exercise. For this reason, experts recommend starting at a low intensity and gradually increasing it as fitness improves [\[R, R, R\]](#).

People who live sedentary lifestyles may feel tired more often. Ironically, being “too tired” is a common reason for not working out [\[R, R\]](#).

Exercise (3 days/week) may help reduce fatigue in healthy people and those with chronic health conditions [\[R, R, R, R, R, R, R\]](#).

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

- Boosting mood

- Increasing physical fitness
- Protecting from stress

Please note: *Talk to your doctor before starting a new exercise program. People with chronic fatigue should be careful to stay within their comfort zone. Over-exercising may worsen the condition* [\[R, R, R\]](#).



Painful Periods

IMPACT

4 / 5

EVIDENCE

4 / 5

Regular physical activity may help reduce period pain. It may also improve the quality of life for people with painful periods. **Exercising 3-5 days per week may be best.** Activities that may help include [\[R, R, R, R, R, R, R\]](#):

- Stretching
- Cardio
- Static exercises (such as planks and wall sits)
- Kegel exercises for pelvic floor muscles
- Sex

Some may find it hard to exercise during their period. **Gentle activities like stretching or walking** may be easier to do while dealing with pain and fatigue. In fact, low-intensity activities may be just as beneficial as more intense exercises for improving period pain [\[R, R, R\]](#)

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

- Increasing levels of the body’s own painkillers ([endorphins](#))
- Balancing sex hormones
- Reducing inflammation and contractions in the uterus



PCOS

IMPACT

3 / 5

EVIDENCE

4 / 5

Experts recommend exercise for women with PCOS. It may help manage some aspects of the condition. However, it’s unclear if exercise alone improves reproductive function [\[R, R, R, R, R, R, R\]](#).

In women with PCOS, cardio and resistance training may help [\[R, R, R, R, R, R, R, R, R, R\]](#):

- Maintain a healthy weight
- Improve blood sugar control
- Balance the immune response
- Reduce inflammation

Yoga may have similar effects in people with PCOS. It may also help regulate the menstrual cycle and balance sex hormones. However, the evidence to support it is weaker [\[R, R, R\]](#).



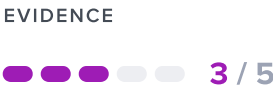
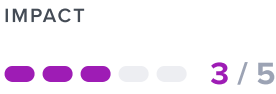
PERSONALIZED TO YOUR GENES

Exercise may reduce weight and blood sugar more in people with your [SERPINA12](#) gene variant. Maintaining a healthy weight and blood sugar levels is crucial for people with PCOS, so try to exercise regularly [\[R, R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
SERPINA12	rs2236242	AT	

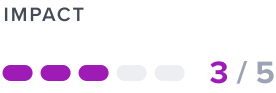
 Sleep Apnea



In people with sleep apnea, exercise may help [\[R, R, R, R, R, R, R\]](#):

- Decrease the number of sleep apnea episodes
- Reduce daytime sleepiness
- Improve sleep quality

 Total Cholesterol in Pregnancy



Regular exercise during pregnancy helps manage cholesterol levels while improving circulation, reducing swelling, and preparing the body for labor.

Exercise is an effective way to improve your heart health. Experts recommend 150 minutes of exercise a week to help lower cholesterol [\[R, R, R, R\]](#).

Many types of exercise may help lower total cholesterol. These include:

- Cardio [\[R, R, R, R\]](#)
- Strength training [\[R, R\]](#)
- Water exercise [\[R\]](#)
- Low-intensity exercise, such as tai chi and [yoga](#) [\[R, R, R, R\]](#)

Exercising for longer and doing harder exercises may help with total cholesterol even more [\[R, R, R, R\]](#).

Exercise may also be more effective when combined with a healthy diet [\[R, R\]](#).

Exercise may help lower total cholesterol by helping your muscles use fat as energy [\[R\]](#).

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 DNA Risks:

-  Anxiety

 Insomnia

 Stress

 Attention

 Back Pain

 Brain Fog

 DAO (Histamine)
-  Irregular Periods

 Low Energy (Chronic Fatigue)

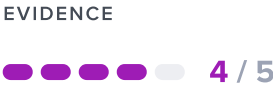
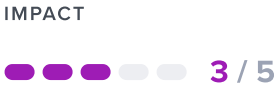
 Painful Periods

 PCOS

 Sleep Apnea

How it helps

 Anxiety



Yoga (1-7 sessions/week for at least 2 weeks) may improve anxiety by increasing [BDNF](#), a crucial brain chemical [\[R, R, R\]](#).

 **Insomnia**

IMPACT

2 / 5

EVIDENCE

2 / 5

A 2-week yoga intervention improved sleep parameters such as sleep efficiency, total sleep time, total wake time, sleep onset latency, wake time after sleep onset, and number of awakenings in an uncontrolled trial of 20 people with chronic insomnia [\[R\]](#).

A meta-analysis of 19 studies and 1,832 participants found yoga effective for managing sleep problems other than insomnia in women [\[R\]](#).

Yoga may help by promoting relaxation and reducing stress.

 **Stress**

IMPACT

4 / 5

EVIDENCE

4 / 5

Yoga (at least 2x/week for 3-12 weeks) may improve stress by [\[R, R, R, R\]](#):

- Calming down your "fight-or-flight" response
- Reducing blood pressure
- Lowering [cortisol](#), the stress hormone

 **Attention**

IMPACT

4 / 5

EVIDENCE

3 / 5

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

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

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

Yoga may help by promoting mindfulness and concentration.

 **Back Pain**

IMPACT

4 / 5

EVIDENCE

4 / 5

Stress at work and home may increase the risk of back pain [\[R, R, R, R, R, R\]](#).

Stress may contribute to pain by increasing tension in the muscles. It may also increase sensitivity to pain [\[R, R\]](#).

Yoga may improve pain and functionality, but not quality of life, in people with back pain. Yoga may be most effective in the short term or when used as an add-on to conventional therapies [\[R, R, R, R, R, R, R\]](#).

 **Brain Fog**

IMPACT

4 / 5

EVIDENCE

4 / 5

People under a lot of stress may develop brain fog [\[R\]](#).

Stress may cause brain fog by [\[R, R, R, R, R\]](#):

- Reducing the growth of brain cells
- Reducing brain activity

- Increasing inflammation

Meditation and yoga can help you relax. They may also **improve brain fog by boosting attention** and cognitive function in general [\[R, R, R, R, R, R, R, R, R, R\]](#).

!

DAO (Histamine)

IMPACT

2 / 5

EVIDENCE

2 / 5

Practicing yoga may help with the following conditions associated with high histamine levels:

- Migraines [\[R, R, R\]](#)
- IBS [\[R\]](#)

Yoga and other relaxation techniques may help by reducing stress. This may help lower histamine release [\[R\]](#).

!

Irregular Periods

IMPACT

2 / 5

EVIDENCE

1 / 5

Stress may contribute to irregular periods by disrupting the balance of hormones in the body [\[R, R, R, R, R, R, R, R, R\]](#).

Learning to manage stress may help reduce the risk of irregular periods [\[R, R, R\]](#).

For instance, yoga has been shown to reduce menstrual distress [\[R, R\]](#).

!

Low Energy (Chronic Fatigue)

IMPACT

4 / 5

EVIDENCE

3 / 5

Yoga (1-3x/week for 6 weeks to 6 months) may reduce fatigue in healthy people and those with chronic conditions, such as [\[R, R, R, R, R, R, R, R, R, R, R, R, R, R, R\]](#):

- Low back pain
- Multiple sclerosis
- Fibromyalgia
- Kidney disease
- Cancer

!

Painful Periods

IMPACT

4 / 5

EVIDENCE

3 / 5

Stress may increase the risk of painful periods. This may be because stress can contribute to inflammation and uterus contractions [\[R, R, R, R\]](#).

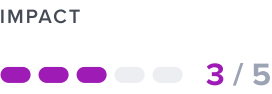
Yoga may help reduce stress and period pain. It may also improve the quality of life in women experiencing painful periods [\[R, R, R, R\]](#).

PERSONALIZED TO YOUR GENES

People with your [CELF4](#) gene variant may be more prone to stress. Yoga may help relieve stress and period pain [\[R, R, R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
CELF4	rs11665070	GA	

 PCOS



Practicing yoga (1h/day for 12 weeks) may help reduce anxiety and excess hair growth while normalizing the following blood markers [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Glucose
- Insulin
- Testosterone

Yoga may help by reducing insulin resistance.

 Sleep Apnea



In a non-placebo-controlled trial of 37 obese patients with obstructive sleep apnea, a yoga intervention reduced apnea severity [\[R\]](#).

4



Cognitive-Behavioral Therapy (CBT)

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

Helps with these DNA Risks:

-  **Anxiety**

 **Insomnia**

 **Stress**

 **Agoraphobia**

 **Anger**

 **Attention**

 **Back Pain**

 **Brain Fog**
-  **Caffeine-Related Anxiety**

 **CRHR2 (Stress/HPA Axis)**

 **Low Energy (Chronic Fatigue)**

 **Painful Periods**
-  **Suicidal Ideation**

How it helps

 Anxiety



CBT (8-20h of sessions) is the best type of psychotherapy for anxiety. Health experts worldwide recommend CBT as the “gold standard” treatment for anxiety [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

CBT can soothe anxiety by helping you [\[R\]](#), [\[R\]](#), [\[R\]](#):

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

Studied forms of CBT include [\[R\]](#), [\[R\]](#):

- In-person
- Internet-based

- Self-guided

Insomnia



Psychotherapy (talk therapy) may help you fall asleep faster. It may also improve the quality of your sleep [\[R, R, R\]](#).

Cognitive-behavioral therapy (CBT) is the best type of talk therapy for insomnia. During CBT, a therapist helps you change the way you think about sleep and improve your sleep habits [\[R, R, R, R\]](#).

Stress



Cognitive-behavioral therapy (CBT) is the best type of talk therapy for stress relief. CBT can help almost anyone under stress, including [\[R, R, R\]](#):

- People with anxiety
- People with depression
- Students
- Caregivers
- Cancer patients

CBT may reduce your levels of the stress hormone [cortisol](#). After going through CBT, people often feel less anxious and more relaxed [\[R, R, R\]](#).

Agoraphobia



CBT helps by addressing and changing the negative thought patterns and behaviors associated with agoraphobia. It teaches coping skills and gradually exposes the person to feared situations in a controlled manner.

Anger



CBT addresses the thought patterns that contribute to anger. It helps people reframe negative thoughts and teaches coping strategies for managing anger triggers.

Attention



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

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

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

Back Pain



Experts recommend considering psychological therapies such as cognitive-behavioral interventions to manage low back pain, especially if psychosocial risk factors are present [\[R, R\]](#).

Cognitive-behavioral therapy may yield long-term improvements in pain, disability, and quality of life in people with chronic low-back pain. It may also improve fear-avoidance beliefs [R, R, R].

The combination of cognitive-behavioral therapy with physical therapy may offer greater benefits than physical therapy alone [R, R].

 Brain Fog

IMPACT

2 / 5

EVIDENCE

2 / 5

A pilot study evaluated Constraint-Induced Cognitive Therapy (CICT, 36 hours over 4-6 weeks), which incorporates aspects of CBT, on people with long-term brain fog post-COVID. This study showed that participants experienced reductions in brain fog severity and improvements in performing daily activities, suggesting that this type of therapy could be beneficial for managing persistent cognitive symptoms after COVID-19 [R].

Another study involving a multidisciplinary rehabilitation program enhanced with neuropsychological treatment, which includes elements of CBT, reported improvements in neurocognitive functions among people suffering from brain fog as a sequel of post-acute COVID-19 [R].

 Caffeine-Related Anxiety

IMPACT

0 / 5

EVIDENCE

0 / 5

CBT helps individuals develop coping strategies to change negative thought patterns that may contribute to their anxiety.

 CRHR2 (Stress/HPA Axis)

IMPACT

5 / 5

EVIDENCE

5 / 5

Cognitive-behavioral therapy (CBT) is the best type of talk therapy for stress relief. CBT can help almost anyone under stress, including [R, R, R]:

- People with anxiety
- People with depression
- Students
- Caregivers
- Cancer patients

CBT may reduce your levels of the stress hormone [cortisol](#) and balance the HPA axis. After going through CBT, people often feel less anxious and more relaxed [R, R, R].

 Low Energy (Chronic Fatigue)

IMPACT

3 / 5

EVIDENCE

3 / 5

Meta-analyses have shown cognitive-behavioral therapy (CBT), including its combination with mindfulness-based stress reduction, may reduce fatigue in conditions like [R, R, R, R, R]:

- Chronic fatigue syndrome
- Fibromyalgia
- Multiple sclerosis
- Cancer

CBT for chronic fatigue includes psychological strategies to tackle stress-inducing thoughts [R].

 Painful Periods

IMPACT

1 / 5

EVIDENCE

1 / 5

A study conducted among young female students with primary dysmenorrhea demonstrated that CBT (1x/week for 12 weeks) decreased depression, anxiety, and stress levels and improved coping mechanisms related to pain management [R].

 Suicidal Ideation



CBT helps by changing negative thought patterns, improving coping mechanisms, and reducing symptoms of depression and anxiety, thereby reducing suicidal ideation.

5



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 DNA Risks:

-  Anxiety

 Insomnia

 Stress

 Attention

 Back Pain

 Brain Fog

 Caffeine-Related Anxiety
-  DAO (Histamine)

 Low Energy (Chronic Fatigue)

 Painful Periods

How it helps

 Anxiety



A meta-analysis of 14 trials and 862 participants concluded that meditation is a bit more effective than relaxation techniques at improving anxiety, both in the short term and at 12-month follow-up [\[R\]](#).

Interestingly, a review of 41 trials and 2,993 participants concluded that mindfulness is the only form of meditation that reliably improves anxiety [\[R\]](#).

Meditation may help by stimulating relaxation and enhancing emotional regulation.

 Insomnia



Meditation, especially as part of mindfulness-based interventions, improved sleep onset time, efficiency, and duration in 6 non-placebo-controlled trials of 265 people with insomnia and other sleep disturbances. Mindfulness meditation may be similarly effective in people with anxiety and mood disorders, as seen in 2 non-placebo-controlled trials of 42 people [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Two meta-analyses found that mindfulness meditation mildly improved sleep quality, efficiency, and onset latency, as well as total wake time, in people with insomnia and poor sleep quality [\[R\]](#), [\[R\]](#).

Meditation may help by reducing stress, improving relaxation, and altering the biological process that keep you awake.

Stress



Meditation, especially mindfulness meditation, has been shown to reduce overall psychological symptoms, enhance the sense of control, and increase spiritual experiences. These changes contribute to stress reduction [\[R\]](#).

Systematic reviews and meta-analyses have found that meditation reduces several physiological markers of stress, including cortisol, blood pressure, and heart rate. These reductions are indicative of a decreased stress response, promoting better health and well-being [\[R\]](#).

Studies have also highlighted that meditation may lead to improvements in anxiety, depression, and pain, which are often exacerbated by stress. These improvements further contribute to the overall efficacy of meditation in managing stress [\[R\]](#).

Attention



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

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

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

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

Back Pain



Meditation may slightly improve disability in the short term and pain in the long term in people with low back pain [\[R\]](#).

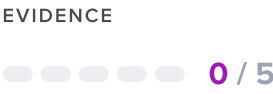
Brain Fog



Different meditation modalities may moderately improve sustained attention, selective attention, executive attention, and attentional control and increase the gray matter volume of brain areas involved in attention. Among them, mindfulness meditation may increase sustained attention and reduce mind wandering [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In 3 studies of 119 older people, meditation improved cognitive function (including sustained attention) while preventing cognitive decline and the thinning of the cortex [\[R\]](#), [\[R\]](#), [\[R\]](#).

Caffeine-Related Anxiety



Meditation can increase mindfulness and has been shown to reduce anxiety by calming the mind.

DAO (Histamine)



Meditation may help with the following conditions associated with high histamine levels:

- IBS [\[R\]](#)
- Migraines [\[R\]](#), [\[R\]](#)

Meditation and other relaxation techniques may help by reducing stress. This may help lower histamine release [\[R\]](#).

!

Low Energy (Chronic Fatigue)

IMPACT

4 / 5

EVIDENCE

3 / 5

Stress and fatigue are closely linked. Stress has the potential to cause or worsen physical and mental fatigue [\[R\]](#), [\[R\]](#), [\[R\]](#).

Relaxation techniques that may help include:

- Mindfulness meditation [\[R\]](#), [\[R\]](#)
- Relaxation therapy (breathing and muscle relaxation) [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Yoga [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Tai chi [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)

Yoga (at least 60 minutes per week) may be especially helpful for fatigue from chronic health conditions [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Stress may cause fatigue by:

- Altering the fight-or-flight response [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Reducing sleep quality [\[R\]](#)

!

Painful Periods

IMPACT

2 / 5

EVIDENCE

1 / 5

A study found that meditation reduced menstrual pain as much as physical activity [\[R\]](#).

6

Mindfulness Meditation

Practice mindfulness meditation for 10-20 minutes daily. Find a quiet, comfortable place to sit or lie down, then focus on your breath, observing thoughts and sensations without judgment. Consistency is key, so try to incorporate it into your daily routine, perhaps in the morning or before bed.

TYPICAL STARTING DOSE

30 minutes

Helps with these DNA Risks:

! Anxiety

! Insomnia

! Stress

! Acid Reflux

! Agoraphobia

! Attention

! Back Pain

! Caffeine-Related Anxiety

! Miscarriage

! Suicidal Ideation

How it helps

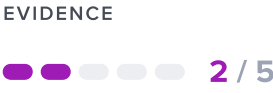
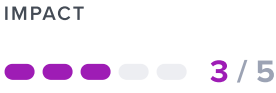
Anxiety



A review of 41 trials and 2,993 participants concluded that mindfulness is the only form of meditation that reliably improves anxiety [\[R\]](#).

Mindfulness meditation may help by reducing rumination and promoting relaxation.

Insomnia

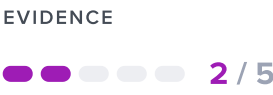
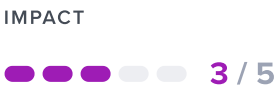


Meditation, especially as part of mindfulness-based interventions, improved sleep onset time, efficiency, and duration in 6 non-placebo-controlled trials of 265 people with insomnia and other sleep disturbances. Mindfulness meditation may be similarly effective in people with anxiety and mood disorders, as seen in 2 non-placebo-controlled trials of 42 people [\[R, R, R, R, R, R, R\]](#).

Two meta-analyses found that mindfulness meditation mildly improved sleep quality, efficiency, and onset latency, as well as total wake time, in people with insomnia and poor sleep quality [\[R, R\]](#).

Mindfulness may help by reducing stress and rumination, potentially improving sleep.

Stress



Mindfulness meditation has been shown to reduce symptoms of stress, anxiety, and depression. It helps in increasing a sense of control over one’s life and enhances spiritual experiences, contributing to a greater sense of calm and personal efficacy [\[R\]](#).

The effects of mindfulness meditation are not just short-lived; they may be sustained over long periods. Individuals who practice mindfulness meditation regularly continue to experience reduced symptoms of stress and improved psychological well-being even after the initial training period [\[R\]](#).

Recent studies also indicate that mindfulness meditation may alter brain functions related to stress reactivity. For instance, it has been shown to reduce the connectivity between the amygdala (a key stress-related brain region) and other brain areas involved in anxiety and stress responses [\[R\]](#).

Acid Reflux



Stress is linked to GERD. The greater the stress, the more severe the symptoms tend to be [\[R\]](#).

Experts recommend managing stress to help with GERD. Relaxation techniques such as mindfulness meditation may help reduce stress and improve the quality of life in people with this condition [\[R, R, R\]](#).

Stress may contribute to GERD by increasing inflammation. It may also make people focus on their symptoms more [\[R, R\]](#).

Agoraphobia



Practicing mindfulness meditation can help people with agoraphobia become more aware of their present moment without judgment. This awareness can reduce the intensity of anxiety experienced during overwhelming situations.

Attention



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

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

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

!

Back Pain

IMPACT

3 / 5

EVIDENCE

3 / 5

Stress at work and home may increase the risk of back pain [R, R, R, R, R, R].

Stress may contribute to pain by increasing tension in the muscles. It may also increase sensitivity to pain [R, R].

The following relaxation techniques may help with back pain and improve physical function:

- Progressive muscle relaxation [R]
- Mindfulness meditation [R, R, R]
- Yoga [R, R, R, R, R, R, R, R]

!

Caffeine-Related Anxiety

IMPACT

0 / 5

EVIDENCE

0 / 5

Mindfulness meditation helps focus the mind on the present moment, which can reduce the racing thoughts associated with anxiety.

!

Miscarriage

IMPACT

2 / 5

EVIDENCE

1 / 5

In a non-placebo-controlled trial of 76 women with recurrent pregnancy loss, a 7-week mindfulness meditation program reduced perceived stress significantly more than a standard supportive care program [R].

!

Suicidal Ideation

IMPACT

0 / 5

EVIDENCE

0 / 5

Mindfulness meditation has been shown to reduce symptoms of anxiety and depression, which can be risk factors for suicidal thoughts. It encourages a state of awareness and acceptance of the present moment, which can lead to a reduction in negative thought patterns.

7

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 DNA Risks:

⚠️ Anxiety

⚠️ Insomnia

⚠️ Stress

⚠️ Anger

⚠️ Attention

⚠️ Back Pain

⚠️ Caffeine-Related Anxiety

⚠️ DAO (Histamine)

⚠️ Low Energy (Chronic Fatigue)

⚠️ Painful Periods

⚠️ Sleep Apnea

How it helps

⚠️

Anxiety

IMPACT

5 / 5

EVIDENCE

4 / 5

In a non-placebo-controlled trial of nursing students, practicing progressive muscle relaxation, both alone and combined with listening to nature sounds, reduced anxiety and pulse rates [\[R\]](#).

In a non-placebo-controlled trial of 162 patients with a primary diagnosis of anxiety disorder or major depressive disorder, both progressive muscle relaxation and auricular acupuncture were equally effective at improving tension, anxiety, and anger/aggression. Progressive muscle relaxation failed to improve memory performance but did reduce state anxiety in a non-placebo-controlled trial of 15 elderly adults performing a memory task [\[R\]](#), [\[R\]](#).

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

Progressive muscle relaxation also reduced anxiety in multiple trials on 128 patients undergoing dental procedures, 126 pregnant women, 141 women undergoing in vitro fertilization, 142 caregivers, 106 patients with schizophrenia, 80 burn patients, 25 patients with atopic dermatitis, 90 women with ectopic pregnancy, 187 cancer patients, 54 parents of children with cancer, 155 patients with COPD and other breathing disorders, 152 patients with obstructive sleep apnea, 84 extremity surgery patients, 70 patients undergoing upper and lower gastrointestinal surgery, and 93 patients undergoing a knee arthroscopy [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

⚠️

Insomnia

IMPACT

3 / 5

EVIDENCE

1 / 5

A systematic review of 12 studies and 1047 cancer patients concluded that progressive muscle relaxation can improve quality of sleep, anxiety, depression, and fatigue in cancer patients [\[R\]](#).

Progressive muscle relaxation, especially if combined with health education, improved insomnia and vasomotor symptoms in a non-placebo-controlled trial of 108 postmenopausal women [\[R\]](#).

Progressive muscle relaxation may help by reducing physical tension and mental anxiety.

⚠️

Stress

IMPACT

3 / 5

EVIDENCE

2 / 5

Progressive muscle relaxation (1x-7x/week for 1-8 weeks) may reduce stress [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Combining progressive muscle relaxation with music therapy, guided imagery, or mindfulness may also help [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Progressive muscle relaxation may help by reducing [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Blood pressure
- Levels of [cortisol](#), the stress hormone

⚠️

Anger

IMPACT

0 / 5

EVIDENCE

0 / 5

This technique involves tensing and then relaxing different muscle groups to reduce physical tension. It can help decrease the physiological arousal that accompanies anger.

!

Attention

IMPACT

2 / 5

EVIDENCE

1 / 5

Progressive Muscle Relaxation (PMR) helps manage Attention Deficit Hyperactivity Disorder (ADHD) by boosting relaxation and concentration. By sequentially tensing and relaxing muscle groups, it aids in distinguishing tension versus relaxation, reducing overall stress, and improving focus.

In a non-placebo-controlled trial of 52 kindergarten children, practicing progressive muscle relaxation (two 30-minute sessions/week) for 12 weeks enhanced attention and executive functioning [\[R\]](#).

!

Back Pain

IMPACT

2 / 5

EVIDENCE

1 / 5

Practicing Progressive Muscle Relaxation can help alleviate back pain by relieving tension in your muscles, promoting relaxation, and improving your overall pain management. It enhances body awareness, helping you recognize and prevent unnecessary muscle tension that can contribute to back pain.

In a non-placebo-controlled trial of 66 pregnant women, receiving progressive muscle relaxation for 8 weeks improved low back pain and quality of life [\[R\]](#).

!

Caffeine-Related Anxiety

IMPACT

0 / 5

EVIDENCE

0 / 5

This technique involves tightening and then relaxing different muscle groups, which can help reduce feelings of anxiety.

!

DAO (Histamine)

IMPACT

2 / 5

EVIDENCE

2 / 5

Progressive muscle relaxation may help with the following conditions associated with high histamine levels:

- Migraines [\[R\]](#)
- IBS [\[R\]](#)
- Eczema [\[R\]](#)
- Asthma [\[R\]](#), [\[R\]](#)

Progressive muscle relaxation and other relaxation techniques may help by reducing stress. This may help lower histamine release [\[R\]](#).

!

Low Energy (Chronic Fatigue)

IMPACT

2 / 5

EVIDENCE

1 / 5

Muscle relaxation, often combined with breathing exercises, has been beneficial across various groups, including those with chronic fatigue syndrome and multiple sclerosis. However, cognitive behavioral therapy (CBT) may offer greater benefits in some cases [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

!

Painful Periods

IMPACT

2 / 5

EVIDENCE

1 / 5

A study found that muscle relaxation therapy reduced pain intensity associated with dysmenorrhea in adolescents. The therapy involved progressive muscle relaxation exercises that helped decrease pain levels and improved the overall well-being of participants during menstrual pain episodes [\[R\]](#).

 Sleep Apnea



Progressive muscle relaxation can help relieve physical tension contributing to sleep apnea by guiding you to gradually tense and then relax different muscle groups, promoting relaxation and better sleep. It also aids in controlling your breathing pace which helps reduce the episodes.

In a non-placebo-controlled trial of 152 patients with obstructive sleep apnea, practicing progressive muscle relaxation for 8 weeks improved CPAP adherence, daytime sleepiness, and sleep quality. Its combination with patients' education also improved anxiety and depression [\[R\]](#).

8

Magnesium

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

TYPICAL STARTING DOSE

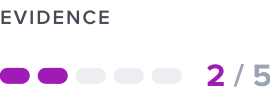
250 mg

Helps with these DNA Risks:

-  Anxiety
-  Insomnia
-  Stress
-  Acid Reflux
-  Attention
-  Caffeine-Related Anxiety
-  Low Energy (Chronic Fatigue)
-  MTHFD1 (Folate/ Methylation)
-  Painful Periods
-  PCOS

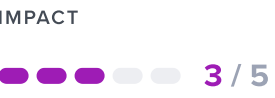
How it helps

 Anxiety



Magnesium (125-300 mg/day for 8 weeks) may reduce stress and anxiety by boosting [GABA](#), which helps calm the mind [\[R\]](#), [\[R\]](#), [\[R\]](#).

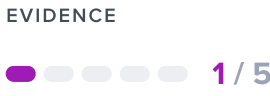
 Insomnia



Magnesium may boost [melatonin](#), a hormone that supports sleep. **It may also suppress [cortisol](#)**, a stress hormone that can throw off your body’s internal clock [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Supplementing with **magnesium (320-500 mg/day for 5-8 weeks)** may improve sleep. It may also work well in combination with melatonin and [zinc](#) [\[R\]](#), [\[R\]](#), [\[R\]](#).

 Stress



An 8-week study found that oral magnesium (300 mg) reduced stress in severely stressed individuals with low magnesium levels. Adding vitamin B6 (30 mg) enhanced this effect [\[R\]](#).

Magnesium regulates neurotransmitters which control the body's stress response system, aiding in relaxation.

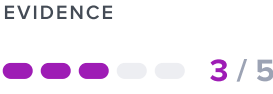
 Acid Reflux



Magnesium carbonate, hydroxide, oxide, or trisilicate salts are used orally as antacids to reduce symptoms of acid reflux. Magnesium hydroxide has the fastest onset of action. The onset time of magnesium carbonate is slower due to its crystal structure. Magnesium trisilicate has the slowest onset and longest duration of action due to poor solubility [\[R\]](#).

Doses used include magnesium hydroxide 400-1200 mg (5-15 mL of milk of magnesia) up to four times daily, or magnesium oxide 800 mg/day.

 Attention



Two meta-analyses (the largest one with 12 studies) found that children with ADHD had 0.105 mmol/L lower magnesium levels [\[R\]](#), [\[R\]](#).

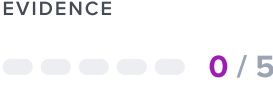
Supplementation with magnesium (200 mg/day) for 6 months restored normal magnesium levels and reduced hyperactivity in a non-placebo-controlled trial of 50 children with ADHD and magnesium deficiency [\[R\]](#).

In a placebo-controlled trial of 66 children with ADHD, supplementation with magnesium (6 mg/kg per day) and vitamin D (50,000 IU/week) for 8 weeks improved behavioral function and mental health [\[R\]](#).

Similarly, the combination of magnesium (6 mg/kg per day) and vitamin B6 (0.6 mg/kg per day) for at least 2 months reduced hyperactivity and aggressiveness while increasing attention in a non-placebo-controlled trial of 36 children with ADHD. The symptoms reappeared when the treatment was stopped for a few weeks [\[R\]](#).

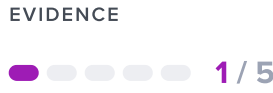
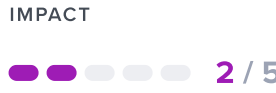
However, the benefits of supplementation may be limited to magnesium-deficient patients [\[R\]](#), [\[R\]](#).

 Caffeine-Related Anxiety



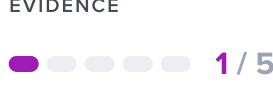
Magnesium may act as a natural relaxant, which can help alleviate the physical symptoms of anxiety associated with caffeine consumption.

 Low Energy (Chronic Fatigue)



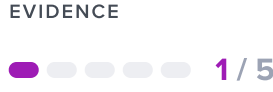
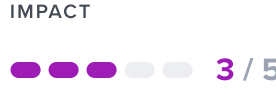
A study found that people with chronic fatigue syndrome had lower red blood cell magnesium levels compared to healthy people. In line with this, magnesium supplementation (1x/week for 6 weeks) improved energy, emotional well-being, and pain [\[R\]](#).

 MTHFD1 (Folate/ Methylation)



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

 Painful Periods



Experts list magnesium supplements as products that may potentially reduce menstrual cramps [\[R\]](#).

In 2 old studies of 82 women with dysmenorrhea, supplementation with magnesium reduced abdominal and low-back pain and absences from work [\[R\]](#), [\[R\]](#).

 **PCOS**

IMPACT

2 / 5

EVIDENCE

2 / 5

In a 10-week placebo-controlled trial of 64 women with PCOS, magnesium supplementation significantly improved various aspects of quality of life, but had no effect on certain PCOS symptoms [\[R\]](#).

An 8-week placebo-controlled of 84 PCOS patients found that co-supplementation of magnesium and melatonin had a positive impact on hirsutism, serum TNF-α, and TAC levels [\[R\]](#).

In a 12-week placebo-controlled trial of 60 women with PCOS, magnesium and vitamin E supplements (250mg/day magnesium, 400 mg/day vitamin E) appeared to improve hirsutism and various blood markers [\[R\]](#).

Magnesium supplements may help by improving insulin resistance. Magnesium also aids in reducing inflammation and stress, both believed to worsen PCOS symptoms.

9

Mindfulness

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

TYPICAL STARTING DOSE

30 minutes

Helps with these DNA Risks:

-  Anxiety

 Insomnia

 Stress

 Attention

 Brain Fog

 Caffeine-Related Anxiety

 DAO (Histamine)
-  Low Energy (Chronic Fatigue)

How it helps

 **Anxiety**

IMPACT

4 / 5

EVIDENCE

4 / 5

Mindfulness (1-4 sessions/week for 2-6 months) may improve anxiety by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improving emotional control
- Increasing self-compassion
- Reducing intrusive thoughts

 **Insomnia**

IMPACT

4 / 5

EVIDENCE

2 / 5

Stress often makes it difficult to sleep [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

This is because [cortisol](#) and other stress hormones can throw off your body’s internal clock [\[R\]](#), [\[R\]](#), [\[R\]](#).

Relaxation techniques that may improve sleep include [\[R, R\]](#):

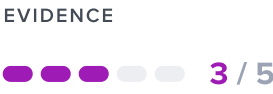
- **Listening to music**, which promotes relaxation and supports good sleep habits [\[R, R\]](#)
- **Mindfulness**, which helps you be non-judgmental and aware of the present moment [\[R, R, R\]](#)
- **Yoga**, which combines breathing, stretching, and meditation [\[R, R\]](#)
- **Lavender aromatherapy**, which involves inhaling [lavender](#) essential oil [\[R, R, R\]](#)
- **Massage**, which relaxes your body and mind through pleasant physical touch [\[R, R\]](#)

Stress



Mindfulness (2-3h/week for at least 4 weeks) may help relieve stress by reducing heart rate and [cortisol](#) levels [\[R, R, R, R, R, R\]](#).

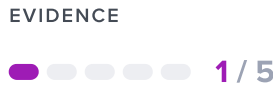
Attention



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

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

Brain Fog



Mindfulness meditation has been found to exert beneficial effects on cognitive performance, which include improved attention, better memory, and enhanced executive functions. These improvements can help counteract symptoms of brain fog [\[R\]](#).

Mindfulness impacts brain areas related to emotional regulation and cognitive processing. By modulating activity in these areas, mindfulness may reduce the cognitive load that contributes to brain fog, helping to stabilize mood and improve cognitive clarity [\[R\]](#).

Caffeine-Related Anxiety



Mindfulness practices encourage staying present and may decrease the occurrence of anxious thoughts.

DAO (Histamine)



Stress triggers the release of histamine and other vasoactive chemicals. Histamine may contribute to flare-ups of stress-related disorders such as migraine [\[R, R, R, R\]](#).

In line with this, mindfulness (for 8 weeks) may help with conditions worsened by histamine such as headaches (e.g., migraine and tension-type headaches) [\[R\]](#).

Low Energy (Chronic Fatigue)



Mindfulness-based interventions in people with chronic medical conditions, especially cancer, may [\[R, R, R, R, R, R\]](#):

- Lower anxiety and depression

- Improve cancer-related fatigue
- Increase vitality

Studied interventions include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Mindfulness-Based Stress Reduction (MBSR)
- Mindfulness-Based Cognitive Therapy (MBCT)
- Mindfulness-Based Cancer Recovery (MBCR)
- Mindfulness-based art therapy

These benefits may persist for at least 3 months post-intervention [\[R\]](#).

10



Melatonin

Take 500 mcg of melatonin orally, about 30 minutes before bedtime, to help with sleep. It can be taken daily as needed.

TYPICAL STARTING DOSE
500 mcg

Helps with these DNA Risks:

-  Anxiety
-  Insomnia
-  Stress
-  Acid Reflux
-  Low Energy (Chronic Fatigue)
-  Painful Periods
-  PCOS
-  Sleep Apnea

How it helps

 Anxiety

IMPACT

4 / 5

EVIDENCE

3 / 5

Melatonin (5-10 mg, 1 hour before bedtime for 2-3 months) may help with anxiety [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Melatonin may help by calming down your "fight-or-flight" response [\[R\]](#).

Please note: Melatonin may interact with some medications. Consult your doctor before taking melatonin [\[R\]](#).

 Insomnia

IMPACT

3 / 5

EVIDENCE

3 / 5

Your brain produces melatonin when it’s dark. **This hormone tells your body that it’s time to go to sleep** [\[R\]](#), [\[R\]](#).

People with insomnia may not produce enough melatonin for a healthy sleep cycle [\[R\]](#).

Melatonin supplements may help you fall asleep. They may also help you stay asleep for longer [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In healthy people, melatonin levels spike about two hours before sleep. Thus, the best time to take melatonin supplements is about two hours before bedtime [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: Melatonin may interact with medications. Avoid melatonin if you are taking blood thinners, seizure medications, blood pressure drugs, diabetes medications, or immunosuppressants. Consult your doctor before taking melatonin [\[R\]](#).



PERSONALIZED TO YOUR GENES

Your **CLOCK** gene variant is linked to insomnia. People with this variant tend to have imbalanced melatonin levels [R, R]. Taking melatonin before bed may help.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
CLOCK	rs1801260	AA	



Stress



Melatonin supplements (3-10 mg/day at 1:00 PM) may help manage stress. They may do so by calming down your "fight-or-flight" response [R, R].

Taking melatonin before a surgery may help you relax. This may reduce the need for other medications during and after a stressful procedure [R, R].

Note: Melatonin may interact with multiple medications, including blood thinners, anticonvulsants, blood pressure drugs, diabetes medication, and immunosuppressants. Consult your doctor before taking melatonin.



Acid Reflux



Melatonin (3 mg/day, for at least 4 weeks) improved acid reflux symptoms, especially when used with standard therapy in a small study of 36 people. Melatonin may help by [R]:

- Supporting the esophagus sphincter function
- Mildly reducing stomach acid production



Low Energy (Chronic Fatigue)



Melatonin, usually taken at bedtime, is widely used to improve jet lag symptoms such as tiredness and disrupted sleep. It may also help with fatigue after exercise [R, R, R, R, R].

Taking melatonin (1-20 mg/day at bedtime for 1-12 weeks), both alone or in combination with conventional therapy, may reduce fatigue in people with [R, R, R, R, R, R, R, R, R, R, R, R]:

- Fibromyalgia
- Chronic fatigue syndrome
- Cancer
- Brain injury

Please note: Melatonin may interact with some medications. Consult your doctor before taking melatonin [R].



Painful Periods



Melatonin can help alleviate painful periods as it has pain-relieving properties and helps regulate hormonal fluctuations that cause menstrual cramps. This supplement can, therefore, ease the discomfort associated with your periods.

 PCOS



Supplementing with **melatonin (2-10 mg/day before bedtime for up to 6 months)** may help with PCOS. It may [\[R, R, R, R, R, R, R, R\]](#):

- Regulate the menstrual cycle
- Reduce excess hair growth
- Balance hormone levels
- Support a healthy pregnancy

Melatonin may also improve blood sugar control, but the effects are mixed [\[R, R\]](#).

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

- Supporting ovary function
- Reducing oxidative stress and inflammation

An 8-week study with 84 PCOS patients found that co-supplementation of magnesium and melatonin had a positive impact on hirsutism, serum TNF- α , and TAC levels, compared to a placebo [\[R\]](#).

Please note: *Melatonin may interact with some medications. Consult your doctor before taking melatonin* [\[R\]](#).

 Sleep Apnea



Melatonin is a hormone that regulates sleep-wake cycles. It can help with sleep apnea by potentially improving sleep quality and reducing the time it takes to fall asleep. Since sleep apnea disrupts normal sleep patterns, melatonin might help in managing the body's internal clock, contributing to more regular breathing patterns during sleep.

11



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 DNA Risks:

-  Anxiety
-  Stress
-  Acid Reflux
-  Anger
-  Attention
-  Back Pain
-  Brain Fog
-  PCOS

How it helps

 Anxiety



Mindfulness-based stress reduction (MBSR), a structured program that uses mindfulness meditation to reduce stress and suffering associated with anxiety disorders, may have moderate to high effects on anxiety and depressive symptoms according to three different meta-analyses [\[R, R, R\]](#).

MBSR may help by teaching individuals to focus and stay present in the moment, which prevents anxious thoughts related to the past or future.

Stress



MBSR has been found to reduce psychological symptoms and enhance a sense of control and spiritual experiences, leading to an overall reduction in stress levels. This is attributed to the mindfulness practices that help develop a more detached observation and awareness of one’s thoughts and feelings [\[R\]](#).

In medical and premedical students, MBSR effectively reduced self-reported anxiety, stress, and overall psychological distress. Additionally, it improved empathy levels, which are crucial for clinical practice [\[R\]](#).

A meta-analysis including various clinical and nonclinical groups showed that MBSR had a moderate effect size in reducing symptoms of stress, depression, and anxiety and in improving well-being and coping abilities [\[R\]](#).

Acid Reflux



Mindfulness-based stress reduction (MBSR, 2.5 h/week for 8 weeks) may reduce acid reflux symptoms according to a study of 120 people. It may help by reducing symptoms of depression, which may be associated with increased inflammation and symptom perception [\[R\]](#), [\[R\]](#).

Anger



MBSR involves mindfulness meditation techniques that help individuals become more aware of their emotions. This awareness allows one to manage anger by reducing reactivity and promoting a calm state of mind.

Attention



A meta-analysis of 31 studies concluded that mindfulness-based interventions used as an add-on to conventional treatments may improve ADHD symptoms. The combination of mindfulness-based cognitive therapy and mindfulness-based stress reduction was the preferred approach in children [\[R\]](#).

Back Pain



Mindfulness-based stress reduction may have short-term effects on pain intensity, physical functioning, quality of life, and mental health in people with low back pain. However, more studies are needed to confirm these benefits [\[R\]](#), [\[R\]](#).

Brain Fog



A study found that MBSR could reduce emotional reactivity and enhance emotion regulation, which might help alleviate brain fog. The study specifically noted improvements in anxiety, depression, and self-esteem, and enhanced activity in brain regions involved in attention deployment, after participants completed an MBSR program [\[R\]](#).

 **PCOS**

IMPACT

2 / 5

EVIDENCE

1 / 5

Mindfulness stress management (for 4-8 weeks) may reduce stress, depression, and anxiety in women with PCOS. Moreover, it may improve their quality of life and lower their cortisol levels [\[R, R\]](#).

12

Massage

Schedule a massage session, ideally with a licensed therapist, for 30-60 minutes, once a week. Choose a type of massage that suits your specific needs, such as Swedish for relaxation or deep tissue for muscle tension.

TYPICAL STARTING DOSE
30 minutes

Helps with these DNA Risks:

-  Anxiety
-  Insomnia
-  Stress
-  Attention
-  Back Pain
-  Brain Fog
-  Low Energy (Chronic Fatigue)
-  Painful Periods

How it helps

 **Anxiety**

IMPACT

3 / 5

EVIDENCE

3 / 5

Massage (20-30 min sessions twice a week) may improve anxiety and relax your body and mind through pleasant physical touch [\[R, R, R, R, R, R, R\]](#).

Massage may help by lowering the levels of [norepinephrine](#) and [ACTH](#), which are stress-promoting hormones [\[R\]](#).

 **Insomnia**

IMPACT

2 / 5

EVIDENCE

2 / 5

Therapeutic massage significantly improved sleep quality in 3 non-placebo-controlled trials of 184 people with insomnia [\[R, R, R, R\]](#).

Massage produces a calming and relaxing effect. It has been shown to release endorphins that reduce heart rate, breathing, muscle tension, and increase circulation [\[R\]](#).

 **Stress**

IMPACT

3 / 5

EVIDENCE

3 / 5

Weekly massages may reduce stress. People who get massages tend to have lower stress hormones, blood pressure, and heart rates. They may also sleep better [\[R, R, R, R\]](#).

Stress due to major health issues can be hard to manage. Massage may help reduce this kind of stress [\[R, R, R, R\]](#).

Aromatherapy may enhance the relaxing effects of massage. A therapist uses scented massage oils such as lavender essential oil [\[R, R, R\]](#).

Reflexology is another type of massage that may help with stress. During reflexology, a practitioner applies pressure to specific points on the feet and

hands [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your **[OXTR](#)** gene variant are more likely to feel stressed. This gene affects the levels of **[oxytocin](#)**, a social bonding hormone. Massage may help by boosting oxytocin [\[R\]](#), [\[R\]](#).

GENE	SNP	GENOTYPE	EVIDENCE
OXTR	rs53576	GA	

 **Attention**

IMPACT1 / 5

EVIDENCE1 / 5

In 2 non-placebo-controlled trials of 58 children and adolescents with ADHD, massage therapy (2x-7x/week for 2-4 weeks) enhanced focus, behavior, and mood control in children and adolescents with ADHD [\[R\]](#), [\[R\]](#).

Massage may help by promoting relaxation.

 **Back Pain**

IMPACT3 / 5

EVIDENCE3 / 5

Experts suggest that massage may help with back pain caused by tense or overworked muscles. They point out that massage should be combined with exercise [\[R\]](#), [\[R\]](#), [\[R\]](#).

Massage may offer short-term improvements in pain and relaxation in people with low-back pain [\[R\]](#), [\[R\]](#).

 **Brain Fog**

IMPACT2 / 5

EVIDENCE1 / 5

A study of 25 people found a combination of massage chairs and brain massage (binaural beats) reduced mental fatigue and improved cognitive function [\[R\]](#).

Massage may reduce pain and anxiety by lowering the heart rate, blood pressure, breathing rate, and stress neurotransmitters and hormones, such as norepinephrine, epinephrine, and cortisol while increasing pain-killing and relaxation hormones [\[R\]](#), [\[R\]](#), [\[R\]](#).

 **Low Energy (Chronic Fatigue)**

IMPACT2 / 5

EVIDENCE3 / 5

Massage may help **reduce muscle fatigue** and soreness after exercise [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

It may also **reduce fatigue from chronic health conditions** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Foot reflexology may also reduce fatigue in healthy people and those with chronic health conditions [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

- Boosting blood flow
- Lowering inflammation and pain
- Lowering tension in the muscles, joints, and tendons
- Reducing stress



PERSONALIZED TO YOUR GENES

In people with your **BDNF** gene variant, stress may have a stronger impact on fatigue. This variant is linked to lower levels of BDNF, a compound that supports brain function. Massage may help by boosting BDNF and relieving stress [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
BDNF	rs6265	CT	



Painful Periods



Experts suggest there is insufficient evidence for the benefits of massage in painful periods [R].

Abdominal massage may decrease pain, especially when combined with aromatherapy. However, more high-quality and large studies are needed to confirm this benefit [R, R, R].

13



Maintain Optimal Vitamin D Levels

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE
1000 iu

Helps with these DNA Risks:

- Anxiety
- Anemia
- Attention
- Back Pain
- GC (Vitamin D)
- HLA-DQ (Inflammation)
- Irregular Periods
- Low Energy (Chronic Fatigue)
- Miscarriage
- Ovarian Cysts
- Painful Periods
- PCOS
- Sleep Apnea

How it helps



Anxiety



Low vitamin D levels may be associated with a higher risk of anxiety [R, R].

In line with this, supplementation with vitamin D may help reduce anxiety symptoms. Vitamin D may help by supporting the proper function of the gut bacteria [R, R, R].

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [R].

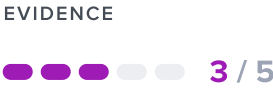
 Anemia



Vitamin D deficiency may be associated with more than twice the risk of iron deficiency anemia [R, R].

In line with this, supplementation with vitamin D may improve transferrin saturation and iron status [R].

 Attention



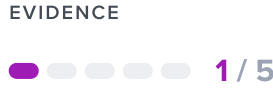
Two meta-analyses (the most recent one with 8 studies and 11,324 children) found that the vitamin D levels of children with ADHD are 6.75 ng/mL lower. Moreover, low vitamin D status was associated with a 157% higher risk of developing ADHD [R, R].

Another meta-analysis (4 trials and 256 participants) found that vitamin D supplementation (1,000-3,000 IU/day) for 6-12 weeks causes small but significant improvements in ADHD inattention, hyperactivity, and behavioral symptoms [R].

Vitamin D may help by:

- Acting as a neurohormone by activating vitamin D receptors [R]
- Stimulating dopamine synthesis (by upregulating tyrosine hydroxylase) [R]
- Stimulating serotonin synthesis [R]
- Reducing acetylcholine production [R]

 Back Pain



Vitamin D deficiency may be associated with a 28% increased prevalence of low back pain, especially during pregnancy and in people with low sun exposure [R, R].

Vitamin D3 (for 8-16 weeks) improved vitamin D status, pain, and functional ability in deficient chronic low back pain participants. However, not all studies found these benefits [R, R, R].

Vitamin D may help with pain by reducing the levels of inflammation [R, R].

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [R].

 GC (Vitamin D)



People who don't get enough vitamin D through sunlight or dietary sources might need vitamin D supplements. Supplementation may be more effective in people with low baseline intake or levels [R, R].

Vitamin D3 is approximately 87% more effective in raising and maintaining the vitamin D levels in the body than vitamin D2 [R, R].

The recommended vitamin D dose for children up to 1 year old is 400 IU, for ages 1-70 years 600 IU, and for people over 70 years old 800 IU [R, R].

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [R].

 HLA-DQ (Inflammation)



Some research has suggested that [UV light](#) and vitamin D have beneficial effects on autoimmunity by suppressing HLA class II inflammatory molecules [\[R, R, R, R\]](#).

Genetically predicted higher vitamin D levels may be associated with lower levels of CRP. However, bi-directional Mendelian randomization analysis did not show a causal relationship between vitamin D and CRP. In non-linear analysis, CRP levels decreased significantly with increasing vitamin D concentration up to around 50 nmol/L for participants with vitamin D deficiency. Correcting low vitamin D status may reduce chronic inflammation, but no causal link between CRP and vitamin D was established in this study [\[R, R\]](#).

In people over 60, vitamin D deficiency may lead to low-grade inflammation. This may be especially true in smokers [\[R\]](#).

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

 Irregular Periods



Low levels of vitamin D may be linked to irregular periods [\[R\]](#).

Getting more vitamin D may support regular periods by balancing sex hormones [\[R, R\]](#).

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

 Low Energy (Chronic Fatigue)



Some people become fatigued because of chronic health conditions. If they are also vitamin D deficient, supplements may help. However, the evidence is mixed [\[R, R, R, R, R, R\]](#).

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

 Miscarriage



Vitamin D deficiency, but not insufficiency, may increase the risk of miscarriage. However, vitamin D levels don't seem to affect miscarriage rates in women undergoing assisted reproduction. Nevertheless, supplementation may increase pregnancy rates in women undergoing this procedure [\[R, R, R, R, R\]](#).

 Ovarian Cysts



Vitamin D can aid in reducing ovarian cysts by supporting hormonal balance and improving insulin sensitivity, which is linked to the development of cysts.

 Painful Periods



Women with worse period cramps tend to have lower levels of vitamin D [\[R, R, R, R\]](#).

In line with this, vitamin D supplements may help reduce period pain. They may also improve symptoms like fatigue, headache, and nausea. However, one study didn't find these benefits [\[R, R, R, R\]](#).

Vitamin D may help by decreasing contractions in the uterus [\[R\]](#).

Additional References: [\[R\]](#), [\[R\]](#)

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your [GC](#) gene variant may have lower vitamin D levels [\[R\]](#). Take special care to get enough vitamin D.

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
GC	rs4588	GT	

 **PCOS**

IMPACT4 / 5

EVIDENCE3 / 5

Women with PCOS tend to have lower vitamin D levels [\[R\]](#), [\[R\]](#).

In women with PCOS, supplementing with vitamin D may [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lower testosterone
- Maintain a regular menstrual cycle
- Support increased pregnancy rates in those undergoing fertility treatments

Vitamin D (2,800-4,000 IU/day for 2-6 months) may also reduce:

- Insulin resistance [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Fats in the blood [\[R\]](#), [\[R\]](#)

Vitamin D may help by decreasing oxidative stress and inflammation [\[R\]](#), [\[R\]](#).

However, some studies didn't find vitamin D supplementation beneficial for PCOS [\[R\]](#), [\[R\]](#).

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your [GC](#) gene variant may have lower vitamin D levels. They may also be at a higher risk of PCOS [\[R\]](#), [\[R\]](#), [\[R\]](#). Make sure to get enough vitamin D.

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
GC	rs7041	CA	

 **Sleep Apnea**

IMPACT2 / 5

EVIDENCE2 / 5

People with obstructive sleep apnea may have lower vitamin D levels and a higher prevalence of vitamin D deficiency [\[R\]](#), [\[R\]](#), [\[R\]](#).

In a small placebo-controlled trial of 19 patients with this condition, vitamin D3 supplementation increased vitamin D levels while lowering LDL cholesterol and Lp-PLA2 levels [\[R\]](#).

Please note: Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [\[R\]](#).

14

Omega-3 (Fish Oil)

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

TYPICAL STARTING DOSE
500 mg

Helps with these DNA Risks:

-  Anxiety

 Stress

 Attention

 Back Pain

 CRHR2 (Stress/HPA Axis)

 GC (Vitamin D)
-  Irregular Periods

 Miscarriage

 Painful Periods

 PCOS

How it helps

 Anxiety

IMPACT

2 / 5

EVIDENCE

3 / 5

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

People with low levels of omega-3 fatty acids tend to be more anxious. **Taking omega-3 supplements (at least 2,000 mg per day) may reduce anxiety** [\[R, R, R\]](#).

Please note: Fish oil can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil [\[R\]](#).

 Stress

IMPACT

2 / 5

EVIDENCE

2 / 5

Supplementing with omega-3s (0.3-3.4 g/day for 3-12 weeks) may make you more resistant to stress. It may prevent increases in [\[R, R, R, R, R\]](#):

- Blood pressure
- Heart rate
- Muscle tension

Omega-3s may help with stress by:

- Lowering stress hormones [\[R, R, R\]](#)
- Boosting [dopamine](#) [\[R\]](#)
- Reducing inflammation [\[R\]](#)

Please note: Fish oil can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil [\[R\]](#).

Attention



Four meta-analyses (the largest one with 25 studies and 1,994 participants) found that supplementation with omega-3 fatty acids (typically, 500-1,050 mg/day for 3-4 months) causes modest but significant improvements in hyperactivity, attention, oppositional behavior, and mood swings. The supplements were most effective when they were richest in EPA [\[R, R, R, R\]](#).

However, a Cochrane review of 13 trials and 1,011 participants only found limited evidence that the combination of omega-3 with omega-6 fatty acids could improve ADHD symptoms and the most recent meta-analyses (31 trials and 1,755 patients) found them ineffective [\[R, R\]](#).

Omega-3 fatty acids may help through their antioxidant and anti-inflammatory effects [\[R, R\]](#), role in brain development [\[R\]](#), and effects on serotonin and dopamine neurotransmission [\[R\]](#).

Back Pain



Supplementing with **fish oil (1.2-2.4 g/day) or EPA** may improve back pain [\[R, R\]](#).

Fish oil may help with back pain by lowering inflammation [\[R, R, R\]](#).

Please note: *Fish oil can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil* [\[R\]](#).

PERSONALIZED TO YOUR GENES

Fish oil may reduce inflammation more in people with your [IL6](#) gene variant [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
STEAP1B	rs2069840	CC	

CRHR2 (Stress/HPA Axis)



Omega-3 fatty acids from [fish oil](#) (EPA and DHA) may balance the HPA axis and reduce CRH levels [\[R, R\]](#).

Supplementing with omega-3s (0.3-3.4 g/day for 3-12 weeks) may make you more resistant to stress. It may prevent increases in [\[R, R, R, R, R\]](#):

- Blood pressure
- Heart rate
- Muscle tension

Omega-3s may help with stress by:

- Lowering stress hormones [\[R, R, R\]](#)
- Boosting [dopamine](#) [\[R\]](#)
- Reducing inflammation [\[R\]](#)

Please note: *Fish oil can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil* [\[R\]](#).

 GC (Vitamin D)



Omega-3 supplementation (up to 1,000 mg/day for at least 8 weeks) may increase vitamin D levels. People with low baseline vitamin D levels may get greater benefits [\[R\]](#).

 Irregular Periods



Omega-3s (3 g/day for 8 weeks) may support regular periods in women with polycystic ovary syndrome [\[R\]](#).

They may help by balancing sex hormones [\[R\]](#).

Please note: *Omega-3s can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking omega-3s* [\[R\]](#).

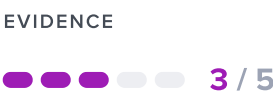
 Miscarriage



In an old, uncontrolled trial of 22 women with recurrent miscarriage, supplementation with fish oil (5.1 g/day) helped prevent miscarriages. There were 23 pregnancies over 3 years, 19 of which were successful [\[R\]](#).

Both aspirin and omega-3 fatty acids (4 g/day) were equally effective at improving uterine blood flow and preventing miscarriages in 2 non-placebo-controlled trials of 90 women with recurrent miscarriage [\[R\]](#), [\[R\]](#).

 Painful Periods



Getting more omega-3 fatty acids from food or supplements, such as fish oil, may reduce period pain [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Omega-3s may help by reducing inflammation and contractions in the uterus [\[R\]](#).

Please note: *Omega-3s can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking omega-3s* [\[R\]](#).

 PCOS



Women with PCOS who have a higher omega-3/omega-6 ratio may have more balanced hormones. Omega-3s (from fish oil or flaxseed oil) may decrease testosterone in these women [\[R\]](#), [\[R\]](#), [\[R\]](#).

Omega-3s (0.9-3.5 g/day for 6-12 weeks) may also reduce insulin resistance and fats in the blood in women with PCOS. However, the evidence for insulin resistance is mixed [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Omega-3s may help by reducing inflammation [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: *Omega-3s can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking omega-3s* [\[R\]](#).



PERSONALIZED TO YOUR GENES

Your **THADA** gene variant is linked to higher odds of PCOS and higher testosterone levels. Omega-3s may help reduce testosterone in women with PCOS [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
PLEKHH2	rs12478601	TC	

15



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 DNA Risks:

- Anxiety
- Insomnia
- Stress
- Attention
- Back Pain
- Low Energy (Chronic Fatigue)

How it helps



Anxiety



Tai chi (30-60 min at least twice a week) may reduce stress and help with anxiety. However, most studies are small and low-quality [R, R, R, R, R, R, R, R].



Insomnia



Practicing tai chi for 16-24 weeks improved self-rated sleep quality (especially sleep-onset latency, sleep duration, sleep efficiency, and sleep disturbances) and reduced morning sleepiness in 3 non-placebo-controlled trials of 353 elderly people with sleep complaints. However, cognitive-behavioral therapy was more effective in one of them. In 90 breast cancer survivors with insomnia, tai chi was as effective as cognitive-behavioral therapy [R, R, R, R].

Tai chi may help by promoting relaxation and reducing stress.



Stress



Tai chi (at least 20 minutes, 1x-7x/week for 2-12 months) may reduce stress by improving emotional control. However, most studies are low-quality [R, R, R].

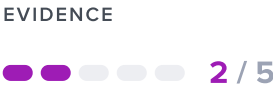
 Attention



A meta-analysis concluded that mind-body interventions (including tai chi) have small, beneficial effects on inattention and hyperactivity/impulsivity in people with ADHD [\[R\]](#).

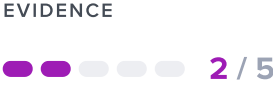
Tai chi may improve mental focus and reduce stress.

 Back Pain



Tai chi, both alone and as an add-on to other therapies, may reduce pain intensity and disability. However, more studies are needed to confirm these benefits [\[R\]](#), [\[R\]](#).

 Low Energy (Chronic Fatigue)



Research involving hundreds of participants indicates that tai chi may improve fatigue and vitality. Tai chi may offer greater benefits when combined with conventional therapy. It has been useful for cases related to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cancer
- Fibromyalgia
- Lung disease

However, some studies did not find these benefits and the studies are moderate-quality and short-term [\[R\]](#).