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Hormone Health

Summary Report

REPORT CATEGORIES

THYROID

SEX HORMONES

Report date: 03 November 2025

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Personal information

NAME

SEX AT BIRTH

Female

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.

REPORT PROVIDED BY

Dr. Nival Kolambage

Elite Vita

Summary

Your hormonal (endocrine) system regulates body processes, such as appetite, sex drive, tissue repair, metabolism, and more. Hormones affect more or less everything in your body!

Your genetics can influence hormone function in many ways, raising and lowering their levels and affecting their usage and removal. Given how crucial hormones are for your physical and mental health, knowing your predispositions will be a powerful tool for your health regimen.

This comprehensive report will help you discover your genetics for a wide range of hormones, including:

- Thyroid hormones
- Reproductive hormones
- Metabolic hormones
- Stress hormones

This summary report contains:

42 **Genetic Results**

Overview of Your Results

Thyroid Hormones

LOWER LEVELS

Free T4

Predisposed to lower free T4 levels

HIGHER LEVELS

Reverse T3 (rT3)

Predisposed to higher rT3 levels

TYPICAL LEVELS

T3 (Triiodothyronine)

Predisposed to typical T3 levels

HIGHER LEVELS

T4 (Thyroxine)

Predisposed to higher T4 levels

TYPICAL LIKELIHOOD

Underactive Thyroid

Typical likelihood of hypothyroidism

TYPICAL LEVELS

Free T3 (fT3)

Predisposed to typical free T3 levels

LESS LIKELY

Overactive Thyroid

Less likely to have hyperthyroidism

HIGHER LEVELS

TSH

Predisposed to higher TSH levels

Reproductive Hormones

LOWER LEVELS

DHEAS

Predisposed to lower DHEAS levels

LOWER LEVELS

Estradiol

Predisposed to lower estradiol levels

HIGHER LEVELS

Pregnenolone

Predisposed to higher pregnenolone levels

TYPICAL LEVELS

Prolactin

Predisposed to typical prolactin levels

TYPICAL LEVELS

FSH

Predisposed to typical FSH levels

TYPICAL LEVELS

Bioavailable Testosterone (F)

Predisposed to typical bioavailable testosterone levels

TYPICAL LEVELS

SHBG

Predisposed to typical SHBG levels

TYPICAL LEVELS

Testosterone (F)

Predisposed to typical testosterone levels

TYPICAL LEVELS

Luteinizing Hormone (LH)

Predisposed to typical LH levels

TYPICAL LEVELS

DHT

Predisposed to typical DHT levels

HIGHER LEVELS

Progesterone

Predisposed to higher progesterone levels

Metabolic Hormones

HIGHER LEVELS

Ghrelin

Predisposed to higher ghrelin levels

HIGHER LEVELS

Leptin

Predisposed to higher leptin levels

LOWER LEVELS

Growth Hormone

Predisposed to lower growth hormone levels

TYPICAL LEVELS

Insulin

Predisposed to typical insulin levels

TYPICAL LEVELS

IGF-1

Predisposed to typical IGF-1 levels

TYPICAL LEVELS

Adiponectin

Predisposed to typical adiponectin levels

TYPICAL LEVELS

GLP-1

Predisposed to typical GLP-1 levels

Stress Hormones

TYPICAL LEVELS

Cortisol

Predisposed to typical cortisol levels

TYPICAL LIKELIHOOD

HPA Axis

Typical predisposition to HPA axis dysregulation

Hormone Genes

HIGHER ACTIVITY

FKBP5 (Stress/ HPA Axis)

Likely higher FKBP5 activity

LOWER ACTIVITY

GHR

Likely lower GHR activity

WORSE GENETICS

TCF7L2 (Blood Sugar/Diet)

Likely worse TCF7L2 genetics

TYPICAL ACTIVITY

DIO1 (Thyroid)

Likely typical DIO1 activity

SLIGHTLY LOWER ACTIVITY

DIO2 (Thyroid)

Slightly lower DIO2 activity

LOWER ACTIVITY

CRHR1 (Stress/HPA Axis)

Likely lower CRHR1 activity

TYPICAL GENETICS

ADIPOQ (Weight/ Blood Sugar)

Likely typical ADIPOQ genetics

TYPICAL ACTIVITY

GIPR (Blood Sugar)

Likely typical GIPR activity

BETTER

TPO (Thyroid)

Likely better TPO genetics

BALANCED ACTIVITY

ESR1 (Estrogen)

Likely balanced ESR1 activity

HIGHER ACTIVITY

CRHR2 (Stress/HPA Axis)

Likely higher CRHR2 activity

HIGHER ACTIVITY

LEPR (Weight/Leptin Resistance)

Likely higher LEPR activity

HIGHER ACTIVITY

MC4R (Weight/ Blood Sugar)

Likely higher MC4R activity

LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity

Your Results in Details

Thyroid Hormones

Thyroid hormones are key players in your health. They affect your metabolic rate, body temperature, heart function, energy production, breathing, and fertility. Needless to say, if your thyroid is out of balance, your whole body is going to suffer.

Thyroid issues are something to discuss with your doctor if you suspect anything. Your genetic predispositions may indicate particular aspects of thyroid health to focus on and help reduce the risk of potential problems.

LOWER LEVELS

Free T4

Predisposed to lower free T4 levels

HIGHER LEVELS

Reverse T3 (rT3)

Predisposed to higher rT3 levels

TYPICAL LEVELS

T3 (Triiodothyronine)

Predisposed to typical T3 levels

HIGHER LEVELS

T4 (Thyroxine)

Predisposed to higher T4 levels

TYPICAL LIKELIHOOD

Underactive Thyroid

Typical likelihood of hypothyroidism

TYPICAL LEVELS

Free T3 (fT3)

Predisposed to typical free T3 levels

LESS LIKELY

Overactive Thyroid

Less likely to have hyperthyroidism

HIGHER LEVELS

TSH

Predisposed to higher TSH levels

Free T4

Free T4 is a small fraction of the thyroid hormone thyroxine not bound to proteins.

About **40-65%** of the differences in people's free T4 levels may be due to **genetics**. Involved genes play a role in thyroid function and immune response [R, R].

A high or low Free T4 usually indicates over- or underactive thyroid, respectively. A range of factors may affect thyroid function and free T4 levels, including [R, R, R, R, R, R]:

- Autoimmunity
- Obesity
- Exercise
- Toxins like BPA
- Dietary iodine and iron

Genetically higher free T4 levels may be associated with [R, R, R, R, R, R]:

- Lower LDL/Total cholesterol
- High cholesterol
- High blood pressure
- Heart health
- High blood sugar
- Mood swings
- HDL cholesterol
- Age-related macular degeneration
- Gallstones

LOWER LEVELS

Predisposed to lower free T4 levels based on 26 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ZGRF1	rs6834538	TT
MC4R	rs56069042	AA
DIO1	rs2235544	CA
SEPHS1	rs72783371	AA
CA8	rs67583169	CC
ILRUN	rs73405691	AA
JAZF1	rs7785730	AG
CPPED1	rs8063103	CC
GLIS3	rs10119187	TT
NCOR1	rs11078333	AA
SLCO1B1	rs4149056	CT
DIO2	rs225014	TC
RNF144B	rs10946313	TC
NEK6	rs10818937	CT
USP3	rs12907106	GC
NUCKS1	rs951366	TC
CCNT2	rs4954192	TC
B4GALT6	rs113107469	CC
/	rs7951105	GG
AADAT	rs7694879	CC
QSOX2	rs11103377	AA
SIM1	rs17185536	CC
SOX2	rs6785807	GG
DIO3	rs11626434	GG
H2BC1	rs9356988	GG
MTCH2	rs11039355	CC

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

Reverse T3 (RT3)

The following factors can elevate rT3 [R, R, R]:

- Stress
- Aging
- Weight loss
- Critical illness
- Liver diseases
- Iron deficiency
- Certain medications

Reverse T3 is also partly affected by **genetics**. Carrying a variant of an enzyme involved in thyroid hormone metabolism is associated with higher rT3 levels and a lower T3/rT3 ratio [R].

HIGHER LEVELS

Predisposed to higher rT3 levels based on the genetic variants we looked at

50%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **50% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DIO1	rs11206244	CT

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

T3 (Triiodothyronine)

The thyroid is a gland found in the front of the neck that produces thyroid hormones. **T3 (triiodothyronine) is the active thyroid hormone.**

Up to **65%** of the differences in people's T3 levels may be due to **genetics**. Involved genes play a role in thyroid function and immune response [R, R].

Other factors that may affect T3 levels include [R, R, R, R]:

- Autoimmunity
- Stress
- Sleep problems
- Dietary iodine
- Dietary goitrogens (substances that reduce thyroid function)

TYPICAL LEVELS

Predisposed to typical T3 levels based on 20,697 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLK	rs2475217	CC
INSIG1	rs12534332	AG
AGBL1	rs72752186	GT
SERPINA7	rs12687280	CT
EPHB2	rs67142165	CC
RAB38	rs116951285	TT
PRKCE	rs10192064	TT
MOV10L1	rs2066773	GG
VPS37B	rs76465767	TT
AGPAT2	rs7020640	CC
CD200R1	rs145944228	GG
TIAM2	rs4482989	CC
ZNF616	rs749618	AA
GALNT13	rs80190198	AA
FBLL1	rs590784	CC
ERBB4	rs13428799	CC

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

T4 (Thyroxine)

The thyroid is a gland found in the front of the neck that produces thyroid hormones. **T4 (thyroxine)** is a more abundant but less active thyroid hormone. Its breakdown releases active T3.

About **40-55%** of the differences in people's T4 levels may be due to **genetics**. Involved genes play a role in thyroid function and immune response [R, R].

Other factors that may affect T4 levels include [R, R, R, R]:

- Autoimmunity
- Stress
- Sleep problems
- Obesity
- Dietary iodine

HIGHER LEVELS

Predisposed to higher T4 levels based on 2,581 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRMO	rs7045138	TT
DIO1	rs2235544	CA
QSOX2	rs7860634	GA
SERPINA7	rs1804495	AC
MC4R	rs56069042	AA
SEPHS1	rs72783371	AA
CA8	rs67583169	CC
ILRUN	rs73405691	AA
LRRC42	rs12127960	TA
UGT1A6	rs6722076	AG
CPPED1	rs8063103	CC
GLIS3	rs10119187	TT
NCOR1	rs11078333	AA
/	rs7240777	AG
SLCO1B1	rs4149056	CT
DIO2	rs225014	TC
RNF144B	rs10946313	TC
USP3	rs12907106	GC
NEK6	rs10818937	CT
NUCKS1	rs951366	TC
CCNT2	rs4954192	TC
INSIG1	rs12534332	AG
PWWP3B	rs139669326	TT
AADAT	rs11726248	GG
B4GALT6	rs113107469	CC
LPCAT2	rs6499766	TT
AADAT	rs7694879	CC
QSOX2	rs11103377	AA
SIM1	rs17185536	CC
SOX2	rs6785807	GG

GENE	SNP	GENOTYPE
DIO3	rs11626434	GG
H2BC1	rs9356988	GG
MTCH2	rs11039355	CC
EPHB2	rs67142165	CC
MOV10L1	rs2066773	GG
VPS37B	rs76465767	TT
AGPAT2	rs7020640	CC
CD200R1	rs145944228	GG
TIAM2	rs4482989	CC
ZNF616	rs749618	AA

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

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.

TYPICAL LIKELIHOOD

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

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRMO	rs925489	TT
FOXE1	rs1867277	GG
PDE8B	rs4704397	AG
VAV3	rs7537605	GA
FCRL3	rs7522061	CT
SH2B3	rs653178	CT
TRMO	rs7030280	TT
TYK2	rs34536443	GG
SESN3	rs4409785	TC
CLECL1	rs370475698	DEL(A)T
PDE8B	rs1479565	AG
CBLB	rs13090803	GT
SASH1	rs9497965	CT
TNFRSF14	rs2234167	AG
FAP	rs2111485	GA
IL2RA	rs3118469	AT
RBPJ	rs7441808	AG
DIO1	rs2235544	CA
TPO	rs11675434	CC
NBL1	rs10917477	AA
CTLA4	rs3087243	AA
PTPN22	rs6679677	CC

- 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 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
PTPN22	rs2476601	GG
TSHR	rs12101261	CC
TNF	rs1800629	GG
MICB	rs2517532	AA
DPH5	rs77046277	CC
ADCY7	rs78534766	CC
FLT3	rs76428106	TT
/	rs9271365	TT
/	rs187707293	TT
TPO	rs732609	AA
BACH2	rs6908626	GG
ARID5B	rs71508903	CC
TPO	rs11675342	CC
ACAP1	rs61759532	CC
RASGRP1	rs12593201	GG
C1QTNF6	rs229528	CC
SESN1	rs1364450	AA
PLGRKT	rs911760	CC
CD44	rs736374	GG
RAB5C	rs9902341	CC

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

Free T3 (FT3)

About **40-50%** of people's differences in free T3 levels may be due to **genetics** [R].

Other factors that can change free T3 levels include:

- **Thyroid Issues**: Conditions like hyperthyroidism (an overactive thyroid) can increase free T3 levels, while hypothyroidism (an underactive thyroid) can decrease them.
- **Medications**: Some medicines, especially those for thyroid problems, can affect free T3 levels.
- **Diet**: Not getting enough iodine, a mineral found in foods like fish and dairy, can impact our thyroid and free T3 levels.
- **Pregnancy**: Women might see changes in their free T3 levels during and after pregnancy.
- **Illness**: Some illnesses, especially severe ones, can temporarily affect free T3 levels.
- **Age**: As we get older, our thyroid might not work as efficiently, which can affect free T3.

TYPICAL LEVELS

Predisposed to typical free T3 levels based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
KCNMB4	rs11178277	AG
LMO7	rs7320337	TC
SERPINA7	rs12687280	CT

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

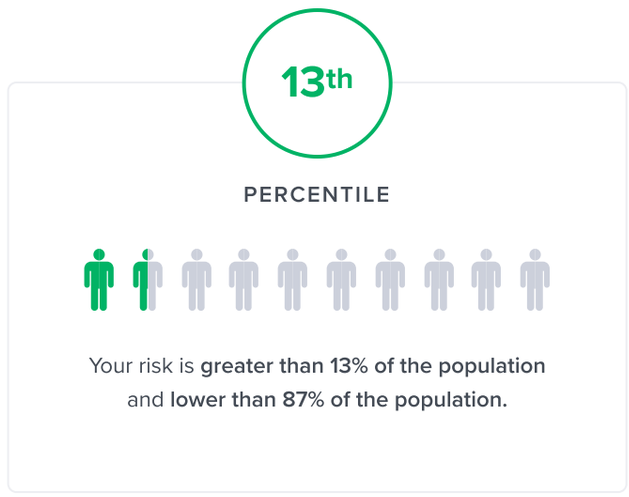
Overactive Thyroid

Key Takeaways:

- Up to **65%** of differences in thyroid hormone levels may be due to genetics.
- Risk factors include: Graves' disease, goiter, too much/little iodine, thyroiditis, pituitary or thyroid gland tumors.
- It can cause: weight loss, increased appetite, irritability, irregular heartbeat, goiter, heart, bone, and muscle problems.
- Hyperthyroidism is fairly rare, mostly due to Graves' disease or iodine deficiency. If your genetic risk is high, the overall risk is still low due to its rarity, but be aware of symptoms.
- Click the **next steps** tab for relevant labs.

LESS LIKELY

Less likely to have hyperthyroidism based on 466 genetic variants we looked at



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

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

In some people, the thyroid produces too much of these hormones. This condition is called *hyperthyroidism* (overactive thyroid) [R, R, R].

Potential causes of overactive thyroid include [R, R]:

- **Autoimmune conditions like *Graves' disease***
- **Thyroid nodules (goiter)**
- Too much or too little iodine
- Thyroid inflammation (*thyroiditis*)
- Pituitary or thyroid gland tumors

Hyperthyroidism is fairly rare. In countries with iodine deficiency, goiter is a common cause. In developed countries like the United States, most people get enough iodine and Graves' disease is a more common cause [R, R].

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FCRL3	rs7522061	CT
SH2B3	rs653178	CT
CD40	rs1883832	CT
FAM227B	rs17477923	TT
TRMO	rs925488	AA
LRRC6	rs118039499	AA
MAF	rs140851213	TT
PDE8B	rs2046045	GT
SOX9	rs8077245	GT
PDE10A	rs2983514	AG
CD40	rs6131010	GA
BACH2	rs604912	GA
FCRL3	rs1977710	GG
SESN3	rs4409785	TC
CD40	rs1569723	AC
MAGT1	rs4826198	AG
MAF	rs17689159	CT
UHRF1BP1	rs9469899	GA
MYC	rs2466028	TC
CTLA4	rs3087243	AA
PTPN22	rs2476601	GG
TSHR	rs12101261	CC

When the thyroid is overactive, it may produce signs and symptoms like [R]:

- Weight loss
- Increased appetite
- Nervousness or irritability
- Rapid or irregular heartbeat
- Shaking
- Intolerance to heat
- Enlarged thyroid (*goiter*)

Treatment for hyperthyroidism may be different for each person. A doctor may recommend [R]:

- Medication
- Radiation therapy
- Surgery

Diet changes may also help manage some cases. For example, if you have an autoimmune thyroid condition, you may need to avoid iodine-rich foods like seaweed [R].

It is extremely important to treat hyperthyroidism according to your doctor's instructions. Left untreated, an overactive thyroid can cause [R]:

- Heart problems
- Bone and muscle problems
- Eye problems
- Fertility problems

Up to 67% of differences in thyroid hormone levels may be attributed to genetics. Genes involved in hyperthyroidism may influence [R, R]:

- Thyroid hormones (*PDE8B*, *DIO1*, *CAPZB*, *TSHR*)
- Immune function (*HLA-DPB1*, *PTPN22*, *CTLA4*)

GENE	SNP	GENOTYPE
TNF	rs1800629	GG
MICB	rs2517532	AA
PRLR	rs143210911	GG
HLA-DQA2	rs1794280	AA
TRIM27	rs3135293	TT
TSHR	rs2160215	TT
SYT13	rs11038357	TT
VEGFA	rs66760320	CC
FAM227B	rs4338740	TT
RNASET2	rs385863	CC
HLA-DPA1	rs9357156	AA
SLAMF6	rs12026490	TT
TSHR	rs28414437	AA
ALDH2	rs4646776	GG
CTLA4	rs231779	CC
STAT4	rs12612769	AA
TMPRSS3	rs34544259	AA

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

TSH

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

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

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

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

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

HIGHER LEVELS

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LRRC6	rs117764941	GG
LRRC6	rs118039499	AA
NKX2-1	rs116909374	CC
NFIA	rs334725	AA
PDE8B	rs2928167	AA
NR3C2	rs11732089	TT
VEGFA	rs1317983	CC
TBX2	rs1157994	GG
CERS6	rs62174422	TT
PDE8B	rs1479567	AG
VEGFA	rs9381266	TT
FAM227B	rs17477923	TT
FOXA2	rs1203949	CC
TRMO	rs925488	AA
PDE10A	rs2983511	GC
VAV3	rs17020122	CT
INSR	rs4804416	GG
TNP1	rs13020935	AG
CDK17	rs10735341	GG
MAF	rs58722186	TC
C6ORF163	rs2242602	TT
VEGFC	rs4571283	GA
GNG7	rs72978712	TC
/	rs121908872	GG
CEP128	rs141751376	TT
B4GALNT3	rs145153320	CC
CCDC77	rs546738875	CC
LTA4H	rs61938844	GG
ASXL2	rs6721104	AA
ITPK1	rs6575306	AA

GENE	SNP	GENOTYPE
VEGFA	rs34046483	GG
CAPZB	rs12027702	GG
/	rs3104389	CC
DPH6	rs74888443	CC
HLA-B	rs1265091	CC
SOX9	rs1042678	GG
ARL17A	rs116956554	GG
THAP4	rs6717283	AA
GATA3	rs11592436	CC
MAL2	rs72682433	TT

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

Reproductive Hormones

Reproductive hormones maintain your sexual and reproductive health. They affect everything from sex drive to sperm production, ovulation, and menstruation. A decline in these hormones is natural with age, but when they get out of balance, they can create problems for people of any age.

Your genetics of hormones like testosterone, estradiol, and DHEAS can tell you a lot about your reproductive health but also about many other aspects, including mental health and metabolism. This may help you make smarter choices about your health regimen.

LOWER LEVELS

DHEAS

Predisposed to lower DHEAS levels

LOWER LEVELS

Estradiol

Predisposed to lower estradiol levels

HIGHER LEVELS

Pregnenolone

Predisposed to higher pregnenolone levels

TYPICAL LEVELS

Prolactin

Predisposed to typical prolactin levels

TYPICAL LEVELS

FSH

Predisposed to typical FSH levels

TYPICAL LEVELS

Bioavailable Testosterone (F)

Predisposed to typical bioavailable testosterone levels

TYPICAL LEVELS

SHBG

Predisposed to typical SHBG levels

TYPICAL LEVELS

Testosterone (F)

Predisposed to typical testosterone levels

TYPICAL LEVELS

Luteinizing Hormone (LH)

Predisposed to typical LH levels

TYPICAL LEVELS

DHT

Predisposed to typical DHT levels

HIGHER LEVELS

Progesterone

Predisposed to higher progesterone levels

DHEAS

DHEA is a steroid hormone produced primarily by the adrenal glands. The majority of DHEA gets quickly converted into **DHEA sulfate (DHEAS).** Together with DHEA, DHEAS is the most abundant steroid hormone circulating in the blood. It helps make major sex hormones, testosterone and estradiol [R, R, R, R].

Factors linked to **lower DHEAS** include:

- Chronic stress [R, R]
- Autoimmune disease, such as lupus or Sjögren's syndrome [R, R, R, R, R]
- Adrenal insufficiency (Addison's disease) [R]
- Low pituitary function (hypopituitarism) [R, R]
- Serious illness or injury [R, R, R, R]
- Aging [R, R]

On the other hand, factors linked to **increased DHEAS** include:

- Acute stress [R, R, R, R, R]
- Cigarette smoking [R]
- DHEA supplementation [R]
- Polycystic ovary syndrome (PCOS) [R, R, R]

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

- Alzheimer's disease
- HDL/LDL/Total Cholesterol
- ApoB
- Hair loss
- Muscle Mass
- Hematocrit

Up to 60% of differences in people's DHEAS levels may be due to genetics [R].

LOWER LEVELS

Predisposed to lower DHEAS levels based on 48,496 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CABP5	rs2431830	TT
PLEKHH2	rs77533229	GG
ZKSCAN5	rs77356530	GG
PILRB	rs13222543	CC
CYP3A7	rs80193476	AA
ZKSCAN5	rs10278040	GG
PUDP	rs5935876	GG
PILRB	rs117430166	CC
ZKSCAN5	rs11761528	CC
ZKSCAN5	rs150507409	GG
ARPC1B	rs143524414	GG
SULT2A1	rs296360	TT
ZKSCAN5	rs10257273	AA
CMIP	rs57159061	TT
TRIM4	rs17277546	GG
SULT2A1	rs2637125	GG
FGF9	rs615567	AA
SRP14	rs28620926	AA
HELLS	rs2185570	TT
BCL2L11	rs6738028	GG
HHEX	rs2497306	AA

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

Estradiol

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

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

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

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

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

LOWER LEVELS

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ESR1	rs2077647	CC
ESR1	rs728524	AA
ESR1	rs9340799	AG
ESR1	rs2234693	TC
TNP1	rs13387042	GA
UIMC1	rs2454949	AA
SYCP2L	rs72823349	TA
EHMT2	rs34929649	CT
NSUN4	rs2145409	TC
PIWIL1	rs35997018	CT
DTNB	rs199630126	AA
CYP19A1	rs727479	AA
HELB	rs75770066	AA
MCM8	rs16991615	GG
ESR2	rs1256049	CC
EIF4EBP1	rs28807105	AA
SRD5A2	rs9282858	CC
SRD5A2	rs112881196	CC
SRD5A2	rs76712439	CC
SPAST	rs72796853	CC
XDH	rs113923480	GG
FKBP4	rs56196860	CC
NLRC4	rs72796891	AA
FREM3	rs115870916	CC
FBXL17	rs150638752	AA
DTNB	rs144450473	CC
SPPL2A	rs143588983	GG
TNFAIP8L3	rs142484019	GG
ACTR3B	rs146761942	AA
TNFAIP8L3	rs149463881	CC

GENE	SNP	GENOTYPE
AP4E1	rs142122955	AA
AP4E1	rs150387952	TT
FREM3	rs115271535	CC
TRIM4	rs80218044	GG
SPPL2A	rs76018581	GG
CYP19A1	rs11853261	GG
CYP19A1	rs535411395	TT
XDH	rs72790679	GG
AP4E1	rs189169125	GG
AP4E1	rs189302421	CC
RHNO1	rs28990703	AA
ZKSCAN5	rs139380031	CC

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

Pregnenolone

Pregnenolone is a steroid hormone derived from cholesterol. It helps make different hormones, including cortisol, aldosterone, and sex steroid hormones [R].

Pregnenolone levels are not routinely tested. A pregnenolone test is most commonly used to detect congenital adrenal hyperplasia (CAH) in children or teenagers. CAH is a group of genetic conditions that cause deficient or excessive production of sex hormones [R].

Genetics may also affect pregnenolone levels [R].

HIGHER LEVELS

Predisposed to higher pregnenolone levels based on 217,985 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLCO1B1	rs4149056	CT
IL7R	rs6873506	CT
IL7R	rs10491431	CA
/	rs200044760	CC
SLCO1B1	rs11519274	CC
AKR1C3	rs74827952	GG
AKR1C3	rs7078211	AA
CABP5	rs16981893	GG
KIF20B	rs7095217	CC
C10ORF90	rs149626614	GG
ATRNL1	rs75646610	GG
PCDH15	rs151152200	TT
EBF3	rs190648532	CC
ZWINT	rs139983047	AA
RPP30	rs61857741	GG
ATRNL1	rs143404767	GG
OPALIN	rs138751516	CC
OPALIN	rs150353338	TT
ADRA2A	rs113037588	GG
ADRA2A	rs78654776	CC
FZD8	rs117944916	CC
ZWINT	rs149495374	CC
GJD4	rs117536782	TT
ADRA2A	rs4342958	GG
NRBF2	rs138171733	CC
ADRA2A	rs114823546	GG
GTPBP4	rs114459406	CC
LRRTM3	rs72800762	AA
COL13A1	rs35599858	TT
WAC	rs11592876	CC

GENE	SNP	GENOTYPE
DUSP5	rs148599248	TT
/	rs140422333	AA
NET1	rs183857293	GG
PIK3AP1	rs117031756	AA
/	rs17144393	CC
JMJD1C	rs117640040	CC
INPP5F	rs116920138	TT
MACROH2A2	rs71480632	GG
LRRTM3	rs72800749	AA
SFXN2	rs145480637	CC
SFMBT2	rs79693949	AA
ADAM12	rs141868076	GG
C10ORF67	rs572338029	GG
MYOF	rs74615199	GG
LYZL2	rs78595621	GG
AKR1C8P	rs190388754	GG
NSUN6	rs144364113	GG
RGS10	rs191723342	CC
KIAA1217	rs188255476	AA
KIAA1217	rs117240196	AA

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

Prolactin

Key Takeaways:

- Both high and low prolactin can cause issues with weight control, fertility, milk production, and more.
- High prolactin levels are normal only during pregnancy and breastfeeding.
- Up to **50%** of differences in people's prolactin levels may be due to genetics.
- Besides genetics, different lifestyle factors and health conditions can affect prolactin levels.

Prolactin is a hormone with key roles in fertility and reproduction. It stimulates the production of breast milk (lactation) and enhances motherly behavior [R, R, R].
Up to 50% of differences in people's prolactin levels may be due to genetics [R].
Men and non-pregnant women generally have low levels of prolactin. Women's prolactin levels peak during pregnancy and remain elevated after childbirth [R].
Prolactin levels also vary during the day. They increase during sleep and peak in the early morning.
Low prolactin may result from:

- Obesity [R, R]
- Underactive pituitary gland [R, R]
- Some drugs [R, R, R, R]

Factors that may lead to high prolactin include:

- Stress [R, R]
- Alcohol [R]
- Underactive thyroid [R, R]
- Polycystic ovary syndrome (PCOS) [R]
- Kidney and liver disease [R, R, R]
- Pituitary tumors (prolactinoma) [R, R, R]
- Some drugs [R, R, R, R, R, R, R]

TYPICAL LEVELS

Predisposed to typical prolactin levels based on 77 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CFHR3	rs12144939	GT
CPB2	rs1926447	GA
VTN	rs704	GG

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

FSH

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

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

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

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

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

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

TYPICAL LEVELS

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FSHR	rs2300441	GA
UBE3A	rs4109610	TC
OR2B6	rs140386588	CC
/	rs11803159	GG
ARL14EP	rs11031005	TT
ARL14EP	rs11031006	GG
CYP19A1	rs2414095	GG
GAD2	rs8190595	CC
ZNF438	rs187634935	GG
PTER	rs116990127	CC
PFKFB3	rs12269260	TT
KLF6	rs183217426	CC
CACNB2	rs138339030	GG
AKR1E2	rs144252918	CC
ASB13	rs185593246	AA
NEBL	rs114697026	CC
GATA3	rs185495652	TT
ECHDC3	rs142442083	GG
ADARB2	rs17156880	TT
UCN3	rs61857160	AA
MAP3K8	rs138348879	TT
MYO3A	rs140374720	GG
CELF2	rs145712896	GG
ANKRD26	rs145806286	CC
KLF6	rs117498907	GG
PLXDC2	rs112852013	AA
MASTL	rs138431023	AA
CCNY	rs147373897	CC
SLC39A12	rs188192645	GG
/	rs117942091	GG

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

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

Bioavailable Testosterone (F)

Free blood testosterone and the one weakly bound to albumin constitute **bioavailable testosterone**. This fraction of testosterone (roughly 50%) can enter tissues and cause health effects [R].

About **45%** of the differences in bioavailable testosterone levels may be due to **genetics** [R].

Free testosterone declines with age in both men and women after peaking in the late 20s [R, R].

A common cause of **high** testosterone in women is **polycystic ovarian syndrome (PCOS)**, which can affect fertility [R].

Bioavailable and free testosterone are less often ordered as lab markers than total testosterone because they are **more expensive and difficult to measure**. However, it may be necessary to test free testosterone levels in some cases [R].

TYPICAL LEVELS

Predisposed to typical bioavailable testosterone levels based on 20,252 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
POR	rs17853284	CC
CYP3A7	rs45446698	TT
SLC22A11	rs35008345	CC
SERPINA1	rs112635299	GG
HGFAC	rs114303452	AA
CCND2	rs76895963	TT
MFSD9	rs113247979	TT
ADH1A	rs11733695	GG
GNGT2	rs11653686	CC
NR2F6	rs202200760	GG
CEACAM1	rs181255261	AG
FKBP4	rs56196860	CC
TNFSF12	rs727428	CT
GDF6	rs113347955	GG
RPS10-NUDT3	rs199746610	CC
SERPINA1	rs17580	TT
ABCA8	rs34931250	CC
PCCB	rs687339	TT
CUX2	rs7314285	TT
AKR1C2	rs61856128	CC
TYK2	rs8111359	CC
SLCO1B1	rs4149056	CT
S1PR1	rs6684361	TC
BCL2L11	rs590097	GT
SHBG	rs6258	CC
URB1	rs74652944	TT
CNDP2	rs117327231	CC
ZDHHC18	rs114165349	GG
NR1H4	rs61755050	TT

GENE	SNP	GENOTYPE
BTNL2	rs28641793	CC
WDR72	rs149624078	CC
UBE2V2	rs191780890	AA
CMIP	rs58072681	TT
PRKCA	rs8178824	CC
SLC22A24	rs113172275	TT
WNT6	rs78058190	GG
HPN	rs1688043	TT
SOX5	rs11047261	AA

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

SHBG

SHBG (sex hormone-binding globulin) is a protein made in the liver that binds to sex hormones and helps transport them in the blood. Hence, SHBG controls the levels of sex hormones. Your doctor may order a test in unusual circumstances, like if you have signs of high or low testosterone with normal testosterone levels [R, R, R].

SHBG production is controlled by [R, R, R]:

- Sex hormones
- Thyroid hormones
- Insulin
- Dietary factors

Disturbances in any of these can affect SHBG levels.

Around 40% of differences in people's SHBG levels may be due to genetics [R].

Genetically higher levels of SHBG may be causally associated with:

- Heart rate (lower) [R]
- Bone health (lower BMD) [R, R, R, R]
- High cholesterol (lower risk) [R]
- High blood sugar (lower risk) [R, R, R, R, R, R]
- Asthma (women) [R]
- Joint pain [R]
- PCOS [R, R]
- High blood pressure (lower risk) [R]
- Gout (lower risk) [R]
- Varicose veins (women) [R]
- Fractures [R, R]
- Kidney health (lower risk, men) [R]
- Erectile dysfunction (lower risk) [R]
- Stroke (lower risk) [R]
- Fatty liver (lower risk) [R, R]
- Facial wrinkles [R]
- Schizophrenia [R]
- Joint inflammation [R]
- Heart health (lower risk, men) [R]
- Overweight (reduced bmi) [R]
- Deep vein thrombosis [R]

TYPICAL LEVELS

Predisposed to typical SHBG levels based on 512,384 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNFSF12	rs4227	TT
TNFSF12	rs3803800	GG
ZBTB4	rs12051767	CT
TP53	rs1625895	CC
TNFSF12	rs4968200	GG
TP53	rs1042522	CG
EFNB3	rs12939910	CG
TMEM102	rs117573122	GG
/	rs143650826	TT
DNAH2	rs142627042	CC
NR1H4	rs61755050	TT
MPDU1	rs11078697	CC
SHBG	rs116289877	AA
SERPINA1	rs28929474	CC
SAT2	rs55784804	GG
SPEM1	rs199795512	TT
EIF4A1	rs17883687	GG
PLA2G12A	rs41278045	AA
DNAH2	rs34511268	TT
FXR2	rs118174079	GG
EFNB3	rs117584963	CC
ATP1B2	rs117322070	CC
ATP1B2	rs76733190	CC
SERPINA1	rs28929470	GG
TMEM256	rs139552861	CC
NR2F6	rs116189680	GG
CCND2	rs76895963	TT
TNFSF12	rs8069501	AA
GNGT2	rs11650494	GG
MAP1A	rs55707100	CC

GENE	SNP	GENOTYPE
SOS2	rs72681869	GG
TNFSF12	rs35386490	TT
TNFSF12	rs74351250	GG
TNFSF12	rs76749877	GG
DNAH2	rs12185237	CC
EIF3J	rs151291132	AA
WDR72	rs113401670	CC
CHRNB1	rs78608504	CC
JMJD1C	rs117212080	TT

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

TYPICAL LEVELS

Predisposed to typical 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
MCM9	rs1032388	CC
SDC1	rs3771243	AA
S1PR1	rs6684361	TC
SLC51A	rs5855544	INS(G)T
ZNF799	rs4804181	AC
/	rs12436785	CT
CNDP2	rs117327231	CC
C4A	rs184265581	GG
CMIP	rs58072681	TT
SLC22A10	rs1939769	GG
LRP12	rs11774829	TT
NUDT2	rs61237993	GG
MLXIPL	rs13229619	GG
REEP3	rs10740131	AA
/	rs2824138	TT
SRP14	rs11638521	CC
TNFSF12	rs62059839	CC

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

Luteinizing Hormone (LH)

In women, LH levels vary depending on the stage of the menstrual cycle. They peak just before ovulation. LH levels also tend to increase in women after menopause [R].

On the other hand, LH levels don't vary a lot in men [R].

Factors linked to **higher LH** levels include [R]:

- Fertility issues like PCOS
- Testicular damage
- Rare genetic disorders

Factors linked to **lower LH** levels include [R, R, R, R]:

- Pituitary disorders
- Smoking marijuana
- Anorexia
- Rare genetic disorders

Up to 70% of the differences in people's LH levels may be due to genetics. Variants with the strongest influence on LH levels belong to the ***LHB* gene**. This gene helps make one part of the hormone [R, R, R].

Please note: The number of genetic variants available for this report is limited. This report does not take into account the rare genetic disorders mentioned above.

TYPICAL LEVELS

Predisposed to typical LH levels based on the genetic variants we looked at

80%

OF USERS SHARE THE SAME SCORE

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARL14EP	rs11031002	TT
LHB	rs3795052	AA
LHB	rs3795047	AA
LHB	rs139643250	CC

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

DHT

The following factors can cause decreased DHT levels:

- 5α-reductase deficiency [R]
- Low testosterone levels [R]
- Alcohol consumption [R]
- AIDs wasting syndrome [R]
- Aging [R]
- Taking 5α-reductase inhibitors, such as finasteride (Proscar, Propecia) and dutasteride (Avodart) [R, R]

Some strategies that may help increase DHT levels in people with deficiency include:

- Exercise [R, R]
- Eating enough healthy fats [R]
- Reducing alcohol intake [R]
- Correcting zinc or DHEA deficiency [R, R]
- Supplementing with creatine or *Tribulus terrestris* [R, R]

If your testosterone levels are normal but your DHT is elevated, that could mean that your male sex hormones are metabolized via the 5α pathway, which produces more DHT, rather than the 5-β pathway.

DHT can also increase due to:

- Exercise [R]
- High testosterone levels [R]
- Drugs such as Sildenafil (Viagra, Revatio) [R]

On the other hand, preliminary evidence suggests that the following supplements may help decrease DHT levels:

- Saw palmetto [R, R]
- St John's wort [R]

Work with your doctor to find out what's causing your low or elevated DHT and to treat any potential underlying condition. The additional lifestyle changes listed above are other things you may want to discuss with your doctor. None of these strategies should ever be done in place of what your doctor recommends or prescribes.

TYPICAL LEVELS

Predisposed to typical DHT levels based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TNFSF12	rs1799941	GG
TNFSF12	rs4151121	GA
TNFSF12	rs17856697	GA
ZBTB4	rs4239258	GG

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

Progesterone

The following factors may affect progesterone levels:

- **Menstrual cycle**: Progesterone levels naturally fluctuate during the menstrual cycle, peaking after ovulation and falling if no pregnancy occurs.
- **Pregnancy**: Progesterone levels rise significantly during pregnancy and play a crucial role in maintaining the pregnancy.
- **Stress**: Chronic stress can impact the balance of hormones, including progesterone.
- **Age:** Progesterone levels typically decline with age, especially as women approach menopause.
- **Lifestyle Factors**: Lack of sleep, poor diet, and lack of exercise can affect hormone balance, including progesterone.
- **Medical Conditions**: Disorders of the ovaries, thyroid disease, and other hormonal imbalances can affect progesterone levels.
- **Genetics**: Scientists have identified a number of gene variants linked to changes in progesterone levels.

HIGHER LEVELS

Predisposed to higher progesterone levels based on 16 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DYNC2I1	rs2467806	CC
LYSMD3	rs139441768	CT
ARRDC3	rs140935700	AG
RASSF10	rs181121546	CC
KCNH1	rs79589801	CC
HSD17B12	rs142754737	CC
SESN3	rs139203625	CC
CD34	rs138621610	GG
ARNTL	rs77032081	CC
RBFOX1	rs144711998	CC
ZKSCAN5	rs34670419	GG
ZKSCAN5	rs148982377	TT
SKOR2	rs72906582	GG
SLC22A10	rs112295236	CC
PGR	rs608995	AA
PGR	rs10895068	CC
PGR	rs1042838	CC
SFXN2	rs10786714	GG

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

Metabolic Hormones

Did you know that even your stomach produces a hormone (called *ghrelin*). It helps control appetite and interacts with other metabolic hormones like insulin. **A complex interplay of metabolic hormones ensures optimal food intake, energy production, weight control, and more!**

Your genetic predispositions can affect the levels of many metabolic hormones, thus playing a major role in your metabolism. **Check out this section for details!**

HIGHER LEVELS

Ghrelin

Predisposed to higher ghrelin levels

HIGHER LEVELS

Leptin

Predisposed to higher leptin levels

LOWER LEVELS

Growth Hormone

Predisposed to lower growth hormone levels

TYPICAL LEVELS

Insulin

Predisposed to typical insulin levels

TYPICAL LEVELS

IGF-1

Predisposed to typical IGF-1 levels

TYPICAL LEVELS

Adiponectin

Predisposed to typical adiponectin levels

TYPICAL LEVELS

GLP-1

Predisposed to typical GLP-1 levels

Ghrelin

Ghrelin is a hormone mainly produced by the stomach. Ghrelin is considered the “hunger hormone” because it stimulates appetite, promotes eating, and increases fat storage. It also plays important roles in immunity, muscle growth, and brain health [R, R, R, R].

Genetics may influence ghrelin levels. For example, variants of the *GHRL* gene, which helps produce ghrelin, are linked to lower ghrelin levels [R].

Several other factors may change ghrelin levels, including [R, R, R, R]:

- **Time of the day:** Ghrelin levels are higher at night and lower during the day
- **Food intake:** Ghrelin is highest when the stomach is empty and lowest after a meal
- **Type of meals:** Carbohydrate-rich meals lower ghrelin levels the most, followed by fat-rich meals and high-protein meals

Although counterintuitive, **obese people may have lower levels of hunger hormone** than lean people. However, after a meal, ghrelin levels in obese people seem to drop less, which may keep them hungry. Research on this matter is still ongoing [R, R, R, R].

Other health conditions linked to **low ghrelin levels** include:

- Type 2 diabetes [R]
- Hyperthyroidism (overactive thyroid) [R]
- Gastritis due to *Helicobacter pylori* infection [R]
- Stomach surgery [R, R]

High ghrelin levels may result from sleep deprivation and chronic stress. People with **anorexia may also have high levels of hunger hormone** but be less sensitive to it than healthy people. Other health conditions linked to high ghrelin levels include [R, R, R, R, R]:

- Lung disease [R]
- Rare genetic disorders [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.

HIGHER LEVELS

Predisposed to higher ghrelin levels based on 28 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GHRL	rs34911341	CC
BRK1	rs143729751	GG
ATP2B2	rs150429746	CC
ATP2B2	rs56284847	CC
ATP2B2	rs34892	AA
ATP2B2	rs34884	CC
SEC13	rs4684040	AA
TATDN2	rs173359	GA
TATDN2	rs168529	AG
GHRL	rs35680	CT
GHRL	rs35683	AC
TATDN2	rs1063429	AT
GHRL	rs35682	GA
GHRL	rs35681	TC
TATDN2	rs171407	GA
GHRL	rs4684677	TT
SEC13	rs11707451	TT
BRK1	rs73026596	AA
BRK1	rs4462945	CC
SEC13	rs4684676	GG
SEC13	rs17032621	AA
GHRL	rs55821288	CC
SEC13	rs3774203	GG
SEC13	rs2287544	CC
SEC13	rs715827	AA
BRK1	rs111796905	GG
SEC13	rs2241308	GG
TATDN2	rs164938	GG

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

Leptin

Low leptin levels have been associated with:

- Low body mass index (BMI) [R, R]
- Cold exposure [R]
- Alcohol [R]
- Exercise [R, R]
- Short-term fasting [R]
- Sleep deprivation [R]
- Anorexia [R]

Leptin deficiency can also be caused by disorders such as:

- Congenital leptin deficiency [R]
- Congenital and acquired lipoatrophy (localized loss of fat tissue) [R]

Symptoms of low leptin levels vary depending on the underlying cause and may include [R, R, R, R]:

- Feeling hungry more often
- Difficulty losing weight (slower metabolism)
- High or low percentage of body fat
- Absent period (in women)
- Weak and brittle bones (osteoporosis)
- Frequent infections

In contrast, the following have been associated with elevated leptin levels:

- Overeating, especially high-fat and high-sugar foods [R, R]
- Emotional stress [R]
- Inflammation [R, R]
- Obesity [R]
- Pregnancy [R]
- Pre-eclampsia [R]
- Gestational diabetes [R]
- Sleep apnea [R]

Chronically high leptin levels can lead to leptin resistance. Symptoms of leptin resistance include [R]:

- Weight gain and difficulty losing weight
- Urge to snack soon after meals

Leptin resistance is associated with obesity, metabolic syndrome, and other related health issues like type 2 diabetes

HIGHER LEVELS

Predisposed to higher leptin levels based on 2,670 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TIPARP	rs900400	TT
GCKR	rs780093	CC
ARHGAP40	rs6071166	CC
GCKR	rs1260326	CC
KLHL31	rs3799260	TT
LEP	rs10487505	GC
KLF14	rs972283	AG
LEP	rs17151919	GG
ZNF800	rs62621812	GG
LEP	rs791600	GG
SLC38A11	rs13389219	CC
TIPARP	rs900399	AA
SLC38A11	rs6738627	GG

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

and cardiovascular diseases.

Maintaining healthy leptin levels primarily involves a balanced diet, regular physical activity, adequate sleep, and stress management. For individuals struggling with weight or metabolic health, consulting with a healthcare provider is crucial. They can offer guidance on diet, exercise, and lifestyle adjustments to improve leptin sensitivity and overall health.

Growth Hormone

Growth hormone (GH), also known as somatotropin, is a hormone produced by the pituitary gland. Its primary function is to stimulate growth and cell reproduction.

GH secretion is controlled by various factors, including **sleep, exercise, stress, and nutrition**. However, low levels are mainly caused by factors that affect pituitary function, such as [R]:

- Traumatic brain injury
- Radiation treatment in and around pituitary gland
- Pituitary or hypothalamus tumor
- Brain surgery
- Nervous system infection
- Some diseases
- Genetics

Excess GH is almost always the result of a **pituitary tumor** [R].

Genetics doesn't play a major role in acquired forms of low and excess GH [R, R].

LOWER LEVELS

Predisposed to lower growth hormone levels based on 90 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs6474678	GG
/	rs563084885	TT
/	rs72710214	AA
FOXL3	rs139113181	CC
LRRC56	rs551640190	GG
FKBP3	rs111710182	CC
TMEM106B	rs1003433	TT
METTL4	rs116932378	AA
/	rs181584048	TT
HMSD	rs1123485	AA
PUM3	rs117939495	CC
RANBP6	rs12380605	AA
S100A10	rs10788813	TT
/	rs141856882	AT
FAM78B	rs10918439	AG
PAM	rs35359959	TC
/	rs187738451	GG
PTPRD	rs143045635	CC
PTPRD	rs191387131	GG
GRIN3B	rs150528593	CC
DLGAP1	rs115812539	CC
HMGA2	rs77164510	AA
AGMO	rs74758223	AA
/	rs564368949	CC
DMRT1	rs74738740	CC
PTPRD	rs12351294	CC
HCN2	rs55839339	GG
WASF3	rs142978531	AA
/	rs73644906	TT
ERMP1	rs182703647	GG

GENE	SNP	GENOTYPE
DOCK8	rs72705610	TT
/	rs138216058	CC
ARL4C	rs62186801	GG
KANK1	rs7031403	GG
CEP78	rs528594216	CC
CGB1	rs187724752	GG
/	rs576094927	TT
C2ORF73	rs13383338	AA
RUVBL2	rs141621458	TT
WWOX	rs151019410	CC

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

Insulin

Key Takeaways:

- Insulin is the key hormone for blood sugar control.
- High insulin levels may play a role in diabetes, obesity, heart disease, and cancer.
- Low insulin levels may result from type 1 diabetes and pancreas conditions.
- Up to 55% of differences in people's insulin levels may be due to genetics.

Insulin is a hormone that increases the uptake and storage of sugar in muscles, liver, and fat cells for energy production. By doing this, insulin lowers blood sugar levels [R, R, R, R, R].

Between **30%-55%** of differences in people's insulin levels may be due to genetics [R, R, R].

Besides genetics, factors linked to **high insulin levels** include:

- Insulin resistance [R]
- Type 2 Diabetes [R]
- Weight change and obesity [R, R, R, R]
- Insulinomas (usually benign pancreatic tumors) [R, R]

Low insulin levels may result from:

- Type 1 diabetes [R, R]
- Inflammation of the pancreas (pancreatitis) [R]
- Pancreas removal [R]

TYPICAL LEVELS

Predisposed to typical insulin levels based on 462 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HDAC7	rs111264094	CC
RFC4	rs17300539	GG
PPARA	rs1800206	CC
IGF1	rs860598	AA
BCL2	rs12454712	TT
/	rs200678953	TT
PPARG	rs11712037	CG
TSC22D2	rs62271373	AT
STC1	rs13258890	TT
VEGFA	rs998584	AA
PDE3A	rs12369443	AA
TCF7L2	rs7903146	CT
FTO	rs9939609	AT
PPARG	rs1801282	CG
ADRB2	rs1042713	GA
CETP	rs708272	AG
DIO2	rs225014	TC
MRPS31	rs10507486	AG
FOXO3	rs2802292	TG
SLC2A2	rs5400	AG
UCP2	rs659366	CT
IRS1	rs17508368	TC
TMEM60	rs848494	AA
ZC3H11B	rs6674544	AG
ARL15	rs4865796	AG
SPX	rs6487237	CA
PDGFC	rs6855363	CT
CHRDL1	rs12007422	TG
DPYSL5	rs61007968	GC
BMP2	rs979012	TC

GENE	SNP	GENOTYPE
BLK	rs12541800	AG
RBL2	rs2024449	CT
EVI5L	rs4804833	GA
GLIS3	rs4339696	GT
HMGA1	rs116141873	GG
INSR	rs1799815	GG
PPARGC1A	rs8192678	CC
FCER1G	rs5082	AA
IRS1	rs1801278	CC
TNF	rs1800629	GG
FABP2	rs1799883	CC
ADRB2	rs1042714	CC
CDHR4	rs9819511	CC
/	rs77935490	TT

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

IGF-1

Insulin-Like Growth Factor 1 (IGF-1) is a hormone that looks similar to insulin – that is where its name comes from. However, it has a different function. It works with growth hormone to help cells multiply and regenerate. Growth hormone signals the liver to produce IGF-1. Based on what the body needs, IGF-1 then stimulates the growth of cells throughout the body [R, R, R, R, R].

You may have a genetic predisposition for lower or higher IGF-1 within the normal range. Around 40% of differences in IGF-1 levels are estimated to be due to genetics [R].

Other factors that influence IGF-1 include [R, R, R, R, R, R, R, R]:

- Age
- Calorie intake
- Intake of dietary protein and dairy
- Physical activity

Among other crucial roles in the body, IGF-1 supports hair growth. People with lower IGF-1 levels may be more prone to hair loss [R].

TYPICAL LEVELS

Predisposed to typical IGF-1 levels based on 1,014,257 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ADH1B	rs1229984	CC
ADH1C	rs283413	CC
CBR1	rs73370485	AG
SSTR5	rs121917877	CC
GH1	rs5388	CC
PAH	rs118092776	CC
ZNF12	rs199761265	GG
IGFBP3	rs9282734	TT
ABHD14A-ACY1	rs121912698	CC
MAP1A	rs55707100	CC
IGFALS	rs34680334	GG
HNF1A	rs1800574	CC
EIF3J	rs151291132	AA
STARD9	rs202077402	AA
PAPPA2	rs10913200	GG
SSTR5	rs118125269	CC
SPSB3	rs35816944	GG
JAK2	rs41316003	GG
LCMT2	rs2412710	GG
CAMKK2	rs113838402	CC
/	rs34451306	AA
/	rs71545950	CC
APOH	rs1801689	AA
/	rs34243925	GG
SYNE2	rs36215895	CC
/	rs111583052	GG
WASHC3	rs79579070	CC
GNPTAB	rs118008365	AA
FAHD1	rs117959643	GG
/	rs17200751	CC

GENE	SNP	GENOTYPE
TRPM5	rs117693013	GG
FAHD1	rs118002512	AA
/	rs117865101	CC
NUBP2	rs72761177	GG
IGFBP3	rs117729644	CC
IGF1	rs77991917	GG
CRAMP1	rs61746451	CC
HS3ST6	rs61742747	GG
TH	rs116862756	AA
LMF1	rs143076454	GG

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

Adiponectin

Whether low adiponectin levels actually *cause* these conditions or are just a biomarker for their onset and progression remains unknown, but the production of this hormone is reduced in people with [R, R, R, R, R]:

- Obesity
- Heart disease
- Diabetes
- Asthma
- Preterm birth
- Sleep deprivation

Conversely, high adiponectin levels have been associated with [R, R, R, R, R, R]:

- Autoimmune diseases such as rheumatoid arthritis, osteoarthritis, and lupus
- Heart failure and high blood pressure
- Kidney disease
- Aging
- Calorie restriction

Therefore, focusing on improving your adiponectin levels is unlikely to improve your health. However, some beneficial steps you can take to improve your overall health will likely increase your adiponectin levels. These steps include:

- Losing weight if you are overweight [R]
- Regular exercise [R, R]
- Eating a healthy, balanced, diet rich in unsaturated fats such as olive oil [R, R, R]
- Taking cold showers [R]

Foods, beverages, and supplements that may increase adiponectin levels include:

- Banana [R]
- Berries such as grapes and raspberries [R, R]
- Coffee [R]
- Coenzyme Q10 [R]

TYPICAL LEVELS

Predisposed to typical adiponectin levels based on 37 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CDH13	rs12051272	GT
WDR11	rs10886863	CC
VEGFA	rs998584	AA
RGMA	rs4777845	TT
HCAR2	rs601339	AA
PDE3A	rs11045172	AA
ZNF664	rs7978610	GG
RFC4	rs182052	AG
CSF1	rs333947	AA
IRS1	rs1515110	GT
PDE3B	rs11023332	GC
CMIP	rs2925979	TC
RGS17	rs596359	CC
FAM13A	rs13131633	TT
PDE3A	rs7955516	AA
RBMS2	rs2657888	GG
EIF2A	rs4301033	AG
ARL15	rs6450176	AG
/	rs4716055	GT
ADRB1	rs10787516	CT
LYPLAL1	rs2061155	TC
DVL2	rs507506	GA
ADRB1	rs10885531	CT
ZC3H11B	rs3001032	TC
ADIPOQ	rs17366568	GG
ITIH1	rs1108842	CC
ACADVL	rs222852	GG
TCTN2	rs6488898	AA
PEPD	rs731839	AA
TRIB1	rs2980879	TT

GENE	SNP	GENOTYPE
GRHL3	rs10794657	GG
TMEM263	rs10778506	TT
CLOCK	rs13434995	AA
CITED2	rs668459	TT

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

GLP-1

GLP-1 levels can vary widely among individuals, depending on factors such as [R]:

- Time of day
- Nutritional status
- Meals consumed
- Health conditions
- **Genetics**

During fasting GLP-1 levels remain low. Other causes of low GLP-1 include [R]:

- Obesity
- Diabetes
- Fatty liver
- Polycystic ovary syndrome (PCOS)

Healthy people with low GLP-1 levels may have a higher risk of developing diabetes [R].

High GLP-1 levels can be caused by a recent meal. Bioactive GLP-1 levels may increase two- to threefold after 20-30 minutes after a meal according to the meal size and composition of it. Food components such as MUFAs and fructose may be particularly effective at increasing GLP-1 levels. Moreover, these may increase GLP-1 levels [R, R, R, R]:

- Gastric bypass surgery
- Medications (e.g., DPP-4 inhibitors)

TYPICAL LEVELS

Predisposed to typical GLP-1 levels based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
RAPGEF4	rs150495482	CC
POLR1C	rs201320592	GG
GPT	rs139849083	CC
ADAP1	rs1568773	AA

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

Stress Hormones

Much of the response to stress comes from the brain. It is responsible for stimulating the production of *cortisol*, the “stress hormone”, which impacts numerous other systems in the body to help it manage stressful situations and get the body back in balance.

Your genetics can impact this hormone system, helping or hindering your body’s response to stress. Knowing your predispositions, along with diet, lifestyle, and environmental factors, can help you make better decisions about your health regimen.

TYPICAL LEVELS

Cortisol

Predisposed to typical cortisol levels

TYPICAL LIKELIHOOD

HPA Axis

Typical predisposition to HPA axis dysregulation

Cortisol

Cortisol is a hormone produced by the adrenal glands — small glands on top of the kidneys. It is most widely known as a **"stress hormone"** that initiates the body's "fight-or-flight" response. This helps the body react to stress by shifting into an "emergency mode" where non-critical functions are put on hold [R, R].

Genetics influence cortisol levels. Up to 60% of people's differences in blood cortisol levels may be due to genetics. **Please note that this report is looking at your genetics of salivary cortisol**, which is closely related to blood cortisol [R, R].

Cortisol levels vary naturally throughout the day. They are generally highest in the morning after waking and gradually decrease throughout the day [R, R].

Cortisol levels also rise naturally:

- After eating [R]
- After physical activity [R, R, R, R, R]
- In response to physical and psychological stress [R, R, R, R, R, R]

Very high or low cortisol levels may be indicative of chronic health conditions such as [R]:

- Hypercortisolism or high cortisol (e.g. Cushing syndrome)
- Hypocortisolism or low cortisol (e.g. Addison's disease)

Genetically higher cortisol may be causally associated with:

- Depression [R]
- Heart disease [R, R, R]
- Atrial fibrillation [R, R]
- Muscle mass (women) [R]
- Strength (women) [R]
- Cognitive decline [R]
- Alzheimer's (lower risk) [R]
- Parkinson's (lower risk) [R]
- Overweight [R]
- High blood pressure [R]

TYPICAL LEVELS

Predisposed to typical cortisol levels based on 10 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
INHBA	rs10244501	TT
TMPRSS9	rs7248779	GG
DGKH	rs1170109	GT
ZFP42	rs6849009	CT
TFAP2C	rs6069930	GA
TULP1	rs9470080	CT
FKBP5	rs1360780	CT
FKBP5	rs7748266	CT
/	rs6768297	AA
CNTNAP5	rs11899245	CC
PDE10A	rs2983496	GG
LDLR	rs5927	AA
SPC24	rs11557092	TT

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

HPA Axis

Several genetic variants are associated with HPA axis dysfunction. This can cause excessive cortisol production or activity, leading to anxiety, depression, fatigue, and inflammation [R, R, R].

The *CRHR1* gene encodes a receptor for CRH, the first hormone of the HPA axis. This receptor promotes anxiety, arousal, and depression upon activation. Several variants with increased *CRHR1* activity have been associated with PTSD, depression, chronic fatigue, and IBS-related anxiety [R, R, R, R, R, R, R].

The *CRHR2* gene encodes another receptor for CRH. Contrary to CRHR1, the activation of CRHR2 receptors *reduces* anxiety, arousal, and depression. Two variants with presumably lower CRHR2 activity have been associated with PTSD [R, R, R, R].

The *FKBP5* encodes an immune system protein that also regulates the sensitivity of glucocorticoid receptors, meaning that it may alter the way stress hormones affect the body. Variants with excess FKBP5 activity may reduce your ability to recover from stressful events and have been associated with stress-related psychiatric disorders like PTSD, depression, and bipolar disorder [R, R, R, R, R, R].

The *NR3C1* gene codes for the glucocorticoid receptor. Upon activation by cortisol, this protein is able to regulate the production of stress-related, inflammatory proteins. Excess cortisol release may lead to continuous stimulation of the glucocorticoid receptor, which may ultimately lower the sensitivity of the receptor to glucocorticoids. This is called *glucocorticoid resistance.* Several variants causing a reduced sensitivity of the glucocorticoid receptor have been associated with chronic fatigue syndrome [R, R, R, R, R, R].

The *MC2R* gene encodes the adrenocorticotropic hormone (ACTH) receptor. This protein is found primarily in the adrenal glands. The binding of the ACTH hormone triggers the production of glucocorticoids such as cortisol and corticosterone. Variants have been associated with altered response to ACTH [R, R, R].

TYPICAL LIKELIHOOD

Typical predisposition to HPA axis dysregulation based on 28 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARHGAP27	rs4792887	CC
NR3C1	rs852977	AA
NR3C1	rs1866388	AA
NR3C1	rs6188	CC
NR3C1	rs2918419	TT
NR3C1	rs6196	AA
MAPT	rs12938031	AG
MAPT	rs12944712	GA
CRHR1	rs17689882	GA
MAPT	rs110402	AG
MAPT	rs242924	TG
TULP1	rs3800373	AC
FKBP5	rs1360780	CT
TULP1	rs9470080	CT
FKBP5	rs9394314	AG
MC2R	rs1941088	GA
SERPINA6	rs941601	TC
NR3C1	rs6198	TT
NR3C1	rs6191	CC
NR3C1	rs6190	CC
NR3C1	rs6189	CC
NR3C1	rs56149945	TT
NR3C1	rs41423247	GG
MAPT	rs242941	CC
ARHGAP27	rs242939	TT
CRHR2	rs2267715	GG
CRHR2	rs2190242	CC
IFI27L1	rs11621961	CC
NR3C1	rs10052957	GG

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

The *SERPINA6* gene encodes a protein known as corticosteroid-binding globulin, which is responsible for transporting cortisol. Variants with decreased activity result in lower cortisol levels [R, R, R].

Hormone Genes

Genetic variations can influence how effectively hormones are produced, processed, and balanced, impacting key functions such as thyroid activity, insulin regulation, and cortisol response. Understanding your genetic makeup can provide insights into how your body manages these critical processes and guide personalized strategies for optimizing hormonal health.

This section explores key hormone-related genes involved in thyroid function (such as DIO1, DIO2, and TPO) estrogen signaling (ESR1) stress response (CRHR1, CRHR2, and FKBP5) metabolism and appetite regulation (ADIPOQ, LEPR, and GHR), and insulin sensitivity (MC4R, GIPR, TCF7L2, and MTNR1B). By understanding your genetic predispositions, you can take proactive steps to support hormonal balance and overall well-being.

HIGHER ACTIVITY

FKBP5 (Stress/ HPA Axis)

Likely higher FKBP5 activity

LOWER ACTIVITY

GHR

Likely lower GHR activity

WORSE GENETICS

TCF7L2 (Blood Sugar/Diet)

Likely worse TCF7L2 genetics

TYPICAL ACTIVITY

DIO1 (Thyroid)

Likely typical DIO1 activity

SLIGHTLY LOWER ACTIVITY

DIO2 (Thyroid)

Slightly lower DIO2 activity

LOWER ACTIVITY

CRHR1 (Stress/HPA Axis)

Likely lower CRHR1 activity

TYPICAL GENETICS

ADIPOQ (Weight/ Blood Sugar)

Likely typical ADIPOQ genetics

TYPICAL ACTIVITY

GIPR (Blood Sugar)

Likely typical GIPR activity

BETTER

TPO (Thyroid)

Likely better TPO genetics

BALANCED ACTIVITY

ESR1 (Estrogen)

Likely balanced ESR1 activity

HIGHER ACTIVITY

CRHR2 (Stress/HPA Axis)

Likely higher CRHR2 activity

HIGHER ACTIVITY

LEPR (Weight/Leptin Resistance)

Likely higher LEPR activity

HIGHER ACTIVITY

MC4R (Weight/ Blood Sugar)

Likely higher MC4R activity

LOWER ACTIVITY

MTNR1B (Diet & Blood Sugar)

Predisposed to lower MTNR1B activity

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].

HIGHER ACTIVITY

Likely higher FKBP5 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TULP1	rs3800373	AC
FKBP5	rs1360780	CT
TULP1	rs9470080	CT
FKBP5	rs9394314	AG

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

GHR

By far, the most widely-researched *GHR* polymorphism consists of the presence or absence of a region called the ‘exon 3’, which is located in the extracellular region of the receptor. The isoform lacking this region (deficient or d3-GHR) shows enhanced growth hormone signaling compared to the isoform including it (full-length or fl-GHR). The rs6873545 SNP serves as a marker for this polymorphism, with the minor ‘C’ allele corresponding to d3-GHR and the major ‘T’ allele corresponding to fl-GHR [R].

The minor ‘C’ allele has been associated with:

- Decreased risk of GH deficiency [R]
- Increased baseline height in people with GH deficiency [R]
- Enhanced response to recombinant GH therapy [R, R]
- Higher bone mineral density and decreased risk of osteoporosis [R]
- Longer lifespan in men [R]
- Decreased risk of type 2 diabetes [R]
- Slightly enhanced male fertility [R]

However, this variant has also been associated with:

- Increased risk of non-small cell lung cancer in ever smokers [R]
- Higher central adiposity [R]
- Symptomatic hip osteoarthritis in women [R]
- Increased risk of PCOS and worse metabolic profile [R]

LOWER ACTIVITY

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

47%

OF USERS SHARE THE SAME SCORE

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

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GHR	rs6873545	TT

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

TCF7L2 (Blood Sugar/Diet)

The two main *TCF7L2* variants are **rs7903146 and rs12255372**. They are almost always inherited together, which means they act as a single genetic factor.

Their "T" alleles have one of the strongest known links with type 2 diabetes. From studies on TCF7L2, diabetes & carbs, we learned that this link is much stronger in people who eat more carbs, especially starchy and refined cabs [R, R].

According to studies on TCF7L2 & dietary fat, people with these variants may want to [R, R]:

- Limit the intake of fat, especially saturated fat (fatty meat, butter, palm oil, coconut oil).
- Limit the intake of omega-6 fatty acids, mainly from sweets, pastries, and fried foods.
- Replace the above with fish, olive oil, nuts, and seeds in moderation.

It's hard to fit all of the above associations into a dietary pattern, but the interaction between these variants and the Mediterranean diet appears to be beneficial.

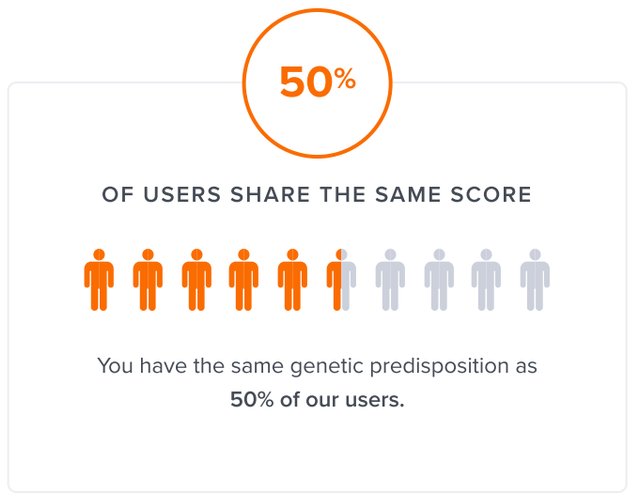
In two large studies, the Mediterranean diet reversed the harmful metabolic effects of these variants (higher blood sugar, LDL, and triglycerides) and promoted weight loss [R, R].

Certain people with these *TCF7L2* variants showed metabolic improvements on a low-fat diet. Still, it may not be the best choice, given the high carb content, which can hinder their blood glucose control. It may even correlate with higher stroke rates in people with these variants, unlike the Mediterranean diet [R, R, R].

According to the research, the quality of dietary fat and other nutrients in the Mediterranean diet may be more important than their quantity [R, R, R].

WORSE GENETICS

Likely worse TCF7L2 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
TCF7L2	rs12255372	GT

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].

TYPICAL ACTIVITY

Likely typical 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	CA

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

40%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **40% of our users.**

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.

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].

LOWER ACTIVITY

Likely lower CRHR1 activity based on 6 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ARHGAP27	rs4792887	CC
MAPT	rs12938031	AG
MAPT	rs12944712	GA
CRHR1	rs17689882	GA
MAPT	rs110402	AG
MAPT	rs242924	TG

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

ADIPOQ (Weight/ Blood Sugar)

The minor **'T' variant of rs1501299** was associated with **increased BMI and risk of obesity** in several studies on different populations, especially those of Caucasian ethnicity. Similarly, obese carriers of this variant had **higher fat percentage** in a Swedish study [R, R, R, R, R, R, R, R, R, R, R].

However, some studies didn't find this link [R, R, R, R, R, R].

The 'T' variant has been associated with increased **insulin resistance, type 2 diabetes, and metabolic syndrome** in Italian, Indian, and Spanish studies [R, R, R, R].

Similarly, the **'A' allele of rs17300539** showed a link with impaired weight and blood sugar control but with some mixed evidence [R, R, R, R, R, R, R, R].

The minor **'G' variant of the rs2241766** polymorphism is linked to:

- Reduced glucose tolerance and high blood sugar [R, R]
- Type 2 diabetes [R, R, R]
- Metabolic syndrome [R, R]

Some studies found a link between this variant and obesity and belly fat in different populations. However, many other studies found opposite effects or no effects [R, R, R, R, R, R, R, R, R].

Another **rs266729** variant has been studied for its links with weight and blood sugar control, but the studies showed mixed results. Some studies found the negative effects of the **"G" allele,** but many found no effects or opposite effects [R, R, R, R, R, R, R, R].

Studies on the link between these variants and adiponectin levels also showed inconsistent results. It's unclear whether the observed effects are due to changes in adiponectin levels, and in which direction [R, R, R, R, R, R, R].

TYPICAL GENETICS

Likely typical ADIPOQ genetics based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
RFC4	rs266729	GC
ST6GAL1	rs1501299	GG
RFC4	rs17300539	GG
ADIPOQ	rs2241766	TT

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

GIPR (Blood Sugar)

The main variants in the *GIPR* gene are **rs2287019 and rs10423928**. They are almost always inherited together, meaning you will most likely have either both or none of them.

The minor alleles, rs2287019–**T** and rs10423928–**A**, are strongly linked to [R, R, R, R]:

- **Type 2 diabetes**
- **Insulin resistance**
- **Gestational diabetes**

On the other hand, they have shown associations with reduced body weight [R, R].

These variants may **reduce insulin secretion** after a meal. This may impair blood sugar control and contribute to diabetes but also promote fat burning [R, R].

Interestingly, in one study, people with these variants did better on a **low-fat, high-carb, high-fiber diet**. Researchers are unsure about the underlying mechanism behind this finding [R].

TYPICAL ACTIVITY

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

64%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **64% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GIPR	rs2287019	CC
GIPR	rs10423928	TT

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

27%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **27% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TPO	rs11675434	CC
TPO	rs732609	AA

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].

BALANCED ACTIVITY

Likely balanced ESR1 activity based on the genetic variants we looked at

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **50% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ESR1	rs2234693	TC
ESR1	rs9340799	AG

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].

HIGHER ACTIVITY

Likely higher CRHR2 activity based on the genetic variants we looked at

34%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **34% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRHR2	rs2267715	GG
CRHR2	rs2190242	CC

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

LEPR (Weight/Leptin Resistance)

Many *LEPR* variants are currently under investigation for their possible link to leptin resistance and obesity. The most important one is **rs1137101**.

At rs1137101, the 'GG' genotype is associated with higher weight, higher BMI, and increased daily intake of calories. People with the 'GG' genotype at rs1137101 are also likely to have higher cholesterol, higher blood sugar, and insulin resistance [R].

A recent meta-analysis has confirmed a link between this variant and obesity. The risk was **19% higher per each "G" allele** [R].

This variant likely reduces the number or activity of leptin receptors, potentially contributing to leptin resistance [R, R].

Studies have linked another variant, **rs12405556-T**, to higher weight and blood lipid levels. This variant is often inherited together with rs1137101-G, meaning many people carry either both or none of them [R].

Other LEPR SNPs—like rs1137100, rs11208659, and rs11804091—have been linked to weight gain and obesity as well. However, the supporting evidence is weaker [R, R].

HIGHER ACTIVITY

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

30%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **30% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LEPR	rs1137101	AA

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

MC4R (Weight/ Blood Sugar)

The most studied SNP near the *MC4R* gene is **rs17782313**.
The **"C" allele** is linked to:

- Higher BMI (8%) and obesity rates (12-30%) [R, R]
- Increased hunger, snacking, and overeating [R]
- Eating high-calorie foods high in fat [R, R]

Another important *MC4R* variant is **rs12970134**. The **“A” allele** is linked to:

- Obesity, higher BMI, and waist circumference [R, R, R]
- Food cravings and increased beverage consumption [R]
- High blood sugar and insulin resistance [R, R, R, R]

Other *MC4R* variants like **rs6567160** and **rs663129** have shown similar associations, They are almost always inherited together with the two main variants, so they all represent a single genetic factor [R, R, R, R, R].

“Bad” *MC4R* variants likely **reduce gene expression or receptor activity**, thus increasing food intake and hindering glucose and fat metabolism.

Learn more about the link between MC4R variants, weight, and food intake.

Learn more about the link between MC4R variants and blood sugar.

HIGHER ACTIVITY

Likely higher MC4R activity based on the genetic variants we looked at

55%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **55% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MC4R	rs17782313	TT
MC4R	rs12970134	GG

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

50%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **50% of our users.**

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.