

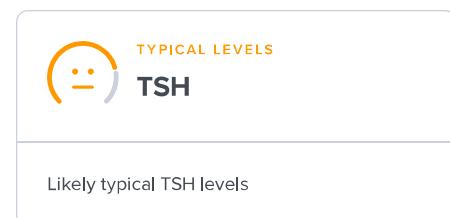
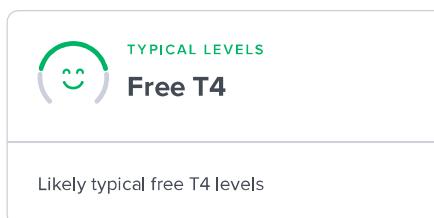
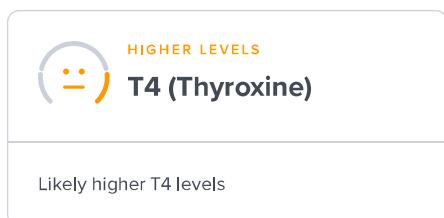
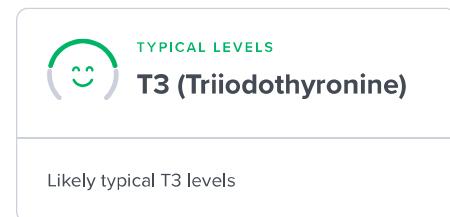
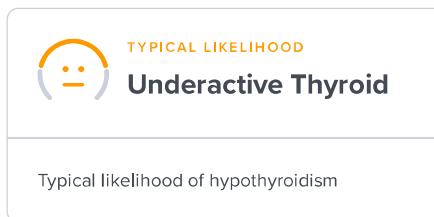
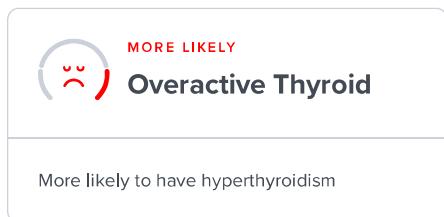
# Your Results in Details



## 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.



# 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.

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 [\[R\]](#), [\[R\]](#).

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

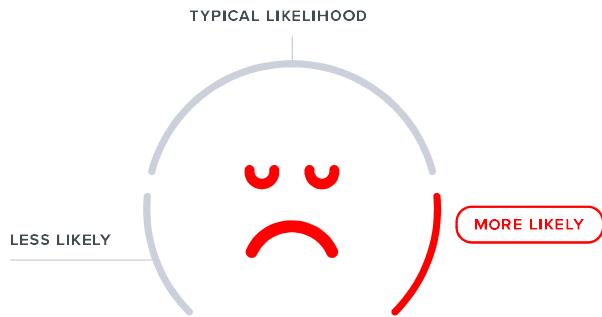
Diet changes may also help manage some cases. For example, if you have an autoimmune thyroid condition, you may need to avoid iodine-rich foods like seaweed [\[R\]](#).

**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](#))



**More likely to have hyperthyroidism based on 526 genetic variants we looked at**



**Your top variants that most likely impact your genetic predisposition:**

GENE	SNP	GENOTYPE
SH2B3	rs653178	CC
MICB	rs2517532	GG
FCRL3	rs7522061	TC
TSHR	rs12101261	TC
CD40	rs1883832	CT
PDE8B	rs2046045	TT
FAM227B	rs17477923	TT
PDE10A	rs2983514	GG
LRRC6	rs118039499	AA
RNASET2	rs385863	GG
CD40	rs6131010	GG
HLA-DQA2	rs1794280	AT
TSHR	rs2160215	CT
SOX9	rs8077245	GT
TRMO	rs925488	GA
MAF	rs140851213	IT
MYC	rs2466028	TT
TSHR	rs28414437	CA
TMPRSS3	rs34544259	GG

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.

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 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



Typical likelihood of hypothyroidism based on 686 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PDE8B	rs4704397	AA
SH2B3	rs653178	CC
MICB	rs2517532	GG
TPO	rs11675434	TC
TRMO	rs925489	CT
VAV3	rs7537605	GA
NBL1	rs10917477	AG
FCRL3	rs7522061	TC
TSHR	rs12101261	TC
TYK2	rs34536443	GG
/	rs9271365	TG
CLECL1	rs370475698	TT
TRMO	rs7030280	CT
PDE8B	rs1479565	AA
CD44	rs736374	AA
ARID5B	rs71508903	CT
TPO	rs11675342	TC
PLGRKT	rs911760	CA
FAP	rs2111485	GA

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

- *TSHR*
- *FOXE1*

# 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)



**Likely 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
FBLL1	rs590784	AC
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
ERBB4	rs13428799	CC

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

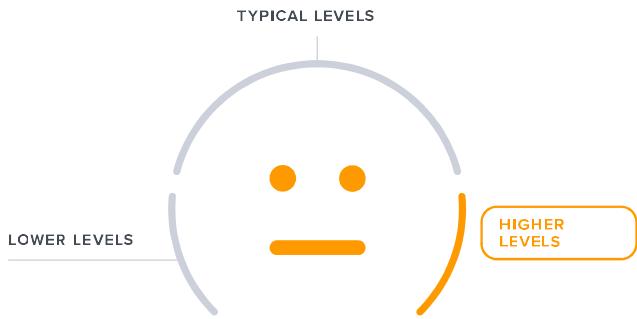
# T4 (Thyroxine)

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



**Likely 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
QSOX2	rs7860634	GA
AADAT	rs11726248	AA
SERPINA7	rs1804495	AC
LPCAT2	rs6499766	AA
LRRC42	rs12127960	TT
MC4R	rs56069042	AA
SEPHS1	rs72783371	AA
CA8	rs67583169	CC
ILRUN	rs73405691	AA
H2BC1	rs9356988	AA
CPPED1	rs8063103	CC
SLCO1B1	rs4149056	TT
QSOX2	rs11103377	AG
/	rs7240777	AG
GLIS3	rs10119187	TC
DIO2	rs225014	CT
RNF144B	rs10946313	TC
NCOR1	rs11078333	TA
NUCKS1	rs951366	CT

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