

# Metabolic Health

## Summary Report

REPORT CATEGORY —



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## 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.

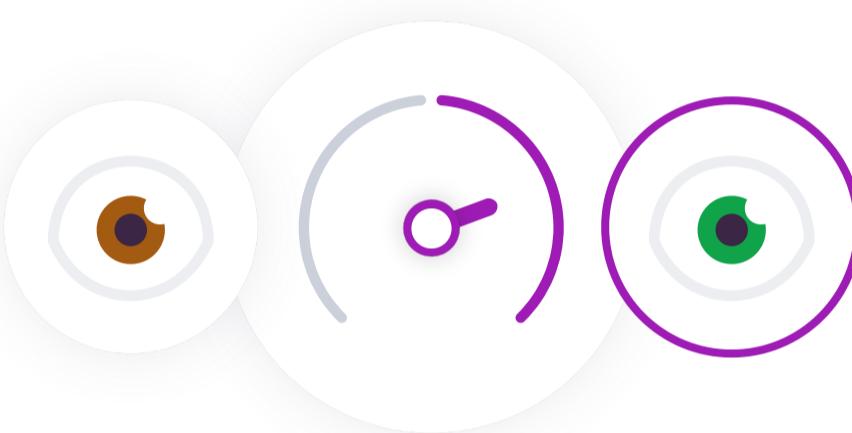


# How this works

Our Health Reports analyze how your DNA influences your health.  
We then use this analysis to give you personalized risk estimates and recommendations.



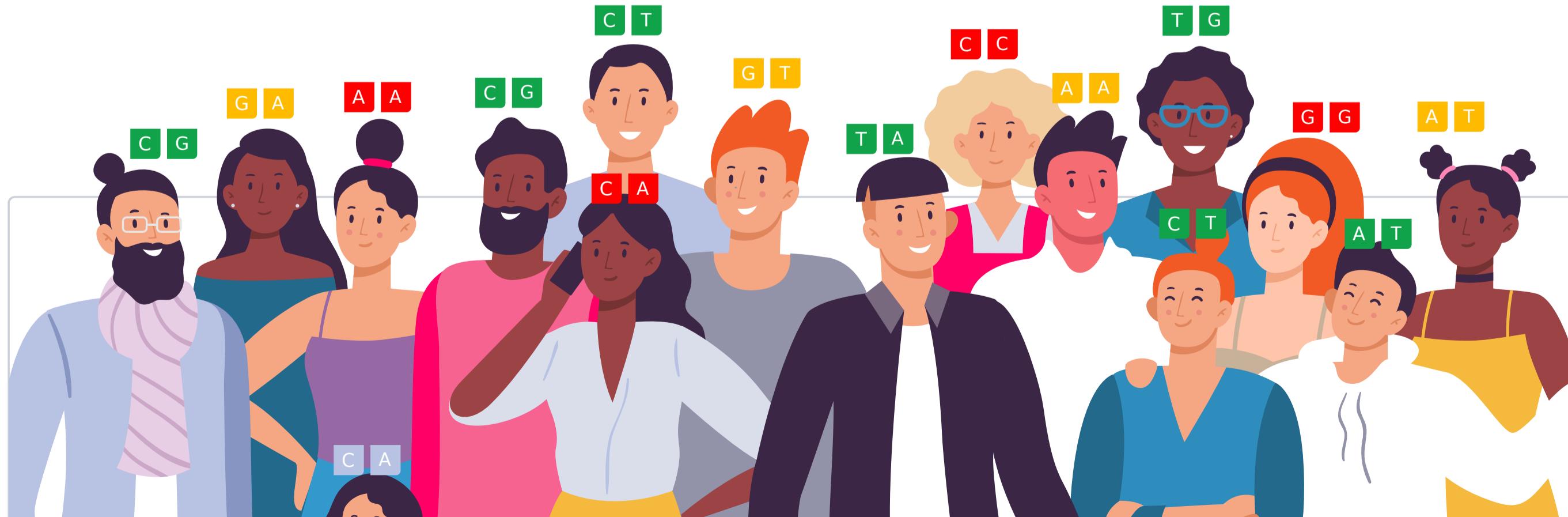
Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.  
You can think of it as a blueprint for your body.

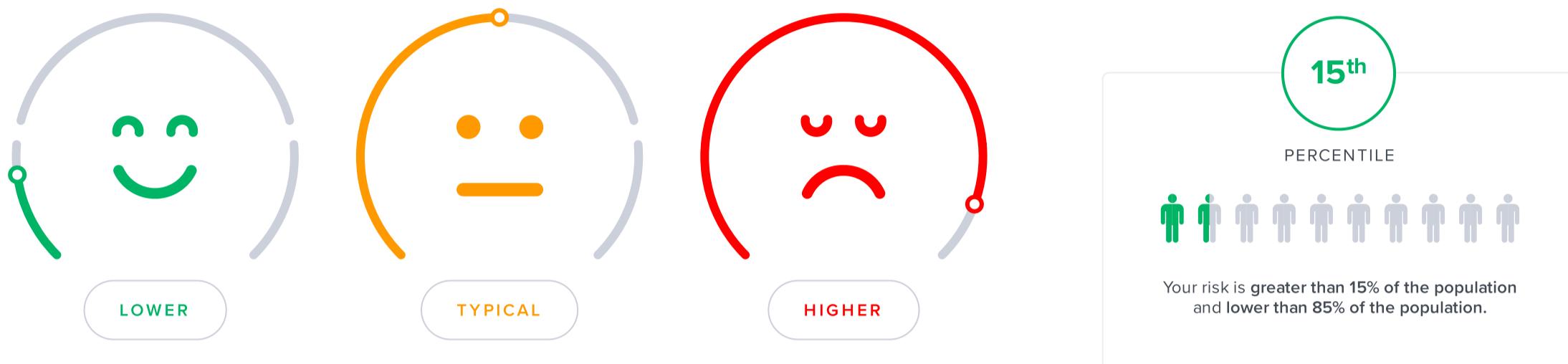
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.

**Our Summary Reports combine different Wellness and Trait Reports related to a certain health topic. They give you a more complete picture about different aspects of your health and wellness.**



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge. When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

**In total, we analyze up to 83 million genetic variants.**



Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

**When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.**

Our recommendations come in four categories: diet, lifestyle, supplements, and drugs. The following icons tell you which category a recommendation falls into:



**Our team of scientists also ranks each recommendation. We rank based on impact and strength of evidence.**

Impact shows how strongly a recommendation will affect your health in a certain area. Evidence reflects how much scientific support there is for the recommendation in the medical literature. Rankings are from 1 to 5 (low to high):



**In Summary Reports, we combine top evidence-based recommendations for different conditions.**

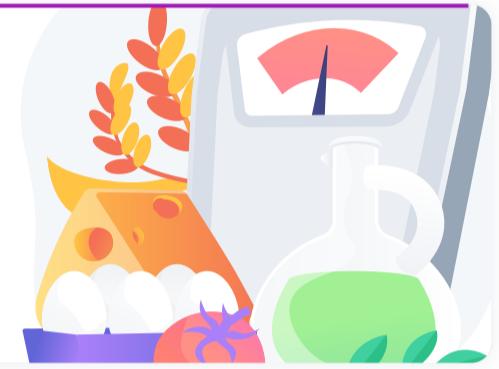
We focus on recommendations that help with more conditions included in a Summary Report.

For each recommendation, we list all conditions it may help with. We also include impact, evidence, regimen, personalized parts, and other details specific to each condition.



## Recommendation

Helps with the following



### Condition

IMPACT

██████ 4 / 5

EVIDENCE

██████ 4 / 5



### Condition

IMPACT

██████ 4 / 5

EVIDENCE

██████ 4 / 5



### Condition

IMPACT

██████ 4 / 5

EVIDENCE

██████ 4 / 5



### Condition

IMPACT

██████ 4 / 5

EVIDENCE

██████ 4 / 5

# Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

## Recommendation Evidence

██████ 5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

██████ 4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

██████ 3 / 5

Recommendations that are considered possibly effective and have many studies supporting them.

██████ 2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

██████ 1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

██████ 0 / 5

No evidence in humans.

## Genotype-specific evidence

██████ High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

██████ Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

██████ Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

██████ Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

██████ In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

## **Some things to keep in mind:**

- The scores/gauges use the latest scientific studies. But they are not perfect and will change as the models improve.
- Not everyone with risk variants will develop a health condition.
- Genetics is not the whole story. Your health is most often a combination of genetics, lifestyle, and environmental factors. Great news, as this means that you can often change your lifestyle to lower your risk.
- Results might be more accurate for some ethnic groups than others. This depends on the studies used in each report.
- People without risk variants can also develop health conditions.
- It's important to work with your doctor to better understand your risks. Our reports do not diagnose or treat any health condition. They are not a substitute for medical advice. If you're diagnosed with a certain health condition, follow your doctor's advice.

# Summary

Is your metabolism optimal? Maybe, but probably not. A recent study indicated that only about **1 in 8 people** in the U.S. have optimal metabolic health [R].

Why so bad? Well, your metabolic health is about much more than weight. **It is a system designed to process nutrients for energy, maintain temperature, detox your body, and so much more!**

If any part of that system gets out of balance, it can mess up the whole thing. This can lead to problems like diabetes, obesity, and underactive thyroid.

Knowing your genetic predispositions can help you determine where the risk factors for your metabolism may lie, and what actionable steps you can take to optimize metabolic health. This report covers a number of related topics, including:

- Weight control
- Blood sugar control
- Thyroid health

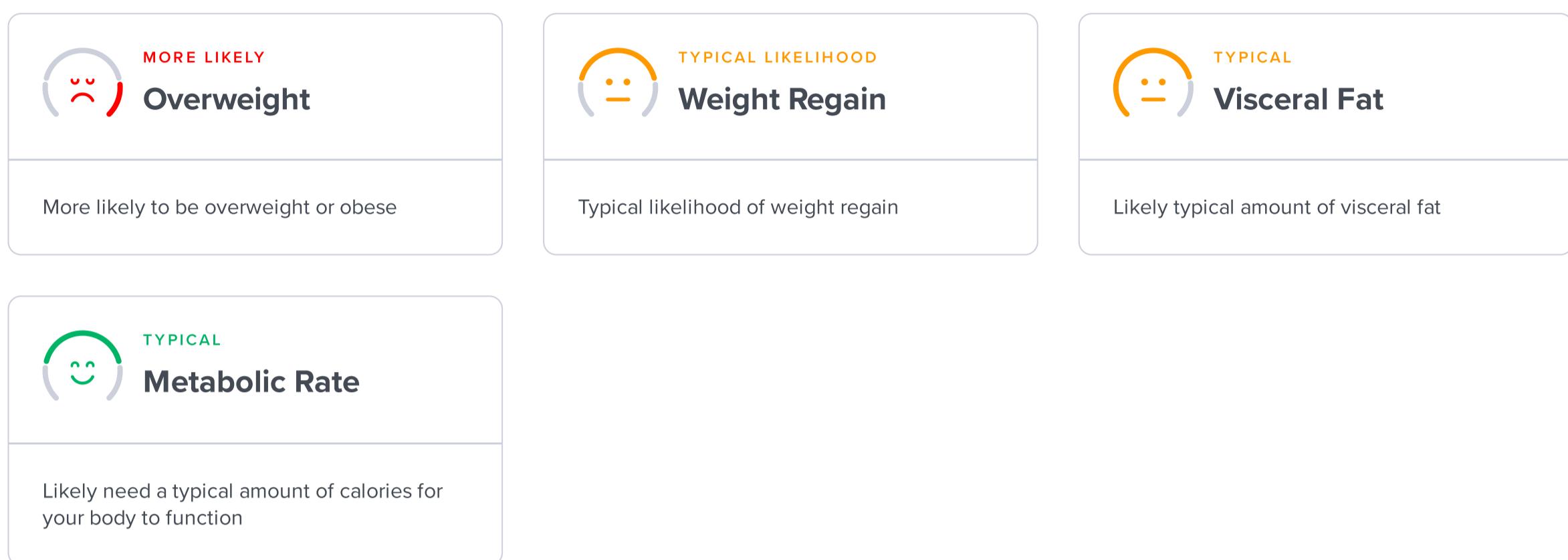
This summary report contains:

**15 Genetic Results**

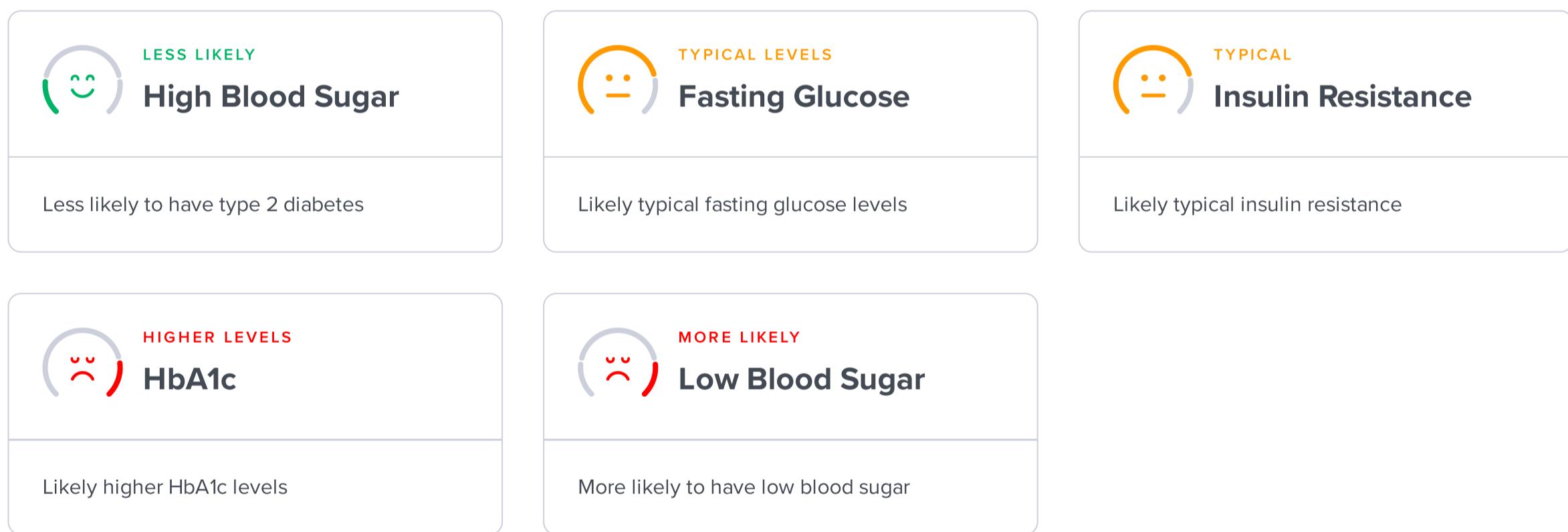
**50 Recommendations**

# Overview of Your Results

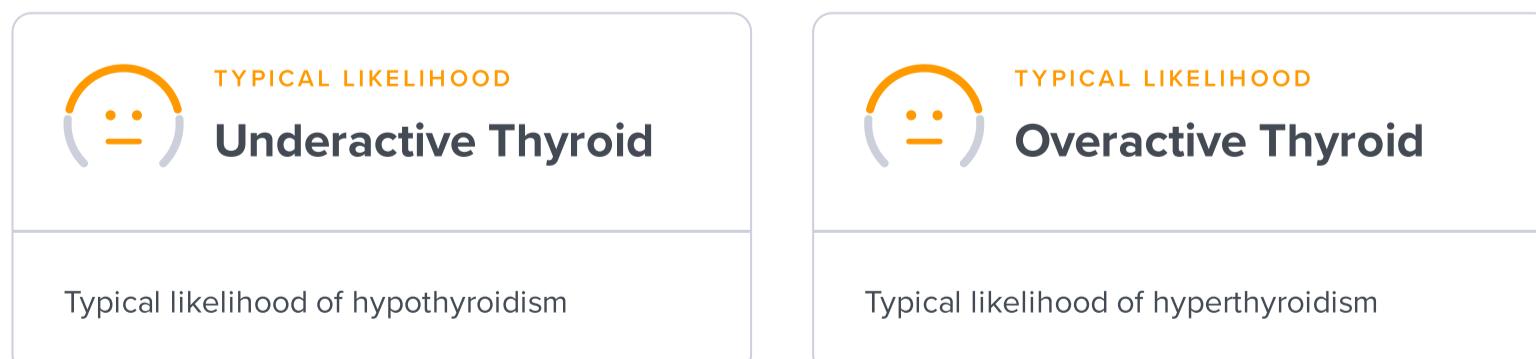
## Weight Control



## Blood Sugar Control

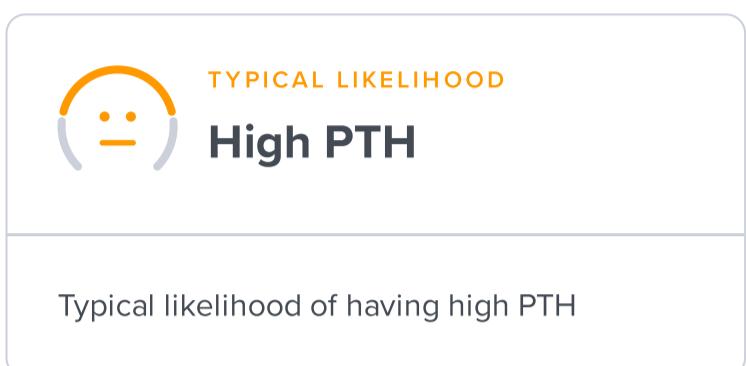
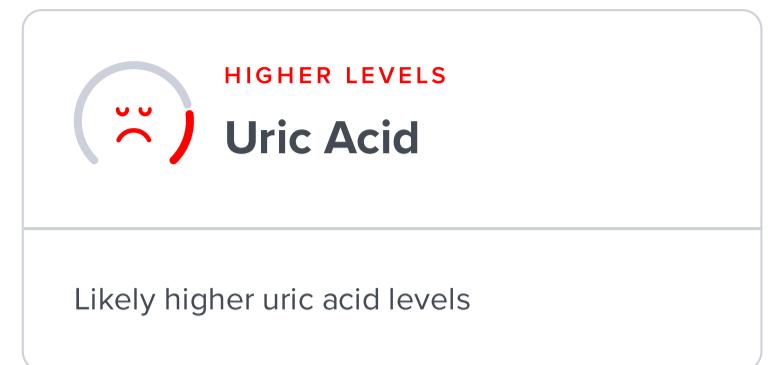
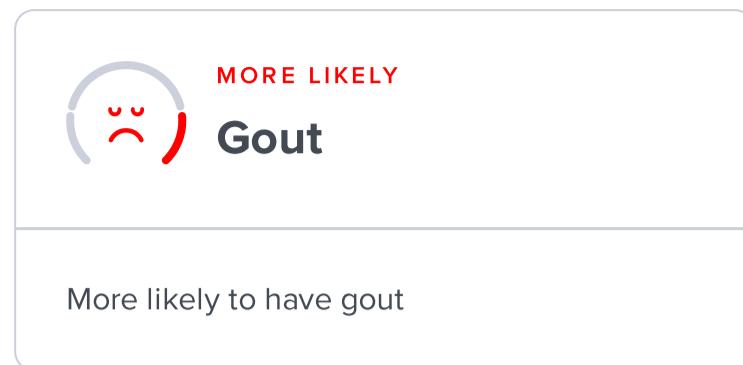
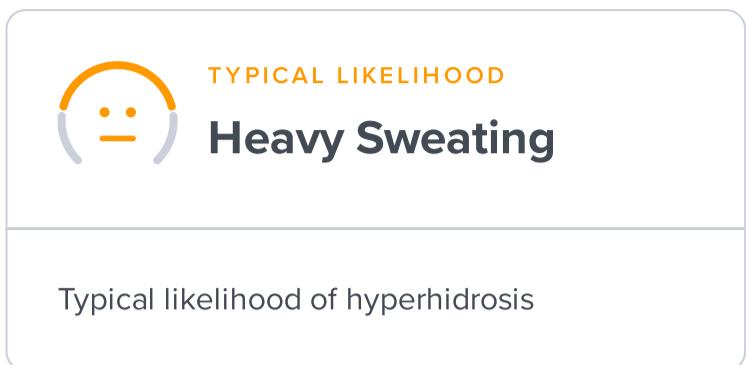


## Thyroid Health

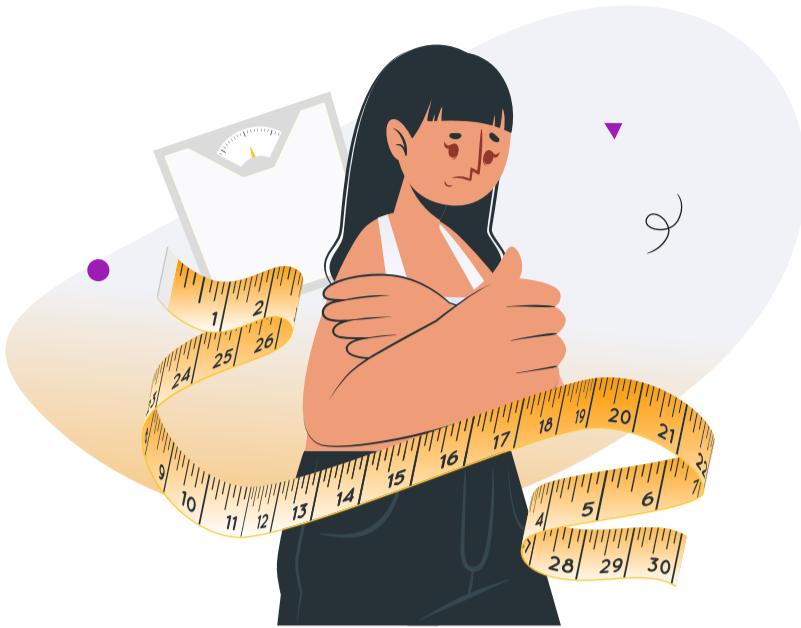




## Miscellaneous



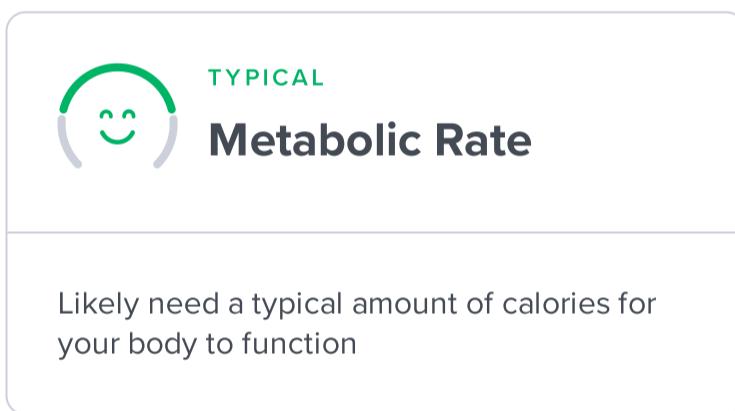
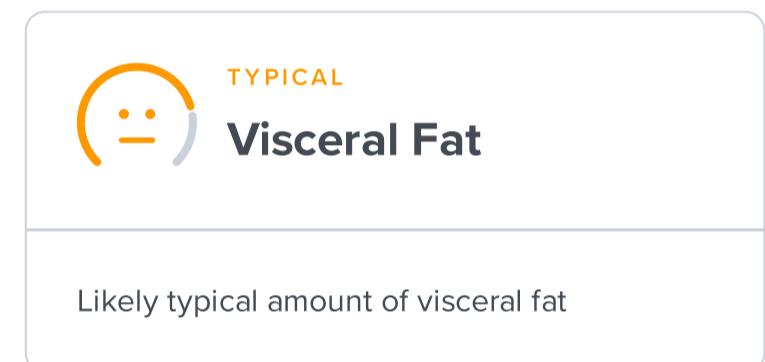
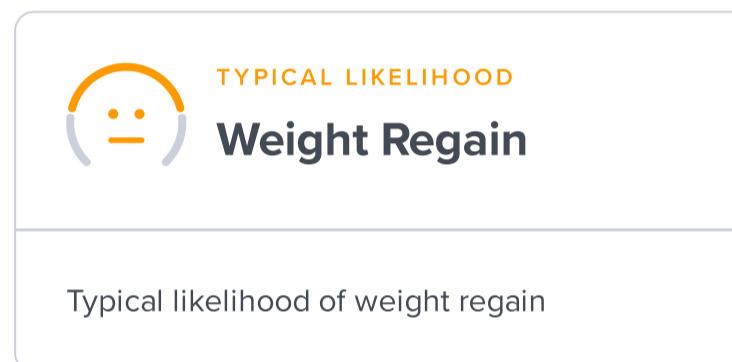
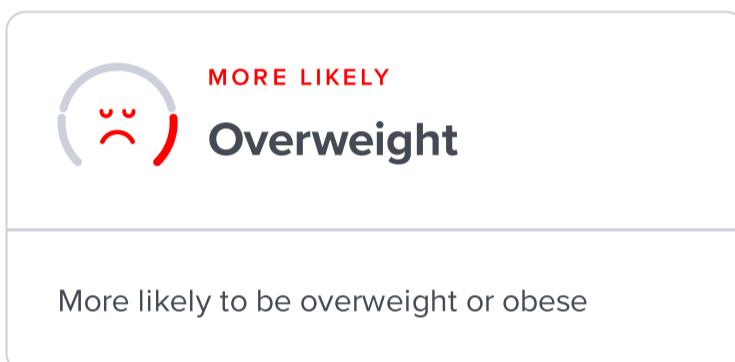
# Your Results in Details



## Weight Control

This morning, you thought about ice cream and gained two pounds. Your friend ate an entire pint and the scale didn't even move. In what world is this remotely fair? Controlling weight is an ongoing struggle for many, and **your DNA has a lot to say in the matter.**

Your metabolic rate, how your body stores and burns fat, what affects your appetite are all affected by DNA. **Knowing these genetic predispositions can help you better control weight by making smarter diet and lifestyle choices.**



# Overweight

## Key Takeaways:

- Up to 70% of differences in weight may be attributed to your genes, not just from diet and fitness.
- FTO is the most prominent weight gain gene, affecting cravings, eating more, and more higher calorie foods.
- Up to 42% of adults and 19% of children in the US meet the medical criteria for obesity.
- Obesity is a factor in health conditions like high blood sugar, high blood pressure, heart disease, and joint disorders.

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

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

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

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

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

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

- Waist circumference (WC)
- Waist-to-hip ratio (WHR)
- Percentage of body fat (%BF)
- Lean (muscle) mass

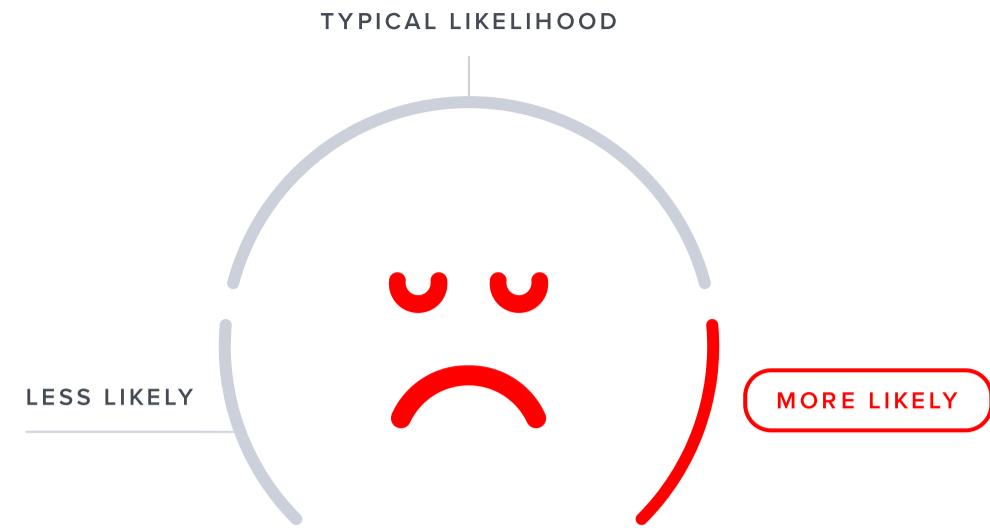
Some people worry about body weight because they value how they look. However, **body weight impacts both mental and physical health**. Obesity may increase the risk of [R, R]:

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

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

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

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



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



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

| GENE     | SNP         | GENOTYPE |
|----------|-------------|----------|
| NPC1     | rs1808579   | CC       |
| KCTD15   | rs29941     | GG       |
| TFAP2B   | rs987237    | GA       |
| GNPDA2   | rs10938397  | AG       |
| SH2B1    | rs7498665   | GA       |
| NEGR1    | rs3101336   | CT       |
| STMN4    | rs140901272 | CC       |
| GPR151   | rs114285050 | GG       |
| COQ5     | rs76929617  | AA       |
| ACAN     | rs1516795   | TT       |
| TIMELESS | rs3809128   | CC       |
| RAD9A    | rs7952436   | CC       |
| ZCCHC14  | rs118105689 | TT       |
| ADCY6    | rs3730071   | CC       |
| RPS20    | rs72656010  | TT       |
| ZBTB38   | rs724016    | GG       |
| ADAMTS10 | rs62621197  | CT       |
| SH3YL1   | rs13022164  | AG       |
| FTO      | rs9939609   | TT       |

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

- Choosing more plant-based foods
- Exercising
- Counseling or support groups

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

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

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

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

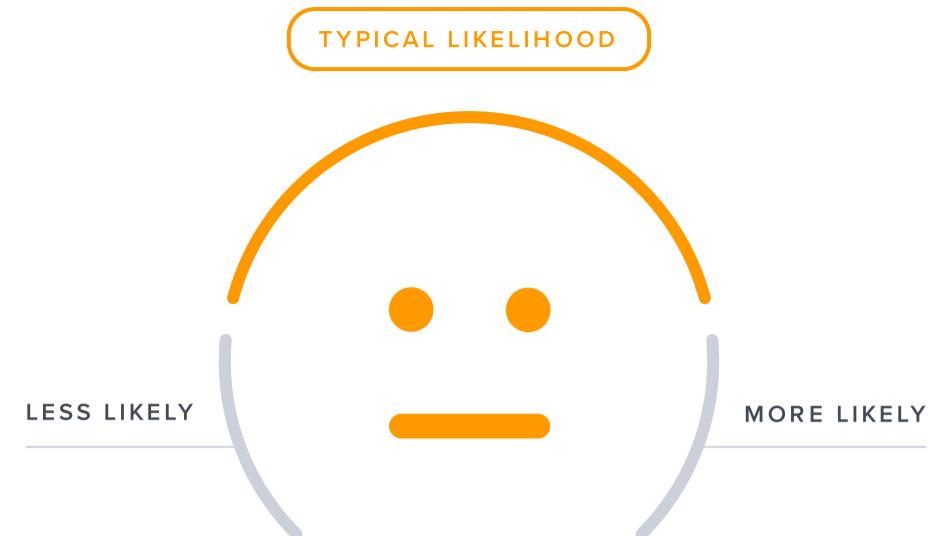
# Weight Regain

A lot of people who are overweight focus on losing weight by dieting or exercising. However, many people who have lost weight while on a diet will tell you it's hard to keep the weight off once the diet is over. In fact, it's very common to regain up to 50% of weight lost within a year after losing it [R]!

Different people may find it easier or harder to keep the weight off. Some of those differences may be genetic.

Genes linked to weight regain may influence [R, R, R, R, R, R, R]:

- The way fat is stored in the body
- Inflammation
- Feelings of hunger
- Feelings of reward from eating food



**Typical likelihood of weight regain based on 54 genetic variants we looked at**



Your top variants that most likely impact your genetic predisposition:

| GENE    | SNP        | GENOTYPE |
|---------|------------|----------|
| ALOX5AP | rs4769873  | CC       |
| ALOX5AP | rs9578196  | CC       |
| ALOX5AP | rs9315051  | AA       |
| BDNF    | rs6265     | CT       |
| PPARG   | rs1801282  | CG       |
| LEP     | rs2071045  | TC       |
| GHRL    | rs2619507  | GG       |
| PEX11A  | rs894160   | CC       |
| KCTD15  | rs29941    | GG       |
| APP     | rs2242682  | CT       |
| LEPR    | rs4655537  | AG       |
| TUB     | rs4385931  | CG       |
| CCK     | rs11571842 | TC       |
| APP     | rs2830054  | GT       |
| APP     | rs9976453  | CG       |
| TFAP2B  | rs987237   | GA       |
| ANKK1   | rs1800497  | GA       |
| SH3YL1  | rs6548238  | TC       |
| FTO     | rs9939609  | TT       |

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

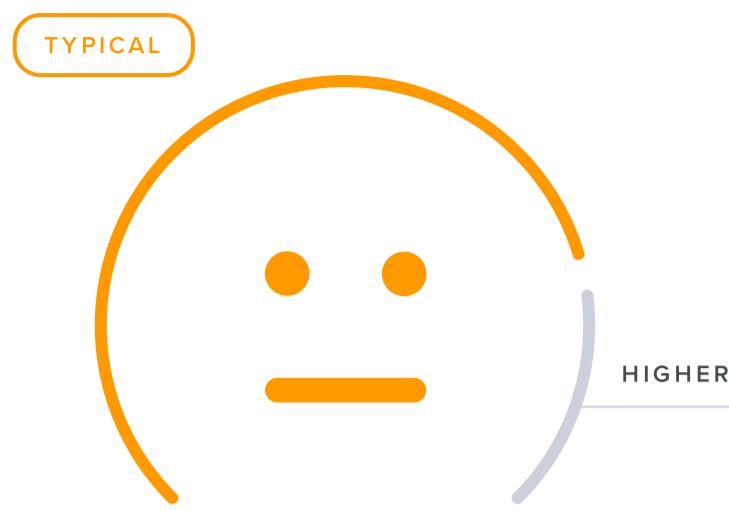
# Visceral Fat

If we asked you to picture body fat, the first thing that would likely come to mind is *subcutaneous fat*. This fat is found under the skin of the belly, thighs, and other areas. However, there is another type of body fat called *visceral fat*. This type of body fat hides in the abdomen and surrounds organs like the liver, stomach, and intestines. It may have a greater impact on health than subcutaneous fat [R, R].

Factors that may increase the amount of visceral fat include [R, R, R, R]:

- A diet high in saturated fat and added sugar
- A lack of physical activity
- Long-term stress
- Aging
- Menopause
- **Genetics**

In fact, **about 40% of the differences in levels of visceral fat may be due to genetic factors** [R].



**Likely typical amount of visceral fat based on 818,294 genetic variants we looked at**

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

| GENE   | SNP         | GENOTYPE |
|--------|-------------|----------|
| MC4R   | rs2229616   | CC       |
| SH3YL1 | rs62106258  | TT       |
| ADARB1 | rs76040172  | GG       |
| ADCY3  | rs10182458  | GG       |
| BPTF   | rs62084234  | GG       |
| ADH1B  | rs1229984   | CT       |
| RSPO3  | rs9482772   | CC       |
| SH3YL1 | rs13393304  | AG       |
| /      | rs114593013 | AG       |
| PARD3B | rs4482463   | AC       |
| MEF2C  | rs2304608   | AC       |
| GNPDA2 | rs10938398  | GA       |
| SH2B1  | rs7498665   | GA       |
| PPARG  | rs7649970   | CT       |
| VEGFA  | rs11967262  | GC       |
| FTO    | rs56094641  | AA       |
| GSTM4  | rs7550711   | CC       |
| MC4R   | rs538656    | GG       |
| AS3MT  | rs3740390   | CC       |

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

# Metabolic Rate

Your metabolic rate is the number of calories you burn in a day to maintain bodily functions. A lower metabolic rate or a “slower metabolism” means your body needs fewer calories to do basic functions. Others may need to burn more calories to support these functions. These people have a higher metabolic rate or a “faster metabolism” [R, R, R].

Is metabolism related to body weight? If so, is it possible to burn more calories by boosting your metabolic rate?

Differences in metabolic rate may be due to both genetic and environmental factors. Factors that can contribute to a slower metabolism include [R, R, R, R, R]:

- Being smaller
- Having less muscle mass
- Being older
- Being less active
- Not getting enough sleep

People with slower metabolism need fewer calories to get them through the day. They also tend to gain weight more easily.

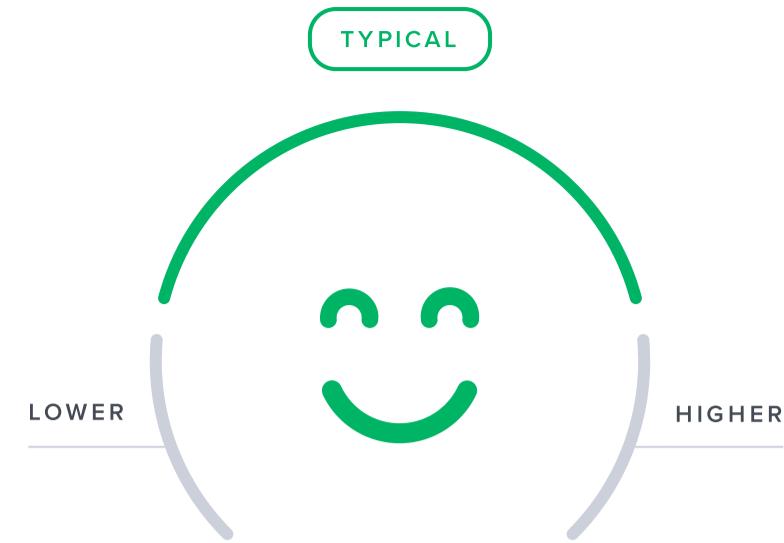
Factors that can contribute to a faster metabolism include [R, R, R, R]:

- Being larger
- Having more muscle mass
- Being younger
- Being more active

People with faster metabolism need more calories to get them through the day. They also find it harder to gain weight.

Metabolic rate may not change much from age 20 to 60. While you may not change how many calories your body needs to perform automatic functions, **you can burn more calories by being more active**. Regular exercise can help maintain a healthy weight and support overall health [R, R, R, R, R].

If you're concerned about your weight or you think your metabolism is too slow or too fast, talk with your doctor.



**Likely need a typical amount of calories for your body to function based on 137,802 genetic variants we looked at**

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

| GENE       | SNP         | GENOTYPE |
|------------|-------------|----------|
| CCND2      | rs76895963  | TT       |
| TP53       | rs78378222  | TT       |
| PARD3B     | rs1470545   | CC       |
| EBPL       | rs3118914   | TT       |
| L3MBTL3    | rs7740107   | AA       |
| HMGAA2     | rs1351394   | CC       |
| ADAMTS10   | rs62621197  | CT       |
| TEFM       | rs6505216   | GT       |
| CCND3      | rs33966734  | CC       |
| MGA        | rs117183161 | AA       |
| MC4R       | rs76227980  | CC       |
| SH3YL1     | rs62106258  | TT       |
| RABGAP1    | rs369508364 | CC       |
| SLC22A18AS | rs143840904 | CC       |
| FANCC      | rs370727606 | GG       |
| ACAN       | rs28584580  | AA       |
| PAM        | rs78408340  | CC       |
| DLG5       | rs117543413 | CC       |
| COQ5       | rs76929617  | AA       |

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



# Blood Sugar Control

At the morning meal, your child proclaims: “*Because my ancestors were hunter-gatherers, I can no longer eat oatmeal for breakfast and will be eating bacon instead*”. Amusing as it might be, your child could technically be right. Your DNA might affect your ability to digest complex carbohydrates and many more aspects of your blood sugar control.

**Controlling blood sugar is vital to overall health.** Too high or low levels can lead to serious health issues. A number of factors can impact the control of blood sugar, from diet to lifestyle or your DNA. **Knowing your genetic predispositions can help you make smart health decisions and thus lower the risk of issues like high blood sugar and insulin resistance.**

LESS LIKELY

**High Blood Sugar**

Less likely to have type 2 diabetes

TYPICAL LEVELS

**Fasting Glucose**

Likely typical fasting glucose levels

TYPICAL

**Insulin Resistance**

Likely typical insulin resistance

HIGHER LEVELS

**HbA1c**

Likely higher HbA1c levels

MORE LIKELY

**Low Blood Sugar**

More likely to have low blood sugar

# High Blood Sugar

## Key Takeaways:

- Almost 1 in 3 Americans are at risk of developing type 2 diabetes.
- In older adults, type 2 diabetes can cause heart disease, stroke, kidney damage, and more.
- Up to 80% of the differences in people's risk for getting type 2 diabetes can be due to genetics.
- Risk factors include: obesity, high sugar diet, lack of exercise, age over 45, smoking, family history, PCOS, and ethnicity.

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

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

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

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

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

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

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

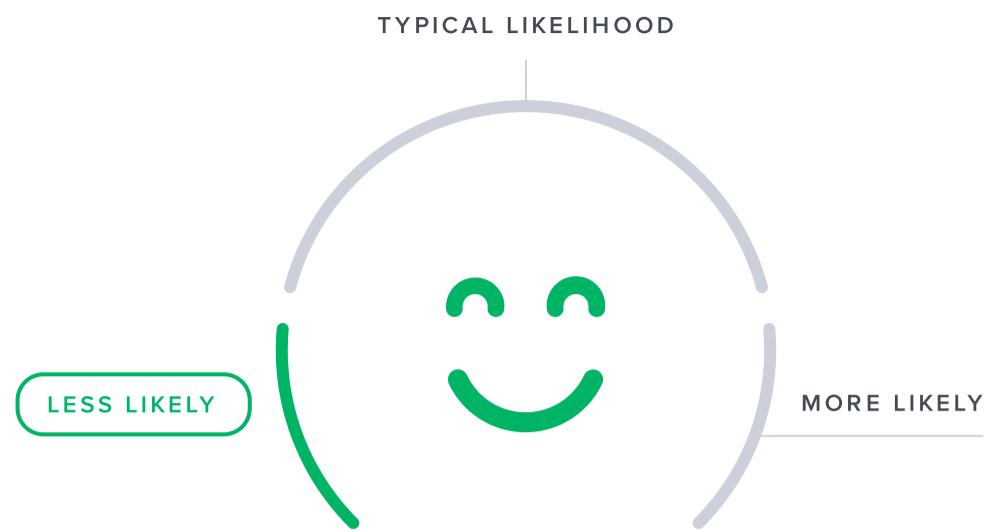
Prediabetes is hard to spot because it doesn't have obvious symptoms. However, blood tests can help diagnose it [R].

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

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

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

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



**Less likely to have type 2 diabetes based on 1,097,561 genetic variants we looked at**



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

| GENE     | SNP        | GENOTYPE |
|----------|------------|----------|
| TCF7L2   | rs7903146  | TC       |
| CDKAL1   | rs7756992  | GG       |
| HSPA1B   | rs2857605  | TT       |
| DGKB     | rs2191349  | TT       |
| CDKN2B   | rs10811661 | TT       |
| ADCY5    | rs11708067 | AA       |
| CDKAL1   | rs7756992  | GG       |
| TSPAN3   | rs7177055  | GA       |
| IGF2BP2  | rs1470579  | CA       |
| BCL2     | rs12454712 | CT       |
| CCND2    | rs76895963 | TT       |
| SLC30A8  | rs13266634 | TT       |
| HMGA2    | rs2261181  | CC       |
| MC4R     | rs12970134 | GG       |
| IMPDH1   | rs791595   | GG       |
| SLC38A11 | rs10195252 | CC       |
| GCKR     | rs780093   | TT       |
| JAZF1    | rs1635852  | CC       |
| TAP2     | rs2071479  | CC       |

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

# Fasting Glucose

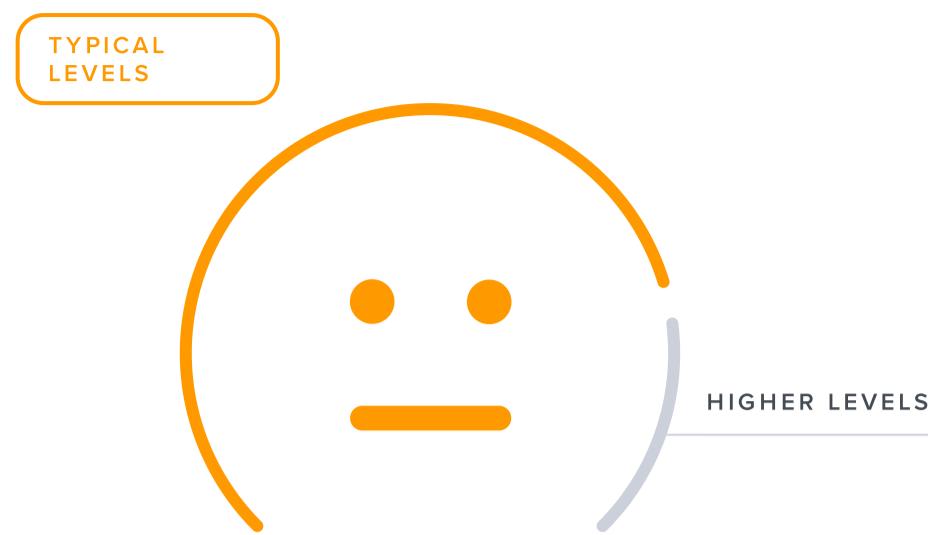
Glucose is a type of sugar. **Fasting glucose –or fasting blood sugar – is the measurement of one's blood sugar level after 8-12 hours of avoiding food and drinks.** Fasting glucose levels help show how your body deals with dietary sugar. Doctors may order a fasting glucose test to check if someone is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

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

- Pancreas development and function
- Insulin activity
- Glucose breakdown

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

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



**Likely typical fasting glucose levels based on 959,749 genetic variants we looked at**

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

| GENE     | SNP        | GENOTYPE |
|----------|------------|----------|
| TCF7L2   | rs7903146  | TC       |
| CDKAL1   | rs7756992  | GG       |
| HSPA1B   | rs2857605  | TT       |
| DGKB     | rs2191349  | TT       |
| CDKN2B   | rs10811661 | TT       |
| ADCY5    | rs11708067 | AA       |
| CDKAL1   | rs7756992  | GG       |
| TSPAN3   | rs7177055  | GA       |
| IGF2BP2  | rs1470579  | CA       |
| BCL2     | rs12454712 | CT       |
| CCND2    | rs76895963 | TT       |
| SLC30A8  | rs13266634 | TT       |
| HMGA2    | rs2261181  | CC       |
| MC4R     | rs12970134 | GG       |
| IMPDH1   | rs791595   | GG       |
| SLC38A11 | rs10195252 | CC       |
| GCKR     | rs780093   | TT       |
| JAZF1    | rs1635852  | CC       |
| TAP2     | rs2071479  | CC       |

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

# Insulin Resistance

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

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

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

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

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

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

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

The risk of insulin resistance may also increase due to:

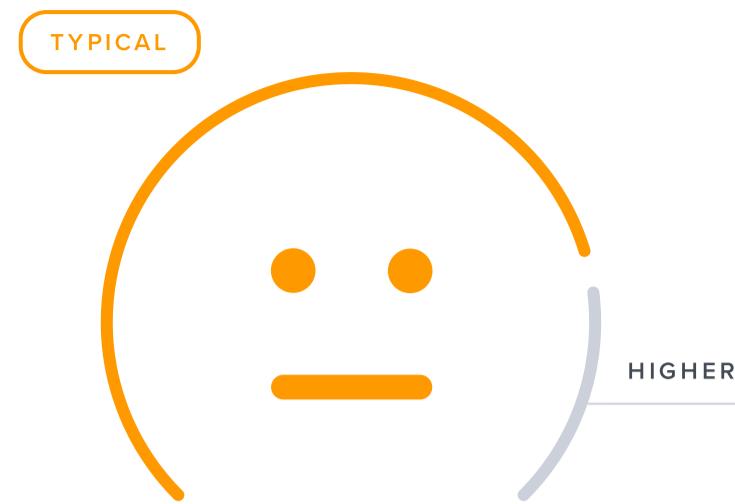
- Aging [R, R]
- Stress [R, R]
- Fasting [R, R, R]
- Western diet [R]
- Too little sleep [R, R, R, R]
- Pregnancy [R]
- Exposure to toxins (e.g., herbicides) [R, R, R]
- Some drugs (e.g., corticosteroids) [R, R]

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

Insulin resistance may increase the risk of:

- Diabetes
- Liver disease
- Metabolic syndrome

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



**Likely typical insulin resistance based on 11,606 genetic variants we looked at**

Your top variants that most likely impact your genetic predisposition:

| GENE    | SNP        | GENOTYPE |
|---------|------------|----------|
| GAS1    | rs9792548  | AA       |
| ZC3H12C | rs475338   | AA       |
| FBXO21  | rs2036313  | GG       |
| /       | rs12969333 | AA       |
| SORCS1  | rs7088188  | TT       |
| HAPLN1  | rs1457105  | CC       |
| DAAM2   | rs4345393  | GG       |
| ME1     | rs11967452 | CC       |
| KCNK17  | rs10456469 | GG       |
| ORMDL3  | rs939345   | CC       |
| ZIC5    | rs7338383  | GG       |
| TCF15   | rs6053042  | CC       |
| ATP8B1  | rs10439020 | AA       |
| RAB28   | rs1197712  | AA       |
| MPC1    | rs2281056  | AA       |
| MROH8   | rs11698899 | GG       |
| RUNX3   | rs803323   | AA       |
| TLR4    | rs13290714 | CC       |
| MDGA1   | rs17589516 | AA       |

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

# HbA1c

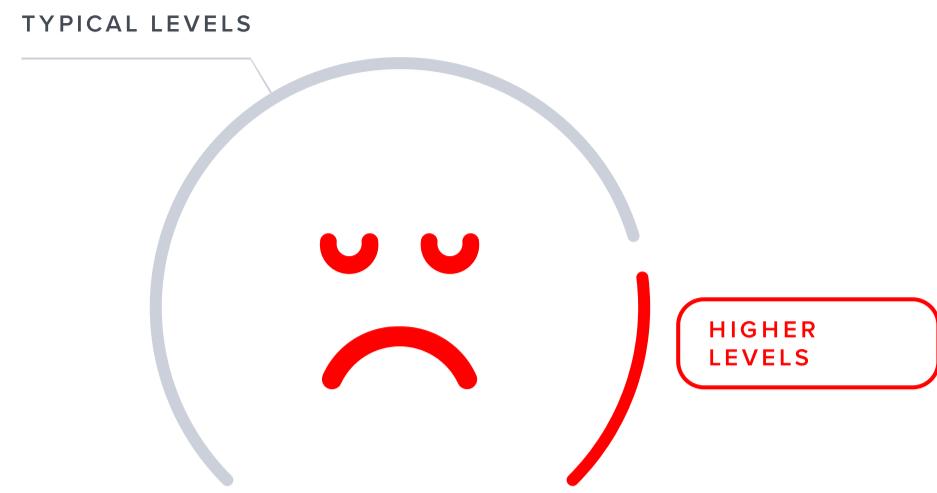
Sugar in the blood can stick to **hemoglobin**, a protein that helps red blood cells transport oxygen around the body. Hemoglobin with sugar stuck to it is called **glycated hemoglobin (HbA1c or A1c)**. HbA1c percentage reflects the average amount of sugar in your blood over the past 8-12 weeks. The higher the percentage, the higher your blood sugar [R, R, R].

A doctor might order blood sugar tests like HbA1c if any of the following risk factors apply to you [R, R]:

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

If you're at risk of diabetes, your doctor may advise you to lose weight and change your diet. **Eating less sugar is usually the first step.** If your blood sugar is very high, your doctor may also prescribe medications [R, R].

**Up to 75% of the differences in people's HbA1c levels can be attributed to genetics.** Genes involved in glucose metabolism may contribute to higher HbA1c levels [R, R, R].



**Likely higher HbA1c levels based on 967,688 genetic variants we looked at**

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

| GENE     | SNP         | GENOTYPE |
|----------|-------------|----------|
| CCND2    | rs76895963  | TT       |
| ANKH     | rs146886108 | CC       |
| H1-2     | rs144861591 | CC       |
| HNRNPUL1 | rs180958600 | AA       |
| SOS2     | rs72681869  | GG       |
| PFKM     | rs4760682   | AA       |
| UBE2V2   | rs113440580 | CC       |
| GYPC     | rs111631066 | GG       |
| KEL      | rs4987703   | CC       |
| GLP1R    | rs10305492  | GG       |
| MSTN     | rs191148279 | GG       |
| THADA    | rs41382648  | CC       |
| ADCY5    | rs11708067  | AA       |
| CCND1    | rs74606104  | GG       |
| G6PC2    | rs560887    | TC       |
| CDKAL1   | rs35261542  | AA       |
| SPTA1    | rs2852635   | AG       |
| TCF7L2   | rs35198068  | CT       |
| APRT     | rs837763    | CT       |

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

# Low Blood Sugar

Glucose is a sugar that our body uses to make energy. **Insulin is a hormone that causes blood sugar (glucose) levels to drop.** People with diabetes don't make enough insulin and have to take insulin or other medication to help regulate their blood sugar levels. **However, too much medication can cause low blood sugar (hypoglycemia)** [R, R, R].

In people without diabetes, hypoglycemia may be caused by [R]:

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

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

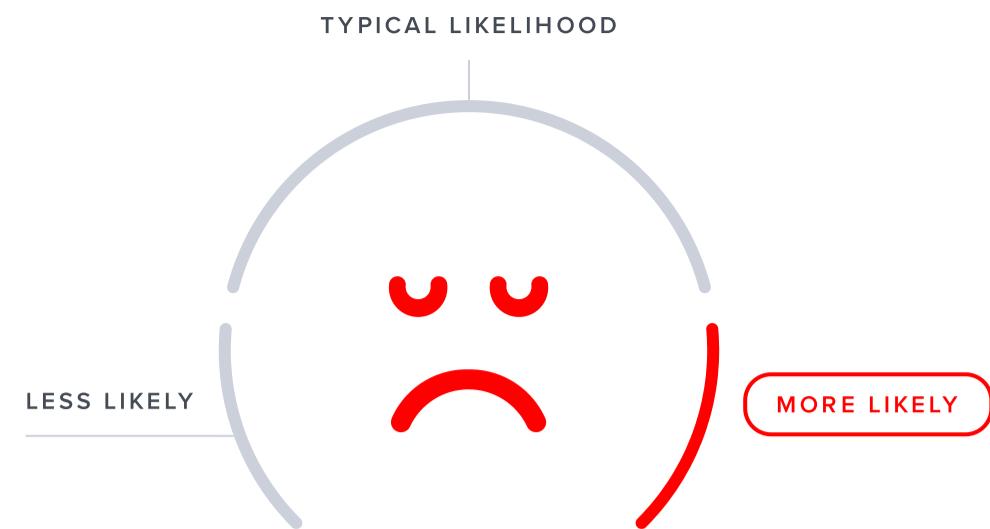
People with hypoglycemia may have symptoms like [R]:

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

**Any low blood sugar episode that produces symptoms should be treated immediately. Untreated, hypoglycemia can be life-threatening** [R, R].

Immediate treatment of hypoglycemia involves getting some sugar into the body. Fruit juice, regular soft drinks, and sugary candy are good first options because they work quickly. Then, a proper meal or snack should be eaten. In extreme cases, medication may be needed [R, R, R].

If you have recurrent hypoglycemia, work with your doctor to manage the condition [R].



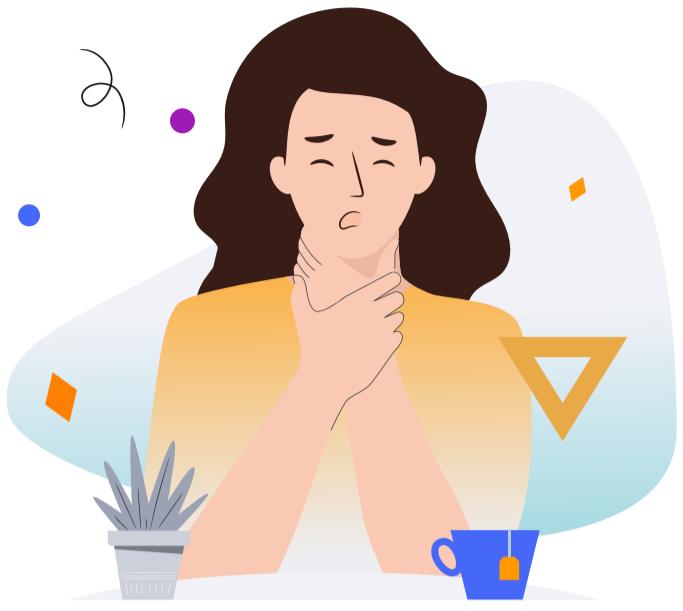
**More likely to have low blood sugar based on 126,569 genetic variants we looked at**



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

| GENE     | SNP        | GENOTYPE |
|----------|------------|----------|
| MTNR1B   | rs10830963 | CC       |
| GCK      | rs4607517  | GG       |
| G6PC2    | rs560887   | TC       |
| GCKR     | rs780094   | TT       |
| SLC30A8  | rs11558471 | GG       |
| MADD     | rs7944584  | TT       |
| TOP1     | rs6072275  | GG       |
| KL       | rs576674   | AA       |
| VPS13C   | rs11071657 | GG       |
| ADRA2A   | rs10885122 | GT       |
| CRY2     | rs11605924 | CA       |
| ZBED3    | rs7708285  | AA       |
| TCF7L2   | rs4506565  | TA       |
| SLC25A29 | rs3783347  | GT       |
| DUS2     | rs8044995  | AG       |
| GLIS3    | rs7034200  | AC       |
| PROX1    | rs340874   | CT       |
| PDE6C    | rs2785137  | AG       |
| TMEM245  | rs16913693 | TT       |

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



# Thyroid Health

**Thyroid hormones are key players in your metabolic health.** They affect your metabolic rate, body temperature, energy production, breathing, and more. Needless to say, if your thyroid is out of balance, your metabolism 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.



TYPICAL LIKELIHOOD

## Underactive Thyroid

Typical likelihood of hypothyroidism



TYPICAL LIKELIHOOD

## Overactive Thyroid

Typical likelihood of hyperthyroidism

# Underactive Thyroid

## Key Takeaways:

- Up to 65% of differences in thyroid hormone levels may be due to genetics.
- Risk factors include: autoimmune conditions, too much/little iodine, thyroiditis, radiation treatment, medications, genetics.
- 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.

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].

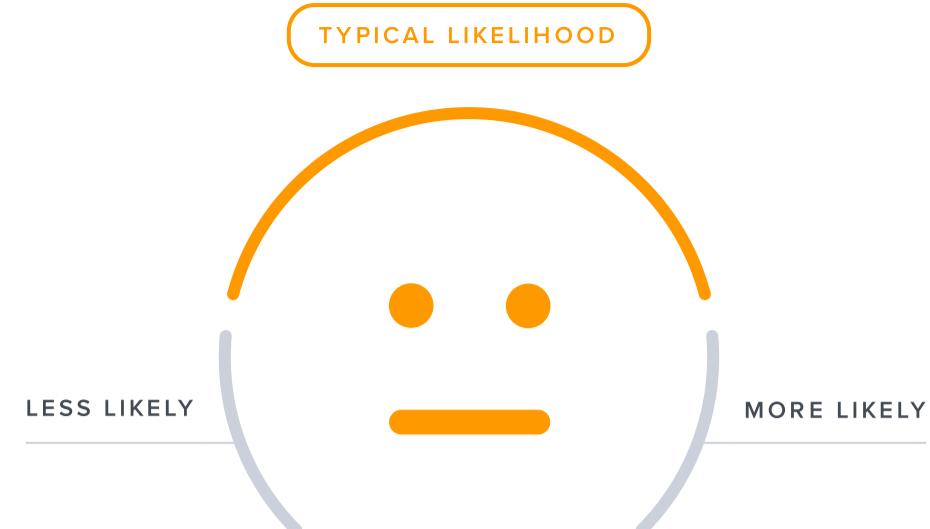
If you have an underactive thyroid (hypothyroidism), treatment will depend on your hormone levels, medical history, and your signs and symptoms.

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 genetics.** Genes that may affect thyroid function include [R, R]:

- PDE8B
- DIO1
- CAPZB



**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       |
| TRMO   | rs925489    | TT       |
| TSHR   | rs12101261  | TT       |
| TPO    | rs11675434  | CT       |
| VAV3   | rs7537605   | GA       |
| NBL1   | rs10917477  | GA       |
| FCRL3  | rs7522061   | CT       |
| MICB   | rs1800629   | GA       |
| MICB   | rs2517532   | GA       |
| TRMO   | rs7030280   | TT       |
| TYK2   | rs34536443  | GG       |
| SESN3  | rs4409785   | CC       |
| PDE8B  | rs1479565   | AA       |
| SESN1  | rs1364450   | CC       |
| CD44   | rs736374    | AA       |
| FAP    | rs2111485   | GG       |
| RBPJ   | rs7441808   | GG       |
| CLECL1 | rs370475698 | TT       |
| TPO    | rs11675342  | 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.

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

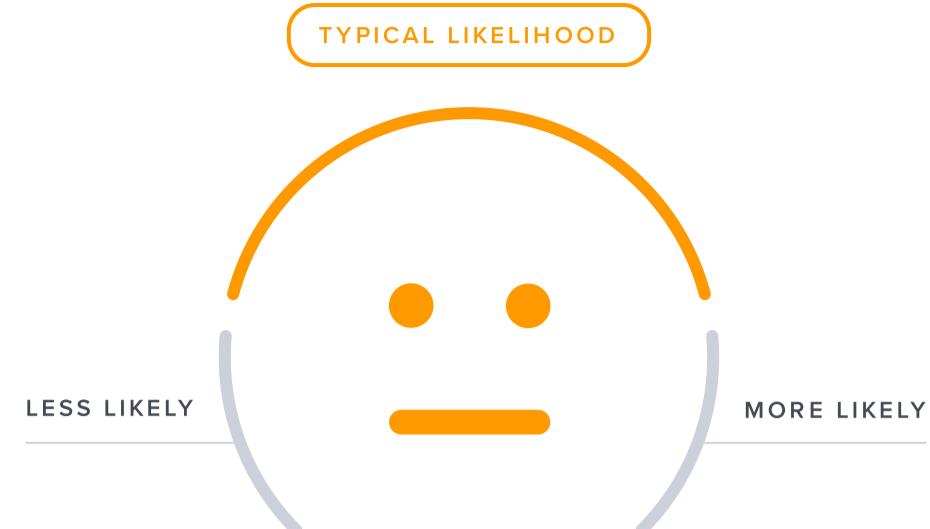
Diet changes may also help manage some cases. For example, if you have an autoimmune thyroid condition, you may need to avoid iodine-rich foods like seaweed [R].

**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](#))



**Typical likelihood of hyperthyroidism based on 526 genetic variants we looked at**



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

| GENE    | SNP         | GENOTYPE |
|---------|-------------|----------|
| TSHR    | rs12101261  | TT       |
| CD40    | rs1883832   | CC       |
| FCRL3   | rs7522061   | CT       |
| MICB    | rs1800629   | GA       |
| MICB    | rs2517532   | GA       |
| SOX9    | rs8077245   | TT       |
| TRMO    | rs925488    | AA       |
| LRRC6   | rs118039499 | AA       |
| MAF     | rs140851213 | TT       |
| RNASET2 | rs385863    | GG       |
| CD40    | rs6131010   | GG       |
| BACH2   | rs604912    | GG       |
| TSHR    | rs2160215   | TC       |
| FAM227B | rs17477923  | CT       |
| VEGFA   | rs66760320  | TC       |
| FAM227B | rs4338740   | CT       |
| SESN3   | rs4409785   | CC       |
| CD40    | rs1569723   | AA       |
| TSHR    | rs28414437  | AC       |

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



# 🛡️ Miscellaneous

This section covers different aspects of your metabolic health, from sweating to detox to muscle metabolism. Knowing your genetic predisposition in these areas will give you a clearer picture of your metabolic health.



TYPICAL LIKELIHOOD

## Heavy Sweating

Typical likelihood of hyperhidrosis



MORE LIKELY

## Gout

More likely to have gout



HIGHER LEVELS

## Uric Acid

Likely higher uric acid levels



TYPICAL LIKELIHOOD

## High PTH

Typical likelihood of having high PTH

# Heavy Sweating

## Key Takeaways:

- Genes that affect excessive sweating may influence nerve function and chemical messengers.
- Excessive sweating can also be caused by diabetes, menopause, thyroid problems, low blood sugar, infections.
- Excessive sweating can impact quality of life and cause undue stress and anxiety.
- Up to 5% of people in the United States may have hyperhidrosis, though only about half may be diagnosed.

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

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

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

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

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

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

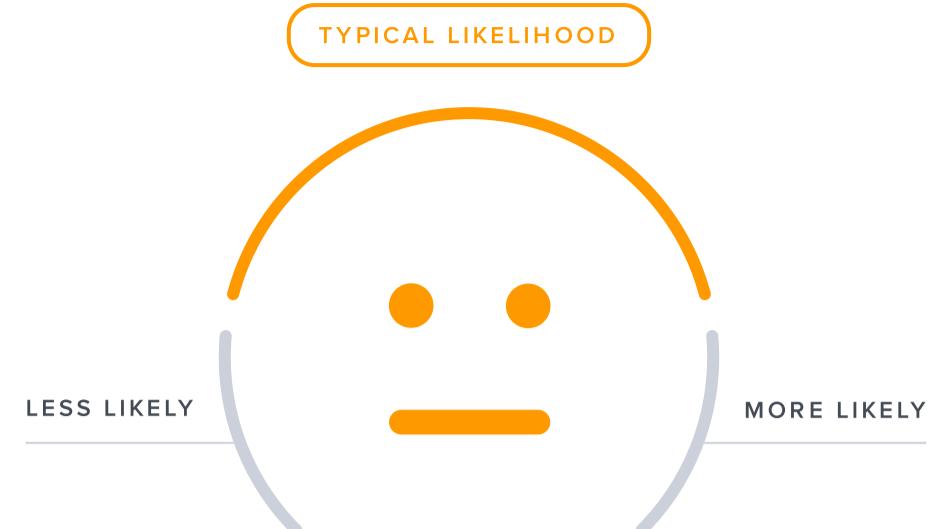
- Topical medication
- Antiperspirants
- Surgery
- Botulinum toxin therapy

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

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

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

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



**Typical likelihood of hyperhidrosis based on 104 genetic variants we looked at**



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

| GENE    | SNP         | GENOTYPE |
|---------|-------------|----------|
| LONP2   | rs6500380   | GG       |
| PPP1CB  | rs56089836  | GG       |
| LYPD6B  | rs7586963   | CG       |
| PPP1CB  | rs1534480   | CC       |
| DLG2    | rs12280544  | CC       |
| TLN2    | rs139024759 | AA       |
| TUSC1   | rs117093392 | AA       |
| UBLCP1  | rs143772159 | CC       |
| CADM1   | rs144975908 | GG       |
| FZD8    | rs190252627 | CC       |
| /       | rs75470475  | CC       |
| LRRC7   | rs113867145 | GG       |
| SETD7   | rs183414800 | TT       |
| LRRC7   | rs113992293 | GG       |
| KRT72   | rs61740873  | GG       |
| /       | rs74837903  | TT       |
| LRRC7   | rs111398942 | CC       |
| SLC6A16 | rs149876322 | CC       |
| LRRC7   | rs113434595 | CC       |

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

# Gout

## Key Takeaways:

- About 30% of differences in people's chances of developing gout may be due to genetics.
- Risk factors: diet rich in purines, fructose, alcohol, high blood pressure, obesity, diabetes, kidney disease, and genetics.
- Symptoms include pain and swelling in toes, fingers, elbows, or wrists.
- Gout is a common form of arthritis caused by a buildup of urate crystals that can lead to osteoarthritis.

**Gout is a common type of arthritis.** It is caused by urate crystals building up in the joints [R, R].

Urate crystals are formed from *uric acid*, a waste product. The body makes the most uric acid when it breaks down *purines*. These are compounds found in our cells and in many foods, such as meat and seafood [R].

**The major symptom of gout is pain and swelling in the joints.** The most commonly affected joint is the big toe. However, gout can also occur in other joints, such as the elbows, wrists, and fingers [R, R].

Gout comes and goes in cycles called flares. Flare-ups are often sudden and tend to occur at night. Afterward, the joint may be uncomfortable for days or weeks [R, R].

Left untreated, gout can cause [R]:

- *Tophi* (crystals around the joints and other parts of the body, just under the skin)
- Joint deformities
- Loss of bone
- Osteoarthritis

**This condition is most common in middle-aged people.** Younger people do not usually get gout, but if they do, it tends to be severe [R, R].

In addition to age, other risk factors for gout include [R, R]:

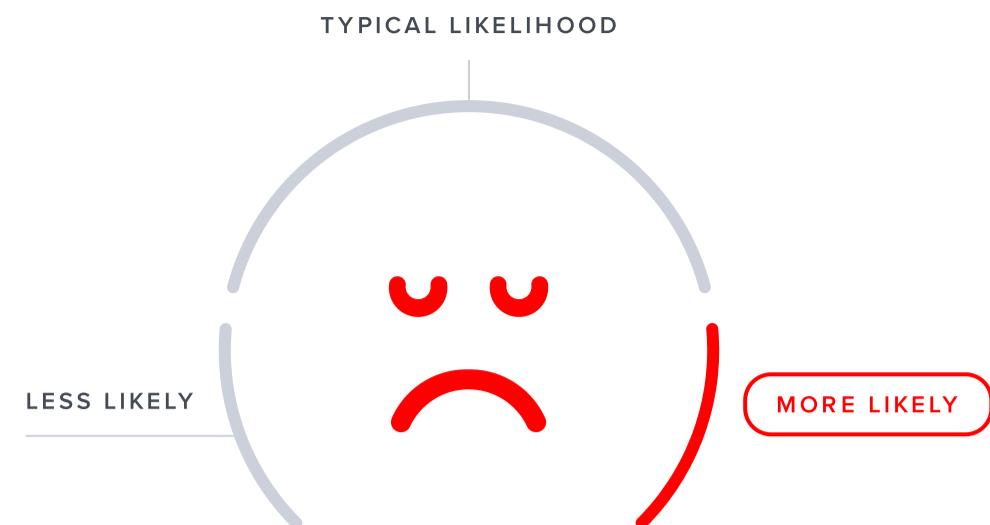
- A diet rich in purines (e.g., from red meat and shellfish)
- Fructose (fruit sugar)
- Alcohol (especially beer)
- Some medication
- High blood pressure
- Being overweight or obese
- Certain health conditions (e.g., diabetes, heart disease, and kidney disease)
- **Genetics**

Gout is a manageable condition with well-established treatments. For people with gout, a doctor may recommend [R, R, R, R]:

- Medication
- A low-purine diet
- Drinking more water
- Avoiding alcohol
- Weight management
- Exercise

**About 30% of differences in people's chances of developing gout may be attributed to genetics.** Genes involved in gout may influence [R, R]:

- The immune response (*HLA-B*)
- Uric acid levels (*ABCG2*, *SLC2A9*, *SLC22A11*, *SLC22A12*, *SLC17A1*)



**More likely to have gout based on 233 genetic variants we looked at**



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

| GENE    | SNP        | GENOTYPE |
|---------|------------|----------|
| SLC2A9  | rs13129697 | TT       |
| SLC2A9  | rs75341455 | CC       |
| ADH1B   | rs1229984  | CT       |
| TRMT112 | rs2078267  | CC       |
| GCKR    | rs1260326  | TT       |
| INHBC   | rs2229357  | GG       |
| IDH2    | rs28508560 | TT       |
| TMEM171 | rs520007   | CC       |
| CARMIL1 | rs9461183  | GG       |
| SPP1    | rs2728127  | AG       |
| OVOL1   | rs11227299 | CG       |
| BUD23   | rs2286276  | TC       |
| RREB1   | rs11755724 | AG       |
| MTX1    | rs760077   | TA       |
| SFMBT1  | rs2581778  | GA       |
| PNPLA3  | rs738409   | CG       |
| PRKAG2  | rs10224002 | GA       |
| LRP2    | rs2075252  | CT       |
| MAN2C1  | rs1394125  | AG       |

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

# Uric Acid

Uric acid is made in the liver as an end product of the breakdown of **purines** (chemicals found in our cells and in foods such as meat and seafood). If too much uric acid is produced or not enough is removed by the kidneys, it can build up in the blood and urine. Uric acid crystals can deposit in the body, causing kidney stones or gout [R, R, R, R].

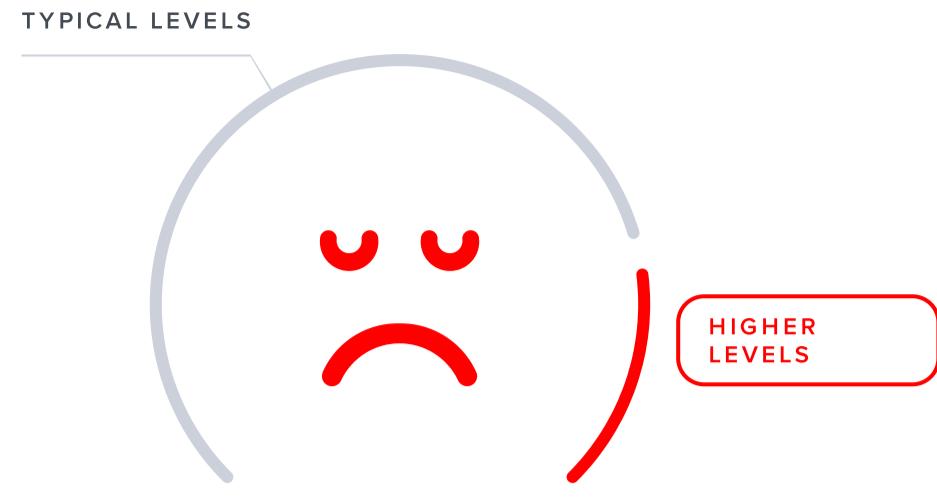
Blood uric acid increases with age. Men tend to have higher levels than women, and are therefore at greater risk of developing gout. This may be because estrogen helps eliminate uric acid [R, R].

Causes of elevated uric acid levels include:

- A diet high in purines (e.g., from meat and seafood) [R, R]
- A diet high in sugar [R, R, R]
- Obesity [R]
- Heavy drinking [R]

**Up to 70% of differences in people's uric acid levels may be attributed to genetics.** Genes involved may influence [R]:

- How kidneys clear uric acid
- How much uric acid is created in the liver



**Likely higher uric acid levels based on 11,718 genetic variants we looked at**

Your top variants that most likely impact your genetic predisposition:

| GENE    | SNP         | GENOTYPE |
|---------|-------------|----------|
| HPRT1   | rs73560966  | CC       |
| HMGCS2  | rs150147865 | AA       |
| SOS2    | rs72681869  | GG       |
| ACVR1   | rs186905001 | AA       |
| SLC17A1 | rs2762353   | GG       |
| CCND2   | rs76895963  | TT       |
| ABCA6   | rs77542162  | AA       |
| INHBC   | rs2229357   | GG       |
| ZDHHC18 | rs114165349 | CG       |
| PIP5KL1 | rs56379622  | GG       |
| ZKSCAN5 | rs34670419  | GG       |
| ADAM15  | rs11264341  | CC       |
| MLXIPL  | rs13247874  | CC       |
| SH3YL1  | rs62106258  | TT       |
| UNCX    | rs13230509  | CC       |
| SLC39A8 | rs13107325  | CC       |
| VEGFA   | rs1317983   | CC       |
| AAK1    | rs12987661  | TT       |
| SFMBT1  | rs2581824   | AA       |

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

# High PTH

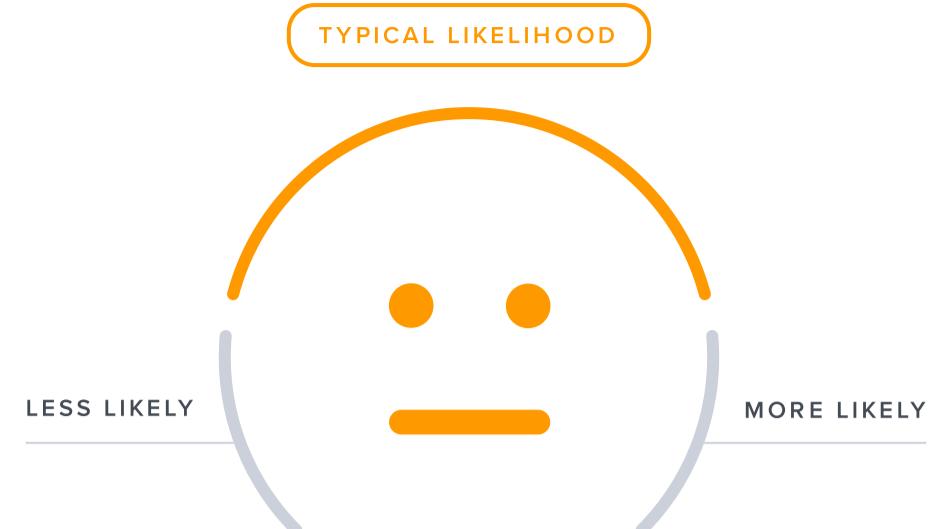
**Parathyroid hormone or PTH** is a hormone made by the parathyroid glands. **High PTH (hyperparathyroidism)** can increase blood calcium levels and cause a range of signs and symptoms.

The most common cause of high PTH is **primary hyperparathyroidism**. It happens due to an **enlargement** in one or more parathyroid glands. Risk factors include [R, R, R]:

- Menopause (in women)
- Radiation treatment in the neck area
- Taking lithium (a drug for bipolar disorder)
- Genetics

High PTH can also be caused by conditions that reduce calcium levels. In that case, it's called **secondary hyperparathyroidism**. Risk factors include [R]:

- Severe calcium or vitamin D deficiency
- Chronic kidney disease



**Typical likelihood of having high PTH based on 44,946 genetic variants we looked at**



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

| GENE     | SNP         | GENOTYPE |
|----------|-------------|----------|
| FIBIN    | rs375264315 | CC       |
| MRPS31   | rs141641942 | CC       |
| LDLRAD3  | rs2956325   | CC       |
| RASSF3   | rs190001302 | TT       |
| LRFN5    | rs117828799 | AA       |
| NUTM2B   | rs146467844 | AA       |
| TEX26    | rs73165078  | AA       |
| HMX3     | rs80212821  | CC       |
| TRHDE    | rs117792731 | CC       |
| CCDC179  | rs116901664 | AA       |
| SVIP     | rs78033659  | AA       |
| ANKRD30A | rs182083216 | CC       |
| UBL3     | rs148955645 | TT       |
| CLEC12A  | rs117564390 | TT       |
| TTC6     | rs146985994 | CC       |
| CPXM2    | rs78588830  | CC       |
| RIC3     | rs77193115  | CC       |
| UBAC2    | rs140018682 | GG       |
| PPHLN1   | rs138646204 | TT       |

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

# Your Recommendations

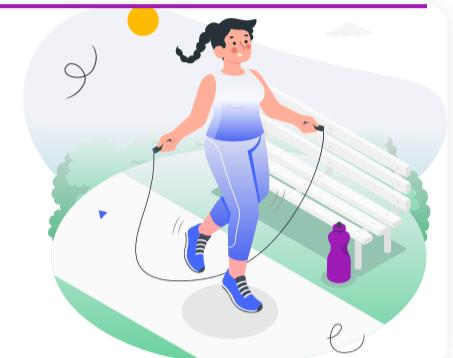
Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

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

1



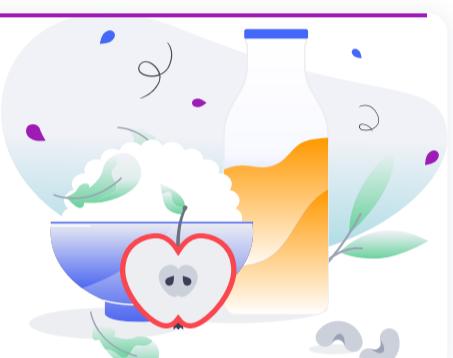
## Maintain a Healthy Weight



2



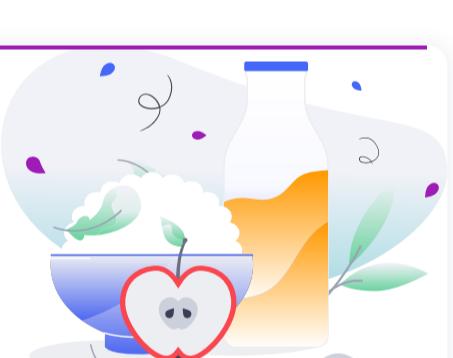
## Avoid Sugary Foods



3



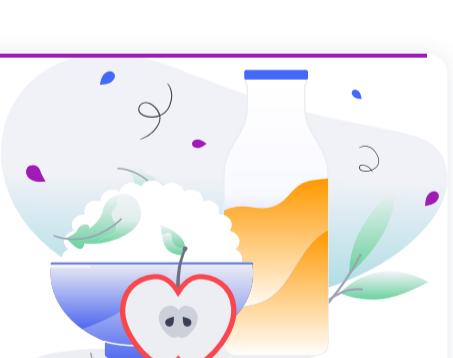
## Limit Alcohol Intake



4



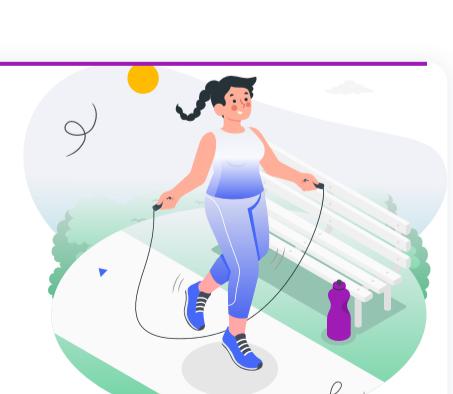
## Coffee



5



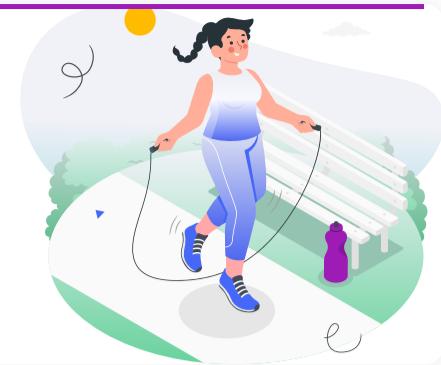
## Relaxation Techniques



6



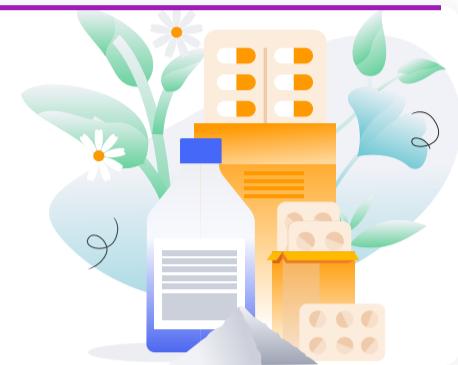
## Exercise



7



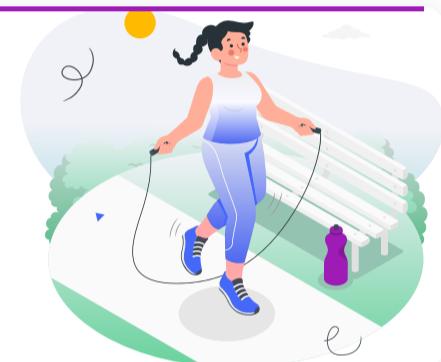
## Vitamin D



8



## Optimize Sleep



9



## Curcumin



10



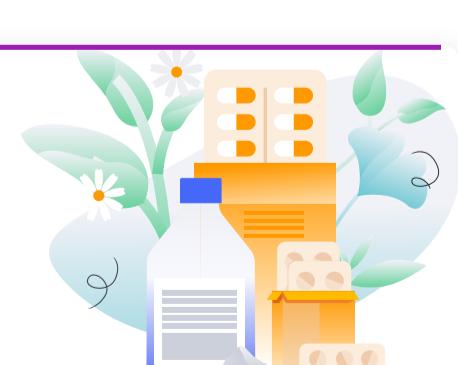
## Fiber



11



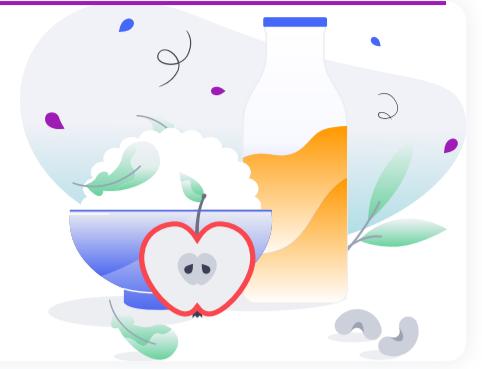
## L-Carnitine



12



## Mediterranean Diet



13



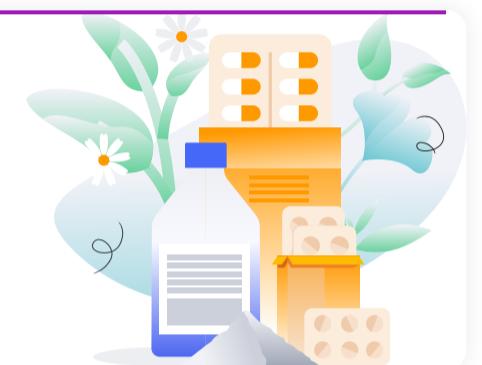
## Berberine



14



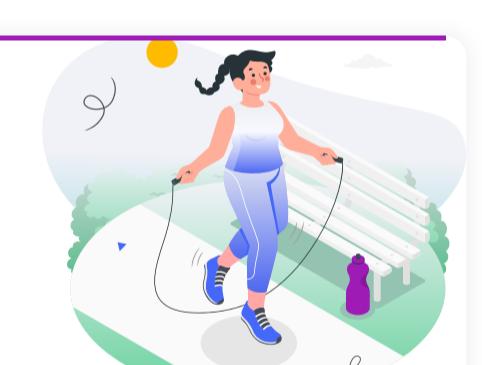
## Black Seed



15



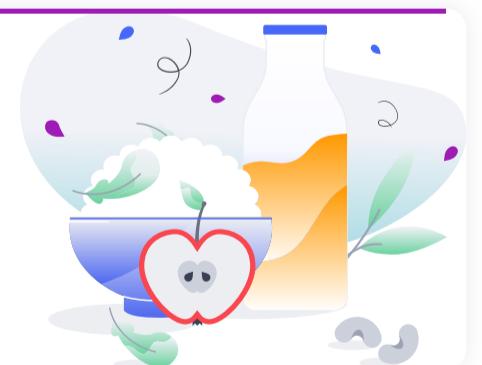
## Plant-Based Diet



16



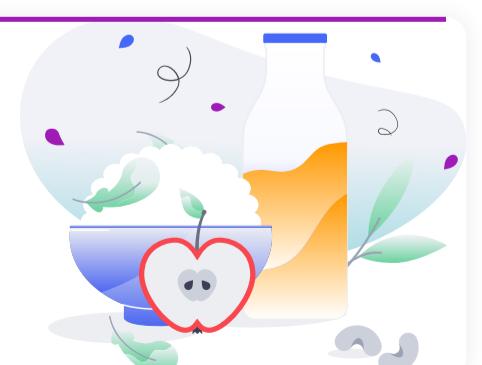
## Cherries



17



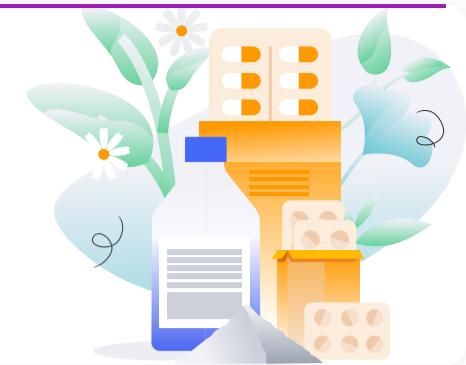
## Dairy Products



18



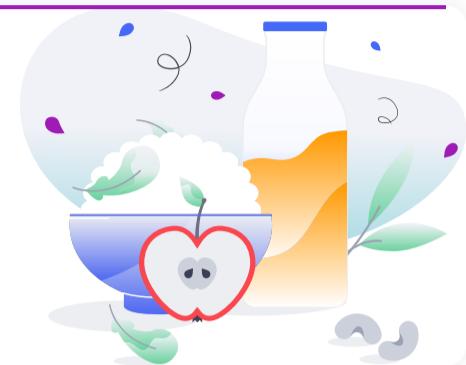
## Vitamin C



19



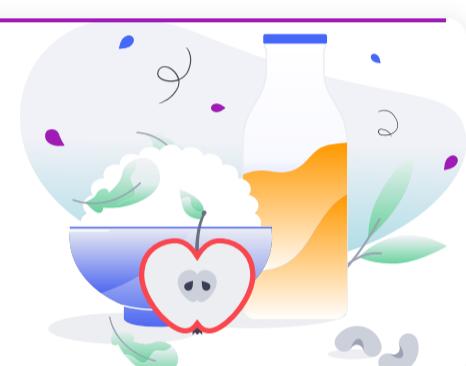
## Flaxseed



20



## DASH Diet



21



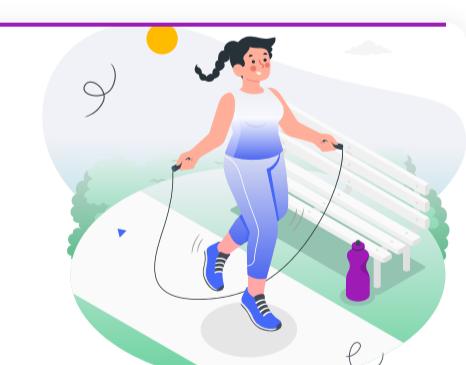
## Zinc



22



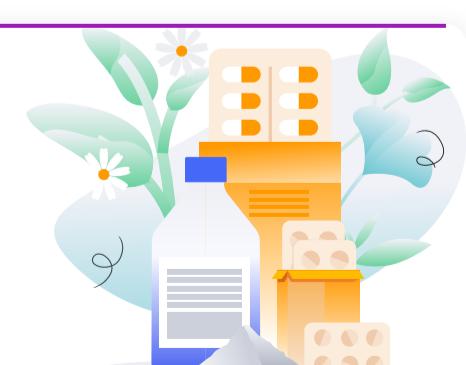
## Avoid Cigarette Smoke



23



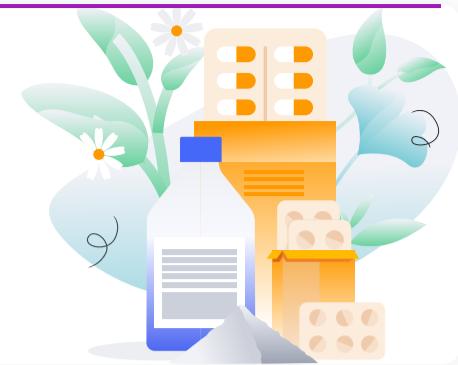
## Alpha-Lipoic Acid



24



## Probiotics



25



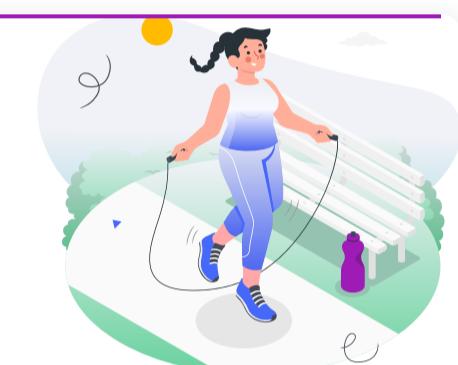
## Resistant Starch



26



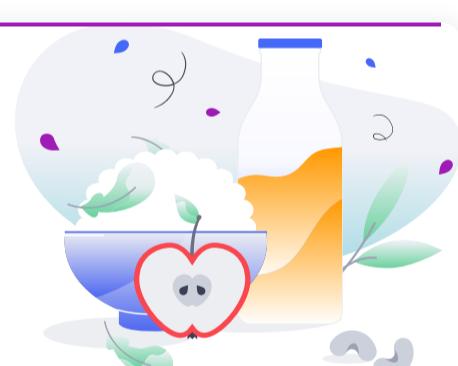
## Psychotherapy



27



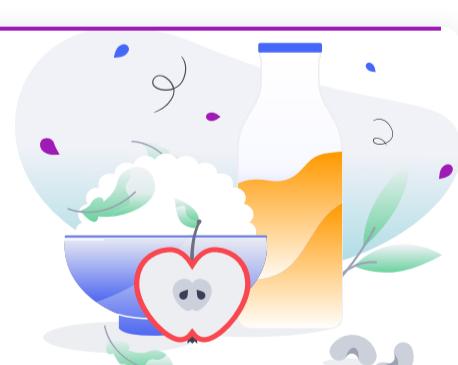
## Green Tea



28



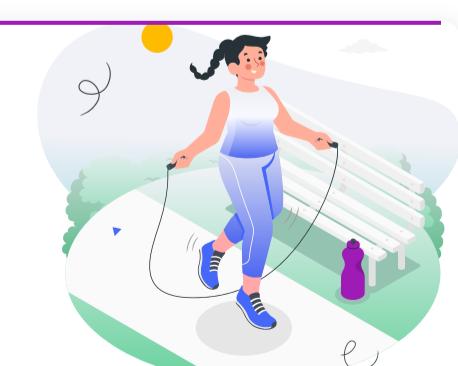
## Soy



29



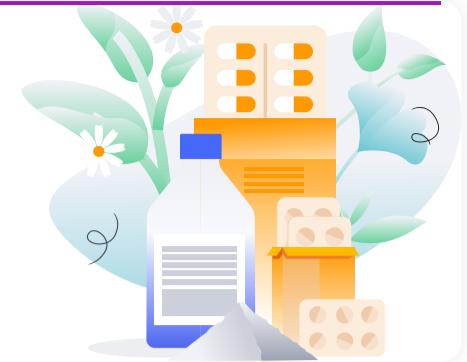
## Acupuncture



30



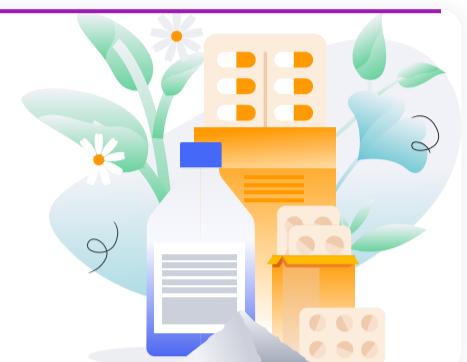
## Soy Isoflavones



31



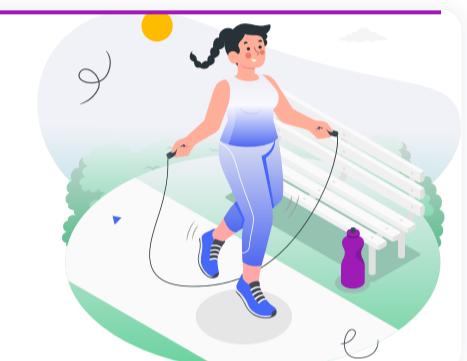
## Aloe Vera



32



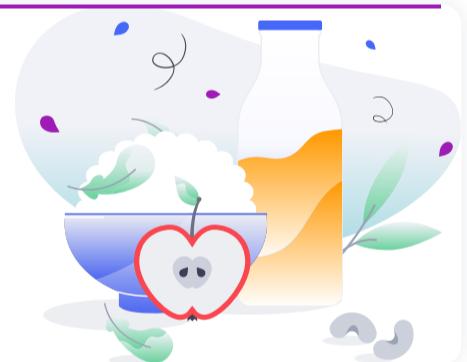
## Optimize Exercise



33



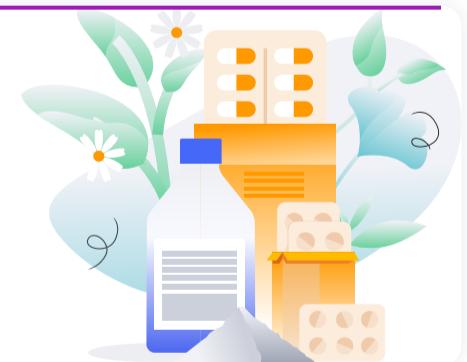
## Optimize Nutrition



34



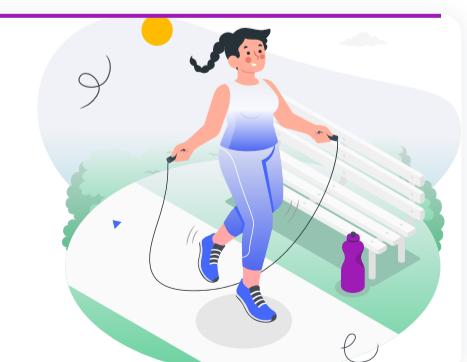
## Ginger



35



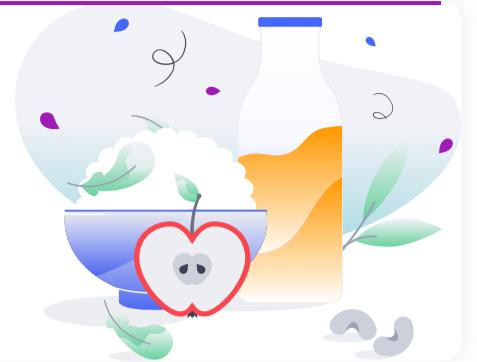
## Good Oral Hygiene



36



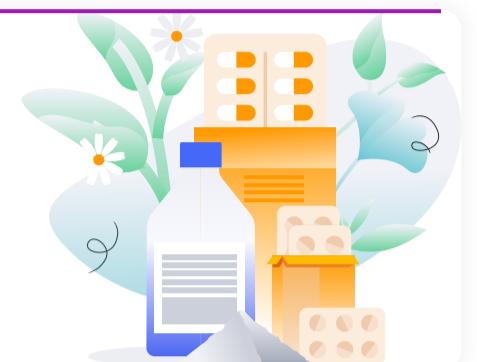
## Ketogenic Diet



37



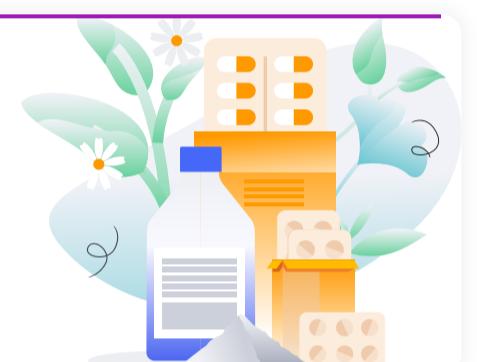
## Milk Thistle



38



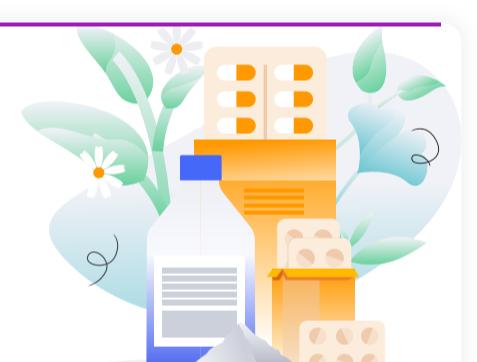
## Propolis



39



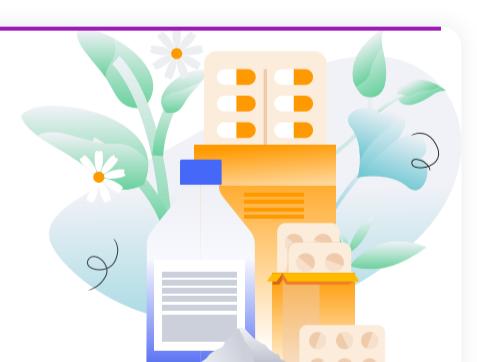
## 5-HTP



40



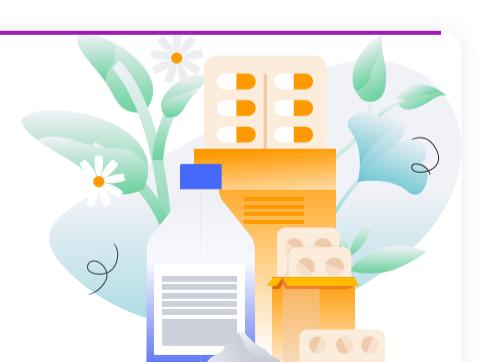
## African Mango



41



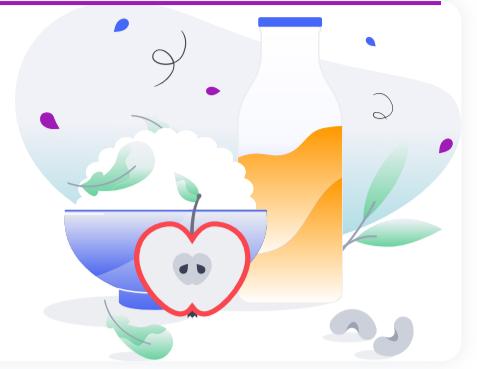
## Agar



42



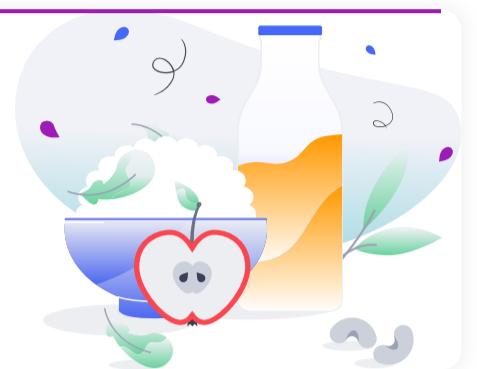
## Apple Cider Vinegar



43



## Apples



44



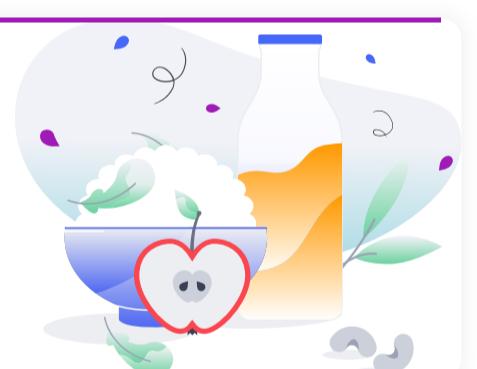
## Beta-Glucans



45



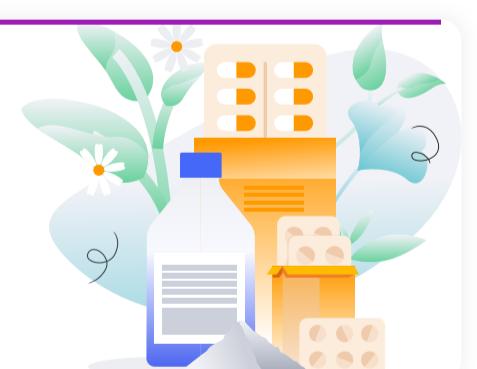
## Black Tea



46



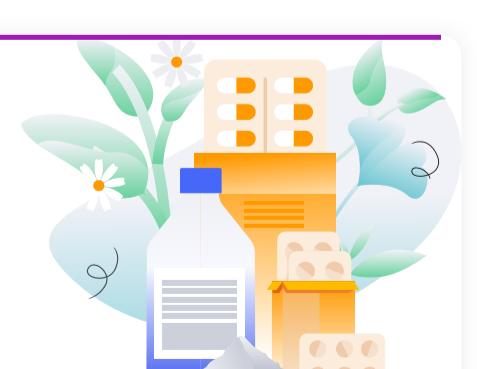
## Caffeine



47



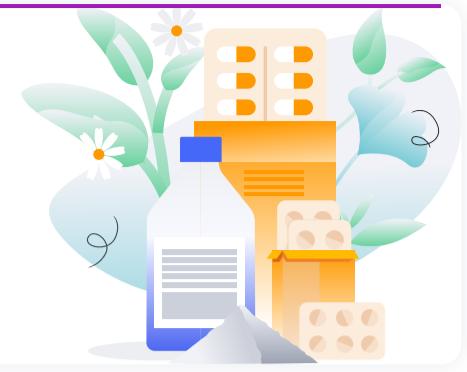
## Capsaicin and Capsinoids



48



## Caralluma Fimbriata



49



## Chitosan



50



## CLA

