

# Metabolic Health

## Summary Report



REPORT CATEGORY —



Report date: 10 January 2024

# Table of contents

How this works

Summary

Overview of results

Details

Recommendations

REPORT PROVIDED BY

**Get Tested International AB**

for Dummy Persson

✉ [hello@gettested.io](mailto:hello@gettested.io)

🌐 <https://gettested.io>

## 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.

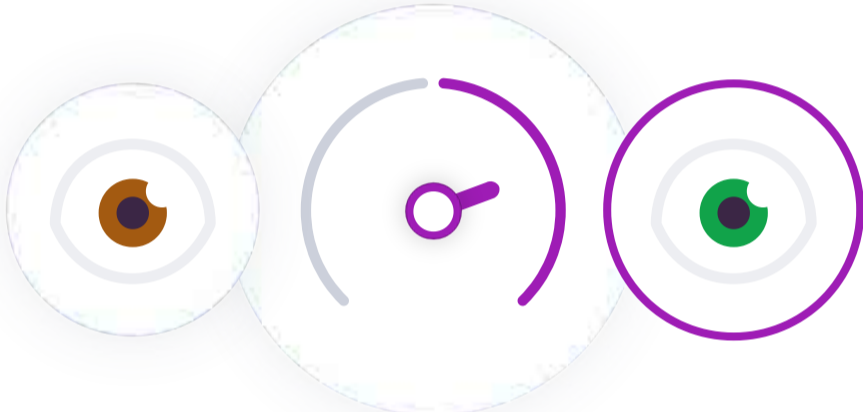


# How this works

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



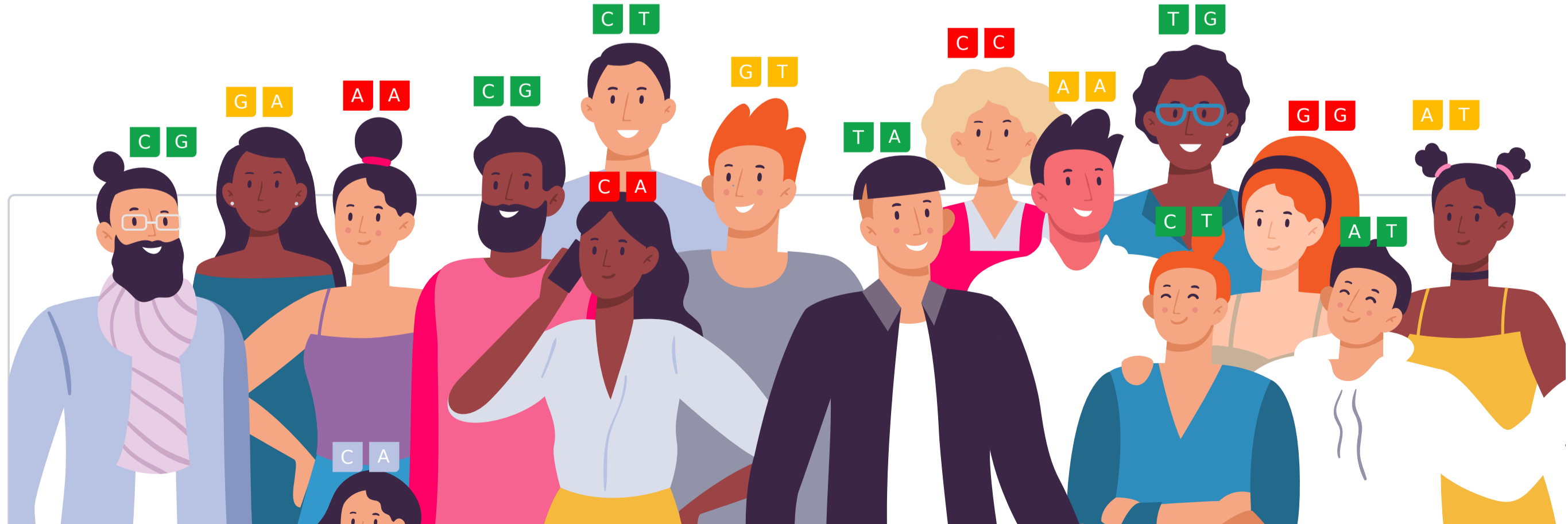
Similarly, our Trait Reports look at how your DNA influences your traits.



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

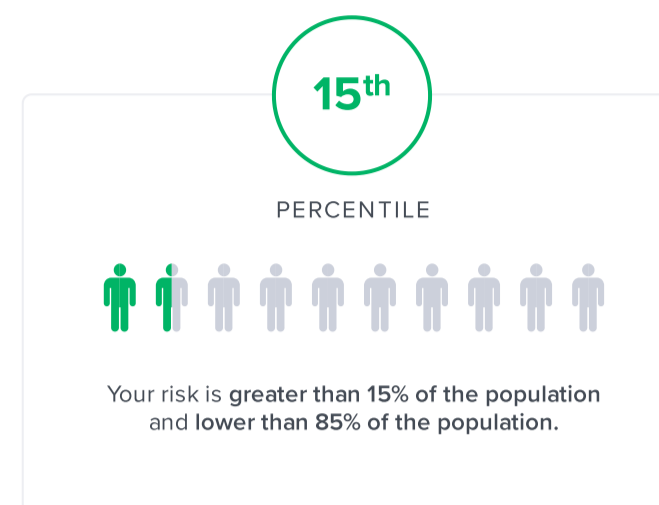
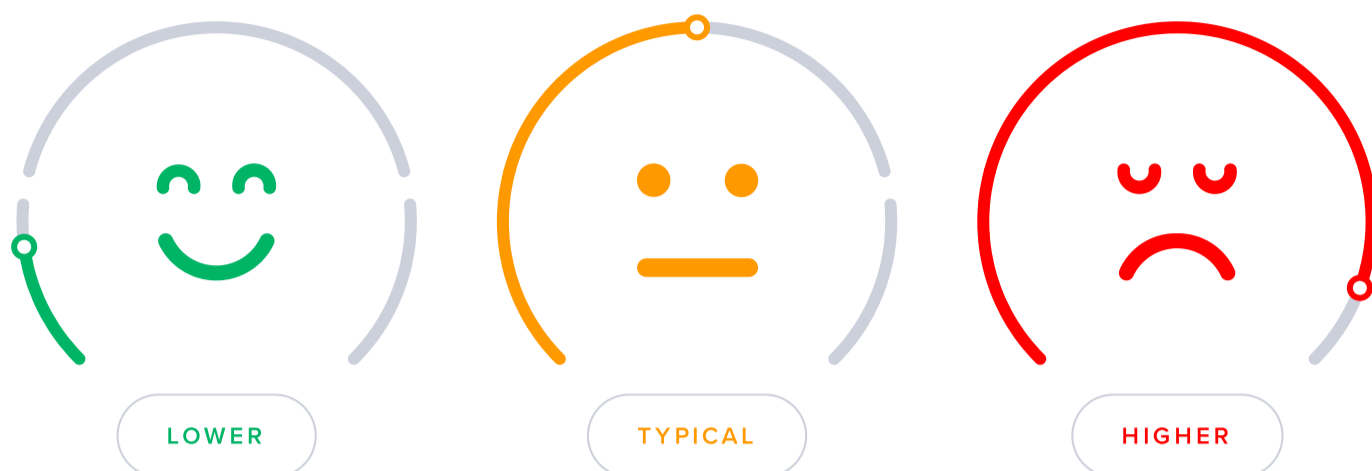
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.

**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.

1



## 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



TYPICAL

**Metabolic Rate**

Likely need a typical amount of calories for your body to function



TYPICAL

**Visceral Fat**

Likely typical amount of visceral fat



TYPICAL LIKELIHOOD

**Weight Regain**

Typical likelihood of weight regain



MORE LIKELY

**Overweight**

More likely to be overweight or obese

## Blood Sugar Control



TYPICAL LEVELS

**Fasting Glucose**

Likely typical fasting glucose levels



TYPICAL

**Insulin Resistance**

Likely typical insulin resistance



TYPICAL LEVELS

**HbA1c**

Likely typical HbA1c levels



TYPICAL LIKELIHOOD

**Low Blood Sugar**

Typical likelihood of low blood sugar



TYPICAL LIKELIHOOD

**High Blood Sugar**

Typical likelihood of type 2 diabetes

## Thyroid Health



TYPICAL LIKELIHOOD

**Overactive Thyroid**

Typical likelihood of hyperthyroidism



TYPICAL LIKELIHOOD

**Underactive Thyroid**

Typical likelihood of hypothyroidism

# Miscellaneous



HIGHER LEVELS

**Uric Acid**

Likely higher uric acid levels



TYPICAL LIKELIHOOD

**Gout**

Typical likelihood of gout



TYPICAL LIKELIHOOD

**Heavy Sweating**

Typical likelihood of hyperhidrosis



TYPICAL LIKELIHOOD

**High PTH**

Typical likelihood of having high PTH

# 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.**



TYPICAL

### Metabolic Rate

Likely need a typical amount of calories for your body to function



TYPICAL

### Visceral Fat

Likely typical amount of visceral fat



TYPICAL LIKELIHOOD

### Weight Regain

Typical likelihood of weight regain



MORE LIKELY

### Overweight

More likely to be overweight or obese

# Metabolic Rate

## Key Takeaways:

- Being high or low metabolism is not inherently problematic. Knowing what yours is allows you to adjust various diet, exercise, and lifestyle choices to properly manage it.
- Your metabolic rate influences movement, thinking, breathing, body temperature, and healing rate.
- High metabolic rate may be affected by being younger, bigger, as well as more active. Low metabolic rate tends to be affected by the opposite of these. Your genetics may impact the influence of these factors.

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.

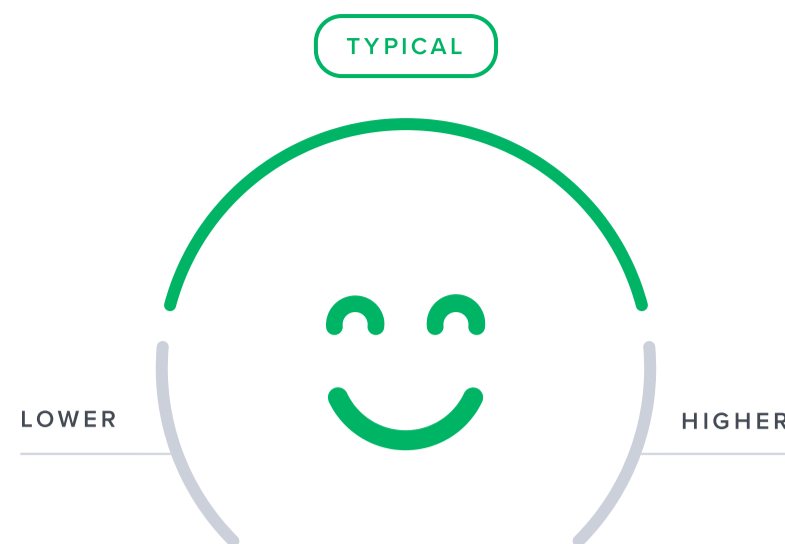
Factors that can contribute to a faster metabolism include [\[R, R, R, R\]](#):

- 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
HMGA2	rs1351394	TC
CCND3	rs33966734	CC
MGA	rs117183161	AA
MC4R	rs76227980	CC
SH3YL1	rs62106258	TT
ZBTB26	rs369508364	CC
CDKN1C	rs143840904	CC
FANCC	rs370727606	GG
ACAN	rs28584580	AA
PAM	rs78408340	CC
ADAMTS10	rs62621197	CC
DLG5	rs117543413	CC
COQ5	rs76929617	AA
PPA2	rs143847362	AA
ASPRV1	rs35986233	AA
RPS20	rs72656010	TT

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

# Visceral Fat

## Key Takeaways:

- About 40% of the differences in levels of visceral fat may be due to genetic factors
- High visceral fat levels have been related to high blood pressure, heart disease, and type 2 diabetes.
- Risk factors include a diet high in saturated fat and sugar, a lack of physical activity, stress, aging, and menopause.
- If your genetic risk is high or you have a low risk but more visceral fat than you want, take action on factors that you can change.

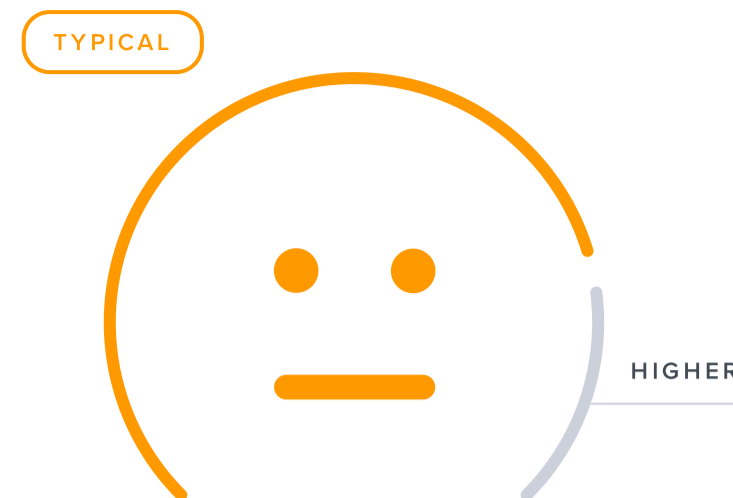
If we asked you to picture body fat, the first thing that would likely come to mind is *subcutaneous fat*. This fat is found under the skin of the belly, thighs, and other areas. However, there is another type of body fat called *visceral fat*. This type of body fat hides in the abdomen and surrounds 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** [\[R\]](#).

For example, genetically high bioavailable testosterone may be causally associated with lower hip circumference in men and genetically high free testosterone may be causally associated with lower body fat [\[R, R\]](#).



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
ADH1B	rs1229984	CC
ADARB1	rs76040172	GG
SH3YL1	rs13393304	GG
/	rs114593013	AA
FTO	rs56094641	AG
GNPDA2	rs10938398	AA
LINGO2	rs17770336	TT
RSPO3	rs9482772	CC
AS3MT	rs3740390	TC
SEC16B	rs539515	AC
SNX11	rs113866544	CT
LIN7C	rs11030112	AG
MEF2C	rs2304608	CA
PDE4C	rs4808762	TC
MFSD10	rs362307	TC
ADCY3	rs10182458	GA
UHRF1BP1	rs9469899	GA

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

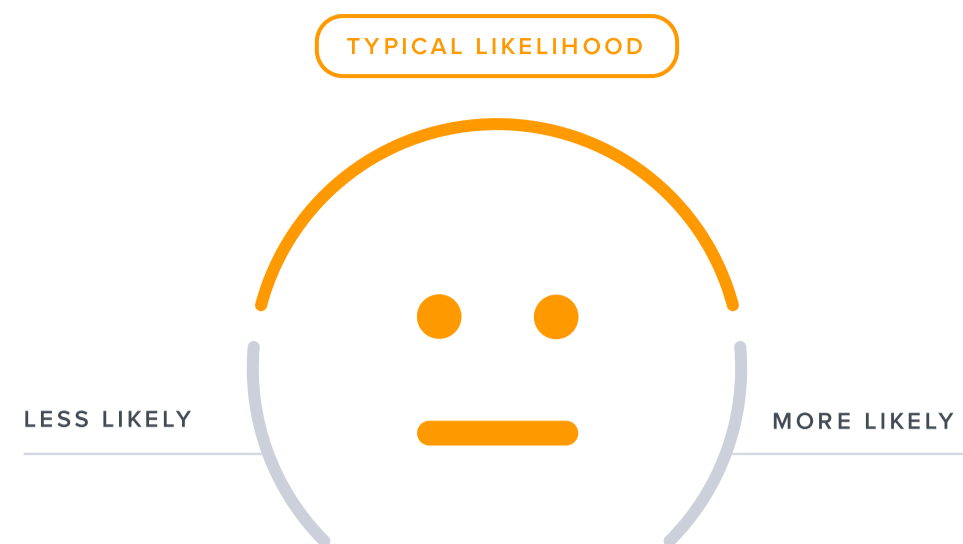
# Weight Regain

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
LEP	rs2071045	TT
BDNF	rs6265	CT
FTO	rs9939609	TA
LEP	rs4731426	GC
CCK	rs11571842	CC
TFAP2B	rs987237	AA
PEX11A	rs894160	CC
SH3YL1	rs6548238	CC
APP	rs2242682	TC
LEPR	rs4655537	AG
TUB	rs4385931	GC
GHRL	rs2619507	GA
ALOX5AP	rs3885907	CA
APP	rs1876063	TG
APP	rs466448	GA
BHLHE40	rs908078	CT

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

# Overweight

## Key Takeaways:

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

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

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

Doctors can use *body mass index* (BMI) to tell if someone is obese. To calculate your BMI, divide your weight by the square of your height (kg/m<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]:

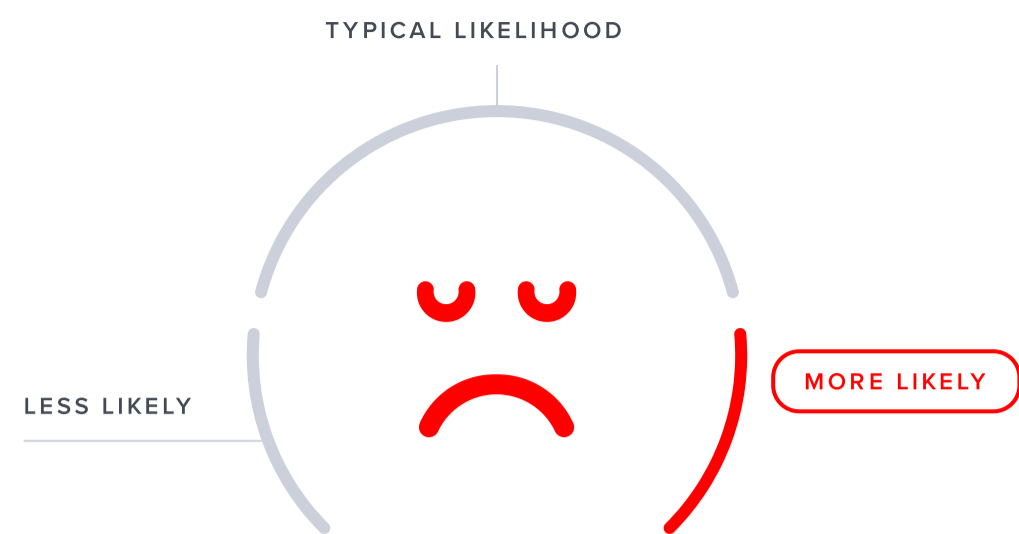
- High blood pressure
- High [cholesterol](#)
- Heart disease
- [High blood sugar](#)
- Reproductive issues and erectile dysfunction
- Breathing problems during sleep
- Joint and bone disorders
- Some cancers

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.

Doctors may recommend a variety of strategies to help reach and maintain a



**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
FTO	rs9939609	TA
GNPDA2	rs10938397	GG
NPC1	rs1808579	CC
NEGR1	rs3101336	CC
MTCH2	rs10838738	AG
SEC16B	rs591120	GC
KCTD15	rs29941	GA
STMN4	rs140901272	CC
GPR151	rs114285050	GG
COQ5	rs76929617	AA
ADAMTS10	rs62621197	CC
SH3YL1	rs13022164	GG
ACAN	rs1516795	TT
TIMELESS	rs3809128	CC
RAD9A	rs7952436	CC
ZCCHC14	rs118105689	TT
ADCY6	rs3730071	CC
RPS20	rs72656010	TT
ZBTB38	rs724016	GG

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

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

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

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





# 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.**



TYPICAL LEVELS

**Fasting Glucose**

Likely typical fasting glucose levels



TYPICAL

**Insulin Resistance**

Likely typical insulin resistance



TYPICAL LEVELS

**HbA1c**

Likely typical HbA1c levels



TYPICAL LIKELIHOOD

**Low Blood Sugar**

Typical likelihood of low blood sugar



TYPICAL LIKELIHOOD

**High Blood Sugar**

Typical likelihood of type 2 diabetes

# Fasting Glucose

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

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

- Pancreas development and function
- Insulin activity
- Glucose breakdown

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

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

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

Genetically higher glucose levels may play a role in [\[R, R, R, R, R, R, R, R, R, R, R, R, R\]](#):

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

TYPICAL LEVELS



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
CDKN2A	rs10811661	TT
KCNJ11	rs5215	CC
ADCY5	rs11708067	AA
SLC30A8	rs13266634	TC
TNF	rs2857605	TC
SLC38A11	rs10195252	CT
DGKB	rs2191349	TG
TSPAN3	rs7177055	AG
GCKR	rs780093	CT
JAZF1	rs1635852	TC
TAP2	rs2071479	CT
GIPR	rs10423928	AT
FTO	rs9939609	TA
BCL2	rs12454712	CT
CCND2	rs76895963	TT
TCF7L2	rs7903146	CC
CDKAL1	rs7756992	AA
HMGA2	rs2261181	CC
MC4R	rs12970134	GG

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

# Insulin Resistance

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

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

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

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

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

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

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

The risk of insulin resistance may also increase due to:

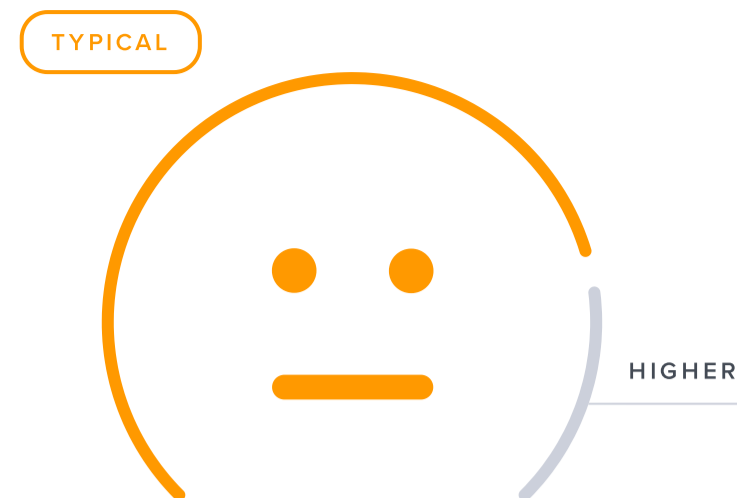
- Aging [R, R]
- Stress [R, R]
- Fasting [R, R, R]
- Western diet [R]
- Too little sleep [R, R, R, R]
- Pregnancy [R]
- Exposure to toxins (e.g., herbicides) [R, R, R]
- Some drugs (e.g., corticosteroids) [R, R]

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

Insulin resistance may increase the risk of:

- Diabetes
- Liver disease
- Metabolic syndrome

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



**Likely typical insulin resistance based on 2,426 genetic variants we looked at**



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

GENE	SNP	GENOTYPE
CSMD1	rs2407314	GC
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
ZIC2	rs7338383	GG
CSNK2A1	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 [\[R, R, R\]](#).

TYPICAL LEVELS



Likely typical 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
H2BC5	rs144861591	CC
HNRNPUL1	rs180958600	AA
G6PC2	rs560887	CC
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
PFKL	rs17850433	TC
FN3KRP	rs9909940	TC
ARPC1B	rs117370443	TC
SLC30A8	rs13266634	TC

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

# Low Blood Sugar

## Key Takeaways:

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

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

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

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

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

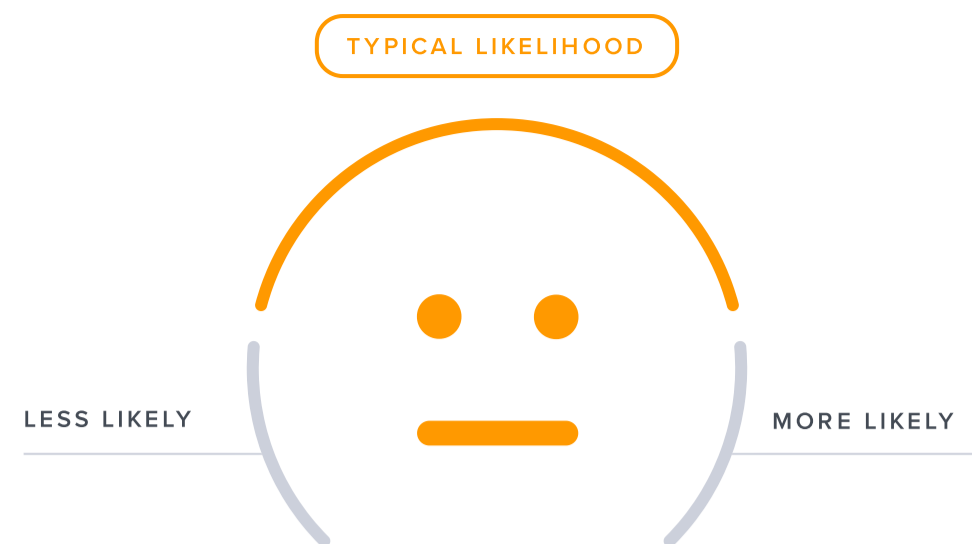
People with hypoglycemia may have symptoms like [R]:

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

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

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

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



**Typical likelihood of 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
SLC30A8	rs11558471	GG
TCF7L2	rs4506565	AA
FOXA2	rs6113722	AG
URAD	rs11619319	AA
TOP1	rs6072275	GG
KL	rs576674	AA
GCKR	rs780094	CT
C2CD4B	rs11071657	GG
ADRA2A	rs10885122	GT
ZBED3	rs7708285	AA
RGS17	rs1281962	GG
GLIS3	rs7034200	CA
PROX1	rs340874	TC
CARD9	rs3829109	AG
PEAK1	rs7178572	GA
PDE6C	rs2785137	GA
G6PC2	rs560887	CC

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

# High Blood Sugar

## Key Takeaways:

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

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

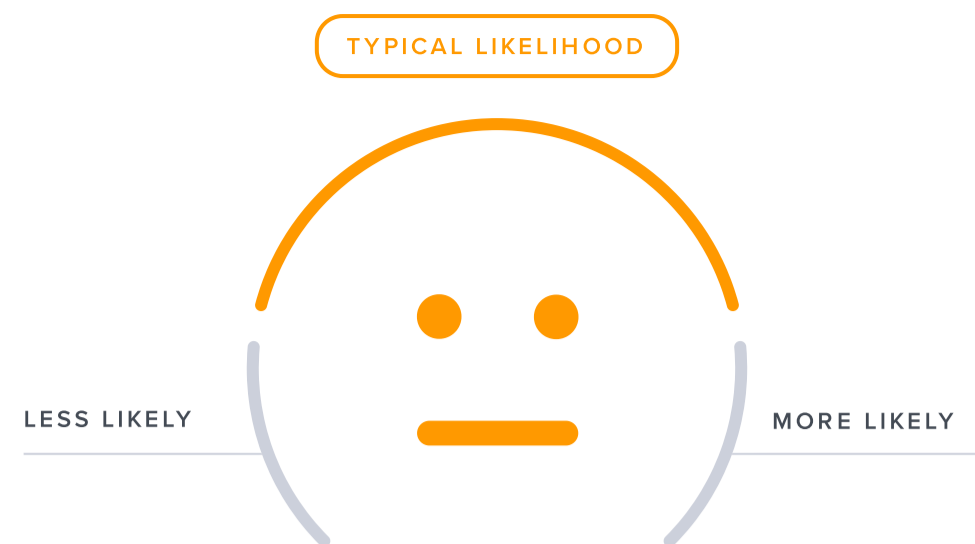
**Up to 80% of the differences in people's chances of getting type 2 diabetes can be attributed to genetics.** Genes that may contribute to high blood sugar influence [R]:

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

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

- IGF-1
- Neutrophils
- Leucine

In contrast, genetic predisposition to the following high markers may be



Typical likelihood of 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
CDKN2A	rs10811661	TT
KCNJ11	rs5215	CC
ADCY5	rs11708067	AA
SLC30A8	rs13266634	TC
TNF	rs2857605	TC
SLC38A11	rs10195252	CT
DGKB	rs2191349	TG
TSPAN3	rs7177055	AG
GCKR	rs780093	CT
JAZF1	rs1635852	TC
TAP2	rs2071479	CT
GIPR	rs10423928	AT
FTO	rs9939609	TA
BCL2	rs12454712	CT
CCND2	rs76895963	TT
TCF7L2	rs7903146	CC
CDKAL1	rs7756992	AA
HMG2A	rs2261181	CC
MC4R	rs12970134	GG

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

- Alpha-linolenic acid



# 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

## Overactive Thyroid

Typical likelihood of hyperthyroidism



TYPICAL LIKELIHOOD

## Underactive Thyroid

Typical likelihood of hypothyroidism



# 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

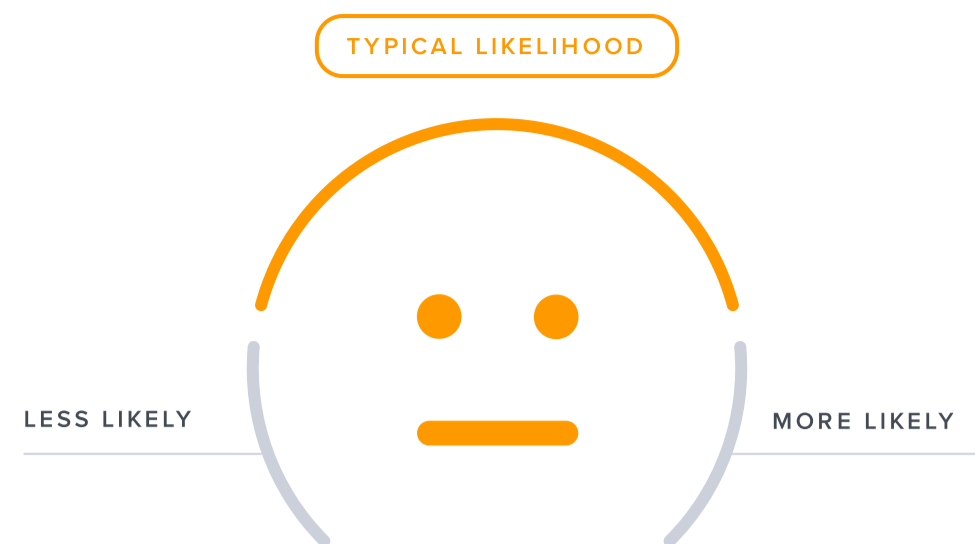
Diet changes may also help manage some cases. For example, if you have an autoimmune thyroid condition, you may need to avoid iodine-rich foods like seaweed [\[R\]](#).

**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)



**Typical likelihood of hyperthyroidism based on 466 genetic variants we looked at**



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

GENE	SNP	GENOTYPE
CTLA4	rs3087243	GG
FCRL3	rs7522061	CC
MICB	rs2517532	GG
TSHR	rs12101261	CT
SH2B3	rs653178	CT
CD40	rs1883832	TC
PDE8B	rs2046045	TT
TRMO	rs925488	AA
LRRC6	rs118039499	AA
BACH2	rs604912	GG
TSHR	rs2160215	TC
FAM227B	rs17477923	CT
SYT13	rs11038357	TA
SOX9	rs8077245	GT
PDE10A	rs2983514	AG
FAM227B	rs4338740	CT
MAF	rs140851213	TI
CD40	rs6131010	AG
FCRL3	rs1977710	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

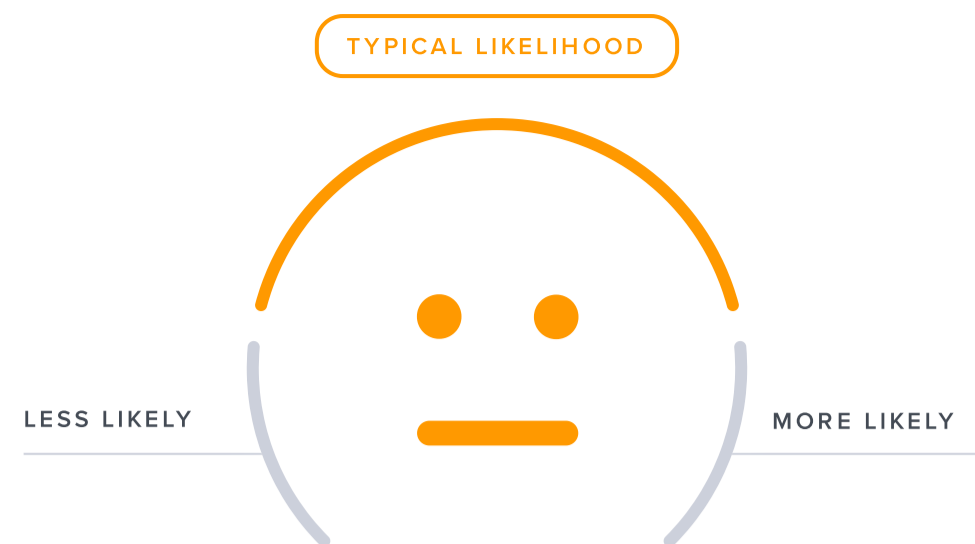
Diagnosis is confirmed with blood tests. These tests check for hormone levels that indicate the thyroid is not as active as it should be [\[R\]](#).

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 875 genetic variants we looked at**



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

GENE	SNP	GENOTYPE
TPO	rs11675434	TT
TRMO	rs925489	TT
CTLA4	rs3087243	GG
FCRL3	rs7522061	CC
MICB	rs2517532	GG
VAV3	rs7537605	GA
TSHR	rs12101261	CT
SH2B3	rs653178	CT
/	rs9271365	GG
TRMO	rs7030280	TT
TYK2	rs34536443	GG
/	rs187707293	TA
CLECL1	rs370475698	TT
TPO	rs11675342	TT
CD44	rs736374	AA
CBLB	rs13090803	TT
SASH1	rs9497965	TT
FAP	rs2111485	GG
BACH2	rs6908626	TG

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

- TSHR
- FOXE1



# 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.



HIGHER LEVELS

**Uric Acid**

Likely higher uric acid levels



TYPICAL LIKELIHOOD

**Gout**

Typical likelihood of gout



TYPICAL LIKELIHOOD

**Heavy Sweating**

Typical likelihood of hyperhidrosis



TYPICAL LIKELIHOOD

**High PTH**

Typical likelihood of having high PTH

# 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 [\[R\]](#)

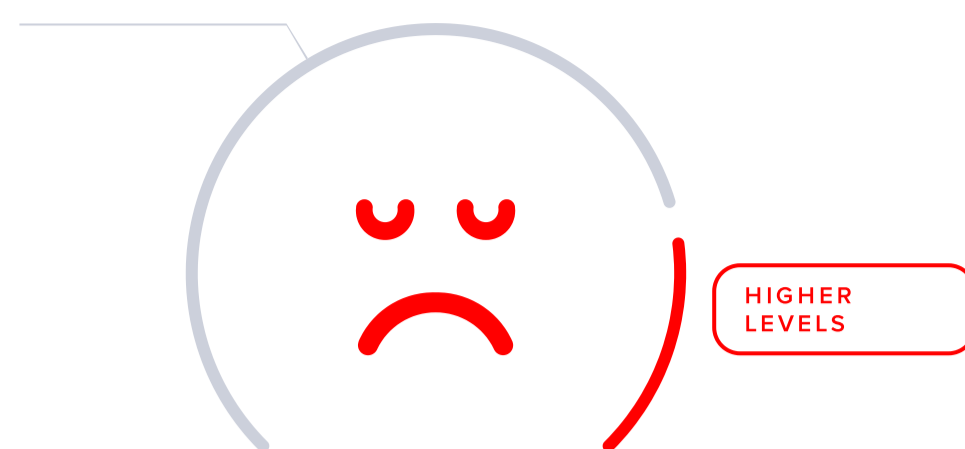
Genetically higher uric acid levels may be causally associated with:

- Gout [\[R, R\]](#)
- High Blood Pressure [\[R, R, R, R\]](#)
- Stroke [\[R\]](#)
- Deep vein thrombosis [\[R\]](#)

**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

TYPICAL LEVELS



**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
HMGCS2	rs150147865	AA
SOS2	rs72681869	GG
ACVR1	rs186905001	AA
HPRT1	rs73560966	C
SLC17A1	rs2762353	GG
SLC16A9	rs1171614	CC
CCND2	rs76895963	TT
ABCA6	rs77542162	AA
INHBC	rs2229357	GG
PIP5KL1	rs56379622	GG
ZKSCAN5	rs34670419	GG
MLXIPL	rs13247874	CC
SH3YL1	rs62106258	TT
SLC39A8	rs13107325	CC
VEGFA	rs1317983	CC
TBX2	rs9895661	TT
ADAM15	rs11264341	CT
UNCX	rs13230509	GC
AAK1	rs12987661	TC

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. It is most common in middle age.
- Risk factors include a diet rich in purines, fructose, alcohol, high blood pressure, overweight, diabetes, kidney disease, and genetics.
- If you are at high genetic risk or have symptoms, take action now on your modifiable risk factors to help lower overall risk.
- Click the **next steps** tab for relevant labs and lifestyle factors.

**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**

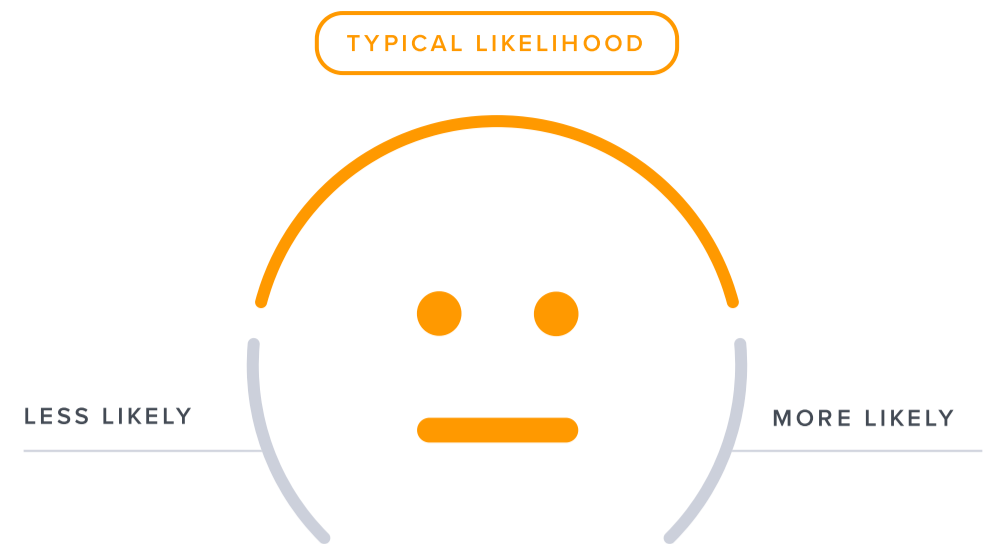
Gout is a manageable condition with well-established treatments. For people with gout, a doctor may recommend [R, R, R, R]:

- 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)

Moreover, genetically higher fasting insulin may be causally associated with a higher risk of gout. In contrast, genetically high testosterone levels may be causally associated with a lower risk of gout in men [R, R, R].



**Typical likelihood of gout based on 233 genetic variants we looked at**



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

GENE	SNP	GENOTYPE
SLC2A9	rs75341455	CC
SLC2A9	rs13129697	GT
INHBC	rs2229357	GG
MLXIPL	rs2286276	CC
GCKR	rs1260326	CT
SLC2A9	rs6839820	TC
OVOL1	rs11227299	GC
RREB1	rs11755724	GA
MTX1	rs760077	AT
PRSS16	rs3800307	TA
MLXIP	rs28548845	CT
PNPLA3	rs738409	GC
TMEM171	rs520007	TC
PRKAG2	rs10224002	AG
CARMIL1	rs9461183	AG
ABCG2	rs2231142	GG
NUDT9	rs114791459	GG
SPP1	rs114580333	GG
ADH1B	rs1229984	CC

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

# Heavy Sweating

## Key Takeaways:

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

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

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

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

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

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

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

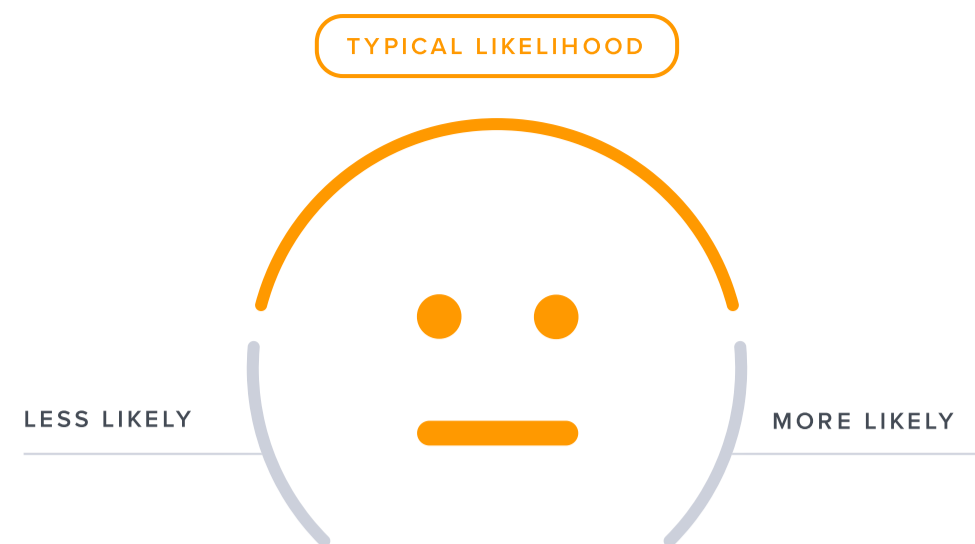
- Topical medication
- Antiperspirants
- Surgery
- Botulinum toxin therapy

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

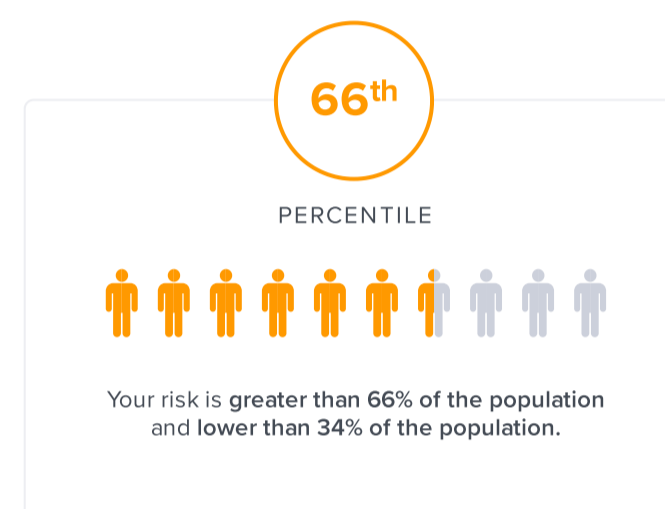
- Diabetes
- Menopause
- Thyroid problems
- Low blood sugar
- Infection

**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
ITGA1	rs77066279	GT
PPP1CB	rs56089836	CC
PPP1CB	rs1534480	CC
DLG2	rs12280544	CC
TLN2	rs139024759	AA
TUSC1	rs117093392	AA
UBLCP1	rs143772159	CC
CADM1	rs144975908	GG
FZD8	rs190252627	CC
/	rs75470475	CC
LRR7	rs113867145	GG
SETD7	rs183414800	TT
LRR7	rs113992293	GG
KRT72	rs61740873	GG
/	rs74837903	TT
LRR7	rs111398942	CC
SLC6A16	rs149876322	CC
LRR7	rs113434595	CC

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

# High PTH

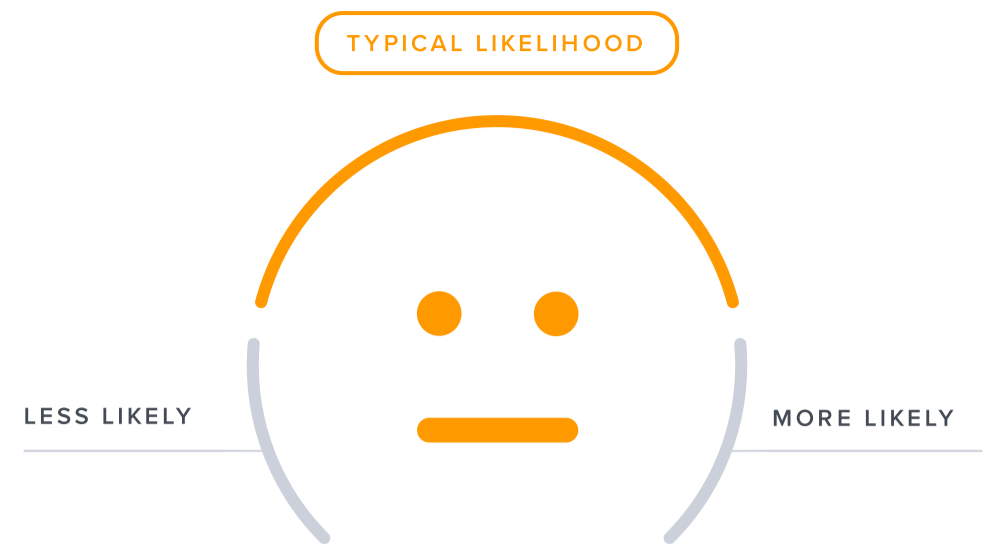
**Parathyroid hormone or PTH** is a hormone made by the parathyroid glands. **High PTH (hyperparathyroidism)** can increase blood calcium levels and cause a range of signs and symptoms.

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
PIK3AP1	rs117031756	AG
CAMK1D	rs4748001	TC
LDLRAD3	rs2956325	CC
RASSF3	rs190001302	TT
LRFN5	rs117828799	AA
SFTPA1	rs146467844	AA
TEX26	rs73165078	AA
HMX3	rs80212821	CC
TRHDE	rs117792731	CC
CCDC179	rs116901664	AA
CCDC179	rs78033659	AA
ANKRD30A	rs182083216	CC
UBL3	rs148955645	TT
CLEC12A	rs117564390	TT
TTC6	rs146985994	CC
CPXM2	rs78588830	CC
RIC3	rs77193115	CC

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



## L-Carnitine

Helps with the following



Uric Acid

IMPACT 0 / 5

EVIDENCE 0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.

Recommendation References: [\[R\]](#), [\[R\]](#)



Overweight

IMPACT 2 / 5

EVIDENCE 3 / 5

**L-carnitine (up to 2 g/day for 2-12 months)** may support weight loss by boosting fat burning [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



Fasting Glucose

IMPACT 2 / 5

EVIDENCE 2 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#)



High Blood Sugar

IMPACT 2 / 5

EVIDENCE 3 / 5

**L-carnitine may boost your sensitivity to insulin.** It helps remove chemicals linked to insulin resistance from your cells [\[R\]](#).

**L-carnitine (0.2-3 g/day for 1-12 months)** may help reduce blood sugar levels [\[R\]](#), [\[R\]](#), [\[R\]](#).



HbA1c

IMPACT 2 / 5

EVIDENCE 2 / 5

**L-carnitine (200-3,000 g/day for 1-12 months)** may help support healthy HbA1c levels [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, some studies didn't find this benefit [\[R\]](#).

L-carnitine may help by reducing how much sugar is made by the body and increasing how much is broken down [\[R\]](#).



Insulin Resistance

IMPACT 2 / 5

EVIDENCE 3 / 5

**L-carnitine may boost your sensitivity to insulin.** It helps remove chemicals linked to insulin resistance from your cells [\[R\]](#).

**L-carnitine (0.2-3 g/day for 1-12 months)** may help reduce insulin resistance and blood sugar levels in people at risk of diabetes [\[R\]](#), [\[R\]](#).



**Overactive Thyroid**

IMPACT

● ● ● ● ● 0 / 5

EVIDENCE

● ● ● ● ● 0 / 5

---



**Underactive Thyroid**

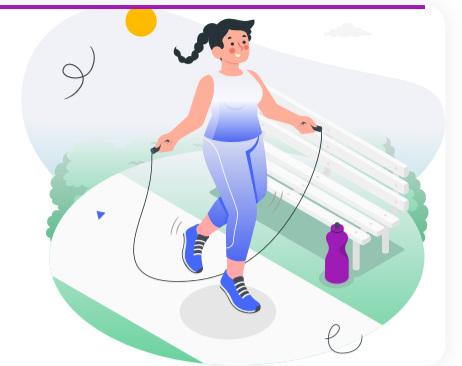
IMPACT

● ● ● ● ● 0 / 5

EVIDENCE

● ● ● ● ● 0 / 5

2



## Exercise

Helps with the following



Overweight

IMPACT



EVIDENCE



**Most experts agree that getting 150-300 minutes of exercise per week can help you control your weight.** For best results, try to push yourself a bit with **moderate or intense exercise** [\[R, R\]](#).

Exercise helps by burning calories and boosting your metabolism. It may also lower your appetite [\[R, R\]](#).

However, it might take a while to see the results of your hard work. **The benefits of moderate or intense exercise may only show after 12 weeks** [\[R, R, R, R, R\]](#).

Note that exercise may be less effective at helping you lose weight than limiting your calorie intake. However, **it will likely help you maintain a lower weight in the long run** [\[R, R, R\]](#).



PERSONALIZED TO YOUR GENES

**Exercise can help you control weight by targeting many of your gene variants at once** [\[R, R\]](#).

**Your FTO gene variant is linked with higher weight and body fat, especially in people who don't exercise** [\[R, R\]](#). **Do your best to stay active.**

**Your IRS1 gene variant is linked with obesity, but only in people who don't exercise** [\[R\]](#). **Stay active to maintain a healthy weight.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
FTO	rs9939609	/	

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2943650	/	



Uric Acid

IMPACT



EVIDENCE





## High Blood Sugar

IMPACT

4 / 5

EVIDENCE

5 / 5

**Exercise is a great way to control blood sugar levels.** When you exercise, your muscles use up sugar for energy. Exercise also makes your cells more sensitive to insulin [\[R, R, R, R, R\]](#).

**Try a mix of cardio and strength training for at least 150 min/week** [\[R, R, R\]](#).

**All health experts recommend exercise to reduce blood sugar levels.** However, you may need to combine it with diet for optimal results [\[R, R, R, R, R\]](#).



PERSONALIZED TO YOUR GENES

**In people with your HNF4A gene variant, regular exercise (more than 2 hours/week) may reduce blood sugar** [\[R\]](#).

### YOUR GENETIC VARIANTS

GENE

/

SNP

**rs1885088**

GENOTYPE

/

EVIDENCE

4 / 5



## Underactive Thyroid

IMPACT

2 / 5

EVIDENCE

2 / 5

Exercise may help increase levels of thyroid hormones. However, some studies didn't note this effect [\[R, R, R, R\]](#).

In people with mildly underactive thyroid, it may improve the quality of life [\[R\]](#).

Exercise may improve thyroid health by:

- Supporting a healthy weight [\[R, R, R\]](#)
- Reducing insulin resistance [\[R\]](#)

**Please note:** Exhaustive exercise may decrease thyroid hormone. If you have thyroid issues, take care not to over-exercise and always speak with your doctor before starting a new exercise program [\[R, R\]](#).

## Visceral Fat

IMPACT 4 / 5

EVIDENCE 4 / 5

Exercise may help reduce visceral fat in people who are overweight or obese [R, R].

Forms of exercise that may help include:

- Strength training [R, R]
- Cardio (e.g., brisk walking, light jogging, high-intensity interval training) [R, R, R, R]

A combination of cardio and strength training may be best for losing visceral fat and keeping it off [R, R, R, R].



PERSONALIZED TO YOUR GENES

**Your FTO gene variant is linked to higher weight and body fat, especially in people who don't exercise [R, R]. Do your best to stay active.**

**People with your TCF7L2 gene variant may lose more visceral fat from exercise and dietary changes [R].**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
FTO	<b>rs9939609</b>	/	●●●●●

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	<b>rs7903146</b>	/	●●●●●

## HbA1c

IMPACT 4 / 5

EVIDENCE 5 / 5

**Experts recommend exercise to reduce blood sugar.** Getting 150 minutes of exercise per week may be best [R, R, R].

The following types of exercise may help reduce HbA1c:

- Cardio [R, R, R]
- Resistance training [R, R, R]
- Yoga [R, R, R, R]
- High-intensity interval training (HIIT) [R, R, R]

When you exercise, your muscles use up sugar for energy. Exercise also makes your cells more sensitive to insulin [R, R].

## Insulin Resistance

IMPACT 4 / 5

EVIDENCE 5 / 5

**Exercise is a great way to control blood sugar levels.** When you exercise, your muscles use up sugar for energy. Exercise also makes your cells more sensitive to insulin [R, R, R, R, R].

**Try a mix of cardio and strength training for at least 150 min/week [R, R, R].**

**All health experts recommend exercise to improve insulin resistance and blood glucose control.** However, you may need to combine it with diet for optimal results [R, R, R, R, R].

---

 **High PTH**IMPACT  
 2 / 5EVIDENCE  
 3 / 5

People who exercise may be less likely to have high PTH levels. Intense exercise may reduce the risk by up to **50%** [\[R\]](#).

Exercise modalities that may lower PTH levels include:

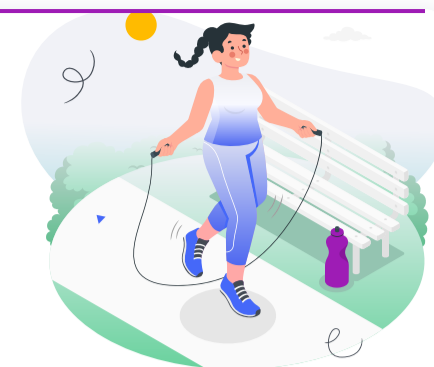
- Aquatic exercise (50-60 min, 3x/week for 6 months) [\[R\]](#)
- High-impact exercise, such as running or jumping (3x/week for 12 months) [\[R\]](#)

Exercise may help by increasing bone formation [\[R\]](#), [\[R\]](#).

3



# Intermittent Fasting



Helps with the following



Overweight



Uric Acid



Visceral Fat



High Blood Sugar



Insulin Resistance



HbA1c

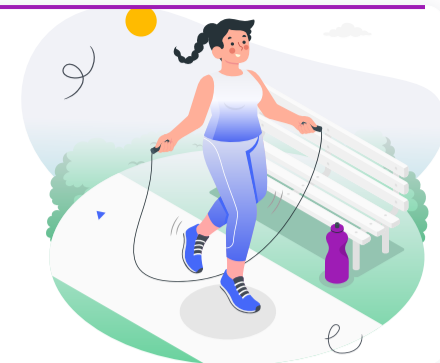


Fasting Glucose





## Reduce Organochlorine Pesticide Exposure



Helps with the following



**Overweight**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 3 / 5

Recommendation References: [\[R\]](#), [\[R\]](#)



**Uric Acid**

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

Recommendation References: [\[R\]](#)



**High Blood Sugar**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Insulin Resistance**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Underactive Thyroid**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 3 / 5

Recommendation References: [\[R\]](#), [\[R\]](#)



**Gout**

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

Recommendation References: [\[R\]](#)



**High PTH**

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 2 / 5

Recommendation References: [\[R\]](#)



5



## Vitamin C

Helps with the following



**Uric Acid**

IMPACT



EVIDENCE



Vitamin C may help clear uric acid with the urine [\[R, R\]](#).

A diet rich in vitamin C is linked to lower uric acid levels and risk of gout [\[R, R, R, R, R, R, R\]](#).

**Taking vitamin C (200-2,000 mg/day for 4 weeks) may also support healthy uric acid levels.** However, it may not help people with gout as much [\[R, R, R, R, R, R, R\]](#).

In line with this, experts state more research is needed and some even recommend against using vitamin C supplements to help with gout [\[R, R\]](#).

**Please note:** *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [\[R, R\]](#).



PERSONALIZED TO YOUR GENES

**People with your SLC23A1 gene variant may have lower levels of vitamin C [\[R\]](#). Take special care to get enough of this vitamin.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs4257763</b>	/	



**Overweight**

IMPACT



EVIDENCE



**Please note:** *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [\[R, R\]](#).



**Gout**

IMPACT



EVIDENCE



**Low vitamin C levels are linked to a higher risk of gout [\[R\]](#).**

Supplementing with vitamin C may help decrease the risk by lowering uric acid levels [\[R, R, R\]](#).

However, experts note there may not be enough evidence to recommend vitamin C for gout, and some recommend against it [\[R, R, R, R\]](#).

**Please note:** *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [\[R, R\]](#).



**High Blood Sugar**

IMPACT



EVIDENCE



**Please note:** *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [\[R, R\]](#).

---

 HbA1c



**Please note:** Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C [\[R\]](#), [\[R\]](#).

---

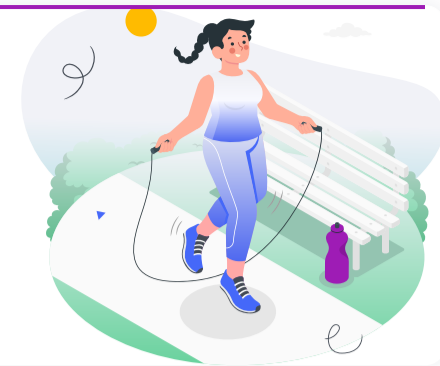
 Fasting Glucose



**Please note:** Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C [\[R\]](#), [\[R\]](#).



## Plant-Based Diet



Helps with the following

### Overweight

IMPACT  3 / 5

EVIDENCE  3 / 5

Following a vegetarian diet (for 1-24 months) may support weight loss. The fiber in a vegetarian diet may help by [\[R, R\]](#):

- Improving the body's response to insulin
- Reducing appetite

Plant-based diets may offer greater benefits when combined with calorie restriction [\[R, R\]](#).

This type of diet may also support weight loss in people with type 2 diabetes [\[R\]](#).

### Uric Acid

IMPACT  4 / 5

EVIDENCE  4 / 5

Meat is high in purines, which are broken down to uric acid [\[R\]](#).

People who eat more meat tend to have higher uric acid levels. **Experts say that avoiding red meat and seafood may help lower uric acid and manage gout** [\[R, R, R\]](#).

People who follow plant-based diets may have lower uric acid levels. Vegetarians who include eggs and milk in their diets tend to have the lowest levels of uric acid [\[R, R, R, R\]](#).

### Visceral Fat

IMPACT  3 / 5

EVIDENCE  3 / 5

Plant-based foods are rich in fiber, vitamins, minerals, and antioxidants. These components are linked to lower levels of visceral fat, especially in women. These foods are also less calorie-dense and have a lower fat content [\[R, R, R\]](#).

In line with this, eating more plant-based foods may help reduce visceral fat [\[R, R, R\]](#).

### High Blood Sugar

IMPACT  0 / 5

EVIDENCE  0 / 5

### Gout

IMPACT  0 / 5

EVIDENCE  0 / 5

### HbA1c

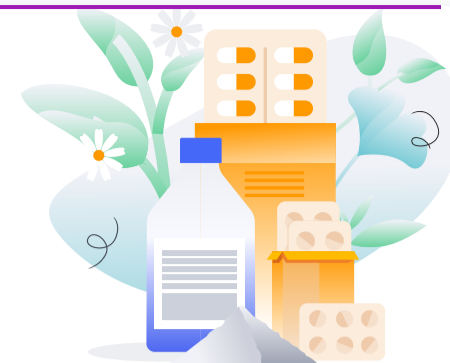
IMPACT  0 / 5

EVIDENCE  0 / 5

7



# Psyllium



Helps with the following



Uric Acid



References for this recommendation: [R](#)

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.



Overweight



Psyllium (6-36 g/day for 4-24 weeks) may support weight loss by decreasing appetite [\[R\]](#).



High Blood Sugar



Insulin Resistance



HbA1c

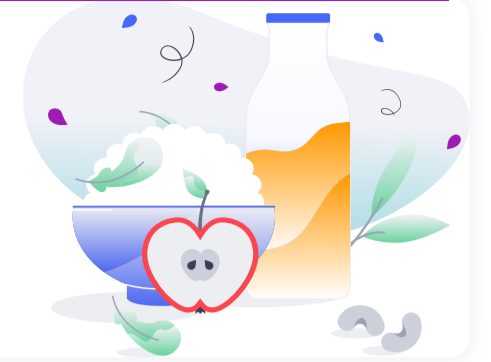


8



## Coffee

Helps with the following



Overweight

IMPACT

2 / 5

EVIDENCE

3 / 5

Drinking coffee (up to 4 cups per day) is linked to lower weight [\[R, R\]](#).

Caffeine likely helps by boosting metabolism. Supplementing with **caffeine (100-400 mg/day)** may increase fat burning. It may also help maintain weight once it's lost [\[R, R, R, R, R\]](#).

**Please note:** *If you're pregnant, limit caffeine to 200 mg per day* [\[R\]](#).



PERSONALIZED TO YOUR GENES

In people with your **UCP2 gene variant**, drinking coffee is linked to lower body weight [\[R\]](#).

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs659366</b>	/	



Uric Acid

IMPACT

2 / 5

EVIDENCE

2 / 5

**Coffee, with or without caffeine, may help lower uric acid levels. It may also help prevent gout attacks in people with gout.** However, some studies did not find these benefits, or only found them in men [\[R, R, R, R, R\]](#).

Coffee is rich in *chlorogenic acid*. This compound may help reduce inflammation and lower uric acid levels [\[R, R, R\]](#).

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

## High Blood Sugar

IMPACT 

EVIDENCE 

Coffee is rich in components that **reduce inflammation and help you burn sugar for energy**. The main ones are [caffeine](#) and [chlorogenic acid](#) [R, R, R, R].

Drinking a lot of coffee may give you a short-term blood sugar spike. **However, drinking a moderate amount of coffee in the long term may be good for your blood sugar** [R, R, R].

**People who drink 2-4 cups of coffee a day seem to have lower blood sugar**. This effect is especially strong in women and long-term coffee drinkers [R, R, R, R].

On the other hand, blood sugar may increase right after ingesting caffeine [R, R].

Note that adding sugar to your coffee may counteract the benefits of caffeine. Unsweetened coffee is best for blood sugar [R].

### PERSONALIZED TO YOUR GENES

**Coffee may decrease blood sugar more in people with your KCNJ11 gene variant. Feel free to enjoy coffee in moderation** [R].

#### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
KCNJ11	<b>rs5215</b>	/	

## Gout

IMPACT 

EVIDENCE 

**Drinking coffee is linked to a lower risk of gout** [R, R, R].

However, despite the potential benefits, it is unclear if coffee lowers uric acid levels in the blood. Gender may play a role in this. Women may need more coffee than men to decrease uric acid levels [R, R, R].

Coffee may help prevent gout by [R, R, R, R]:

- Reducing uric acid production
- Decreasing oxidative stress and inflammation

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

### PERSONALIZED TO YOUR GENES

**Your CYP1A2 gene variant is linked to higher odds of gout. People with this variant also tend to drink less coffee. Drink coffee in moderation to potentially help with gout** [R, R, R, R].

#### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs2472297</b>	/	



## Insulin Resistance

IMPACT

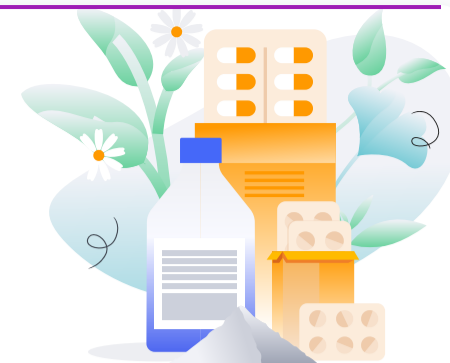
● ● ● ● ● 0 / 5

EVIDENCE

● ● ● ● ● 0 / 5



## Glycine



Helps with the following



**Overweight**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.

Recommendation Reference (Female Only): [\[R\]](#)



**Uric Acid**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**HbA1c**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**High Blood Sugar**

IMPACT

●●●●● 0 / 5

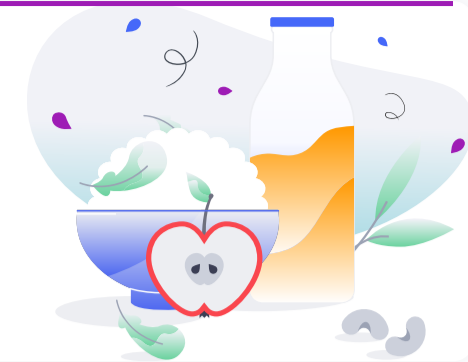
EVIDENCE

●●●●● 0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.



10



# Flaxseed

Helps with the following



Overweight



Flaxseed is rich in fiber, which helps you feel full for longer [\[R\]](#).

Eating **flaxseed (at least 30 g/day)** may help lower weight. **It seems to be most effective when taken for more than 12 weeks** [\[R\]](#).

Overweight or obese people may reap the most benefits from flaxseed [\[R\]](#).



PERSONALIZED TO YOUR GENES

**People with your TCF7L2 gene variant may lose more weight on a high-fiber diet [\[R\]](#). Flaxseed is rich in fiber and may support weight loss.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	<b>rs7903146</b>	/	



Overweight



Flaxseed (at least 30 g/day for 12 weeks) may help reduce weight by decreasing appetite [\[R\]](#), [\[R\]](#).



High Blood Sugar



Insulin Resistance





# Avoid PCBs



Helps with the following



**Overweight**



Recommendation References: [\[R\]](#), [\[R\]](#)



**Uric Acid**



Recommendation References: [\[R\]](#)



**Gout**



Recommendation References: [\[R\]](#)



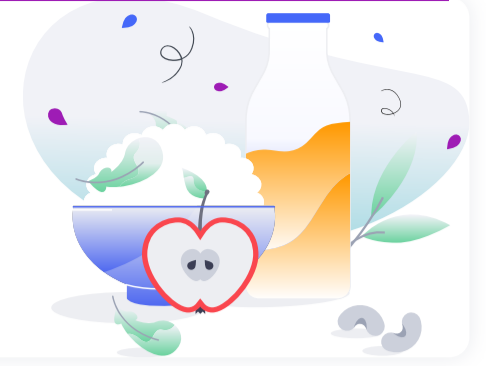
**High Blood Sugar**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



# Almonds



Helps with the following



Overweight



Uric Acid

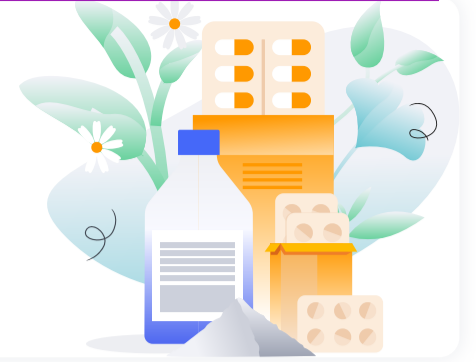


High Blood Sugar





# Saccharomyces Boulardii



Helps with the following



Overweight



Uric Acid

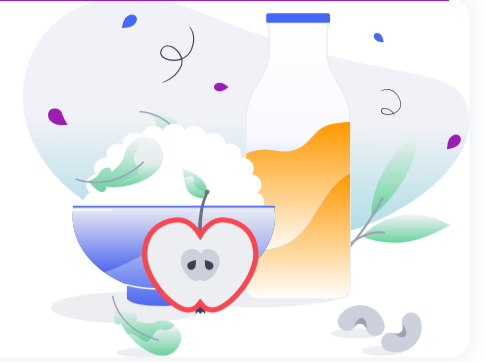


Insulin Resistance





## Cherries



Helps with the following



### Uric Acid

IMPACT



EVIDENCE



**Cherries may help lower uric acid levels and reduce gout symptoms.** Helpful forms include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Tart cherry juice (60-240 mL/day for 1-4 weeks)
- Fresh tart cherries (10-36 cherries/day for at least 2 days)
- Fresh Bing cherries (280 g/day)

However, not all studies found this benefit [\[R\]](#), [\[R\]](#).

In line with this, **some experts recommend eating more cherries to people with gout.**

Cherries may help by reducing how much uric acid is made by the liver [\[R\]](#).



### Overweight

IMPACT



EVIDENCE



### Gout

IMPACT



EVIDENCE



**Some experts recommend that people with gout eat more cherries.** They may be linked to a reduced risk of gout flares [\[R\]](#), [\[R\]](#).

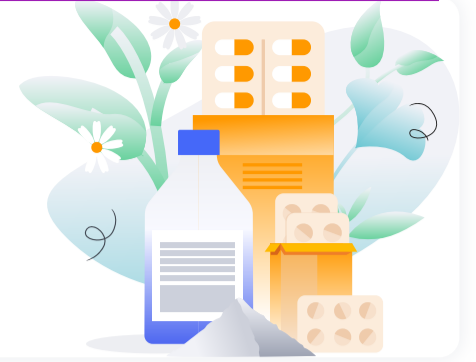
Cherries may help by reducing uric acid levels. However, these effects may be temporary, and the evidence is mixed [\[R\]](#), [\[R\]](#), [\[R\]](#).

Cherries may also help by reducing oxidative stress and inflammation [\[R\]](#), [\[R\]](#).

15



# Lactobacillus Gasseri



Helps with the following



Overweight



Uric Acid

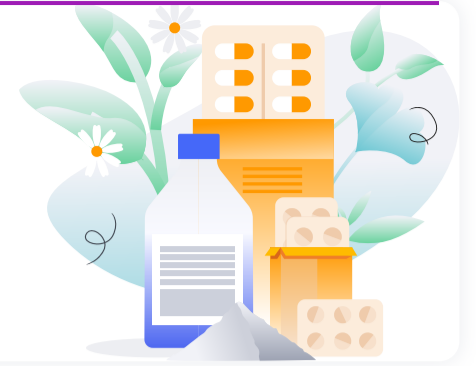


Visceral Fat





## Vitamin D



Helps with the following



### Uric Acid

IMPACT

1 / 5

EVIDENCE

2 / 5

Low vitamin D has been linked to high uric acid. However, not all studies found this link [\[R, R, R, R, R, R, R\]](#).

**Taking vitamin D (1,000-2,800 IU/day for 3-12 months) may support healthy uric acid levels** [\[R, R\]](#).

It's not yet clear how exactly vitamin D decreases uric acid. Scientists think it may help clear uric acid from the body [\[R, R, R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).



### High PTH

IMPACT

4 / 5

EVIDENCE

4 / 5

Vitamin D deficiency can increase PTH levels [\[R, R, R, R\]](#).

In line with this, supplementation with **vitamin D (1,000-4,000 IU/day for at least 1 month)** may reduce PTH levels by maintaining appropriate calcium levels in the blood. Vitamin D may help the most when taken for at **least 12 months** [\[R, R, R, R, R, R, R, R, R, R, R\]](#).

People with **low vitamin D levels** and those who are **obese or overweight** may get the greatest benefit from vitamin D supplementation [\[R, R, R\]](#).

Vitamin-D-fortified products and vitamin D in combination with calcium (600-1,200 mg/day) may also lower PTH levels [\[R, R, R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).



### Gout

IMPACT

1 / 5

EVIDENCE

2 / 5

**Low levels of vitamin D are linked to higher uric acid levels** [\[R, R, R\]](#).

Supplementing with vitamin D may help reduce uric acid in people with high levels [\[R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).



## Underactive Thyroid

IMPACT



EVIDENCE



People with autoimmune thyroid conditions tend to have lower vitamin D levels [R, R].

In people with these conditions, vitamin D supplements may help balance the immune response. However, not all studies found this benefit [R, R, R].

**Please note:** Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day. Vitamin D is not a replacement for thyroid medication. Talk to your doctor before using any supplements for thyroid issues [R].



PERSONALIZED TO YOUR GENES

People with your GC variant may have lower vitamin D levels [R]. Make sure to get enough vitamin D to potentially support thyroid health.

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs7041	/	



## High Blood Sugar

IMPACT



EVIDENCE



People with vitamin D deficiency are more likely to have high blood sugar [R, R].

Vitamin D helps reduce blood sugar by [R, R]:

- Boosting insulin sensitivity
- Supporting pancreas function
- Improving oxidative stress
- Lowering inflammation

Vitamin D supplements may help control blood sugar. However, they may only help if you lack vitamin D [R, R, R, R].

Health experts say there's not enough evidence to recommend vitamin D supplementation for diabetes [R].

**Please note:** Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day [R].



PERSONALIZED TO YOUR GENES

People with your GC gene variant tend to have lower vitamin D levels [R, R]. Make sure you get enough vitamin D.

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs7041	/	



---

 **Visceral Fat**



**Vitamin D (up to 4,000 IU/day for 12-16 weeks)** may help reduce visceral fat in people who are overweight or obese. It may help alone or combined with calcium or curcumin [\[R, R, R\]](#).

However, vitamin D did not improve visceral fat in two studies [\[R, R\]](#).

Vitamin D may help the body make less fats and increase their breakdown [\[R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

---

 **Insulin Resistance**



**People with vitamin D deficiency are more likely to have insulin resistance.** This increases the risk of diabetes and prediabetes [\[R, R, R, R, R\]](#).

**Vitamin D supplements may help reduce insulin resistance and control blood sugar.** However, the effects are small, they may only help if you lack vitamin D, and the evidence is mixed [\[R, R, R, R, R, R, R\]](#).

The combination of vitamin D with calcium may be more effective [\[R\]](#).

Health experts say there's not enough evidence to recommend vitamin D supplementation for diabetes [\[R\]](#).

Vitamin D supplementation may also reduce insulin resistance in people with PCOS and NAFLD [\[R, R, R, R, R\]](#).

**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

---

 **Overactive Thyroid**



 **Fasting Glucose**



 **Metabolic Rate**



**Please note:** *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).



## Relaxation Techniques



Helps with the following

 **Overweight**

IMPACT  
 2 / 5

EVIDENCE  
 3 / 5

Stress causes weight gain by increasing chemicals that influence hunger and appetite, such as [\[R\]](#):

- [Ghrelin](#)
- [Cortisol](#)

**Experts agree that stressed out people are more likely to eat junk food, which may pave the way for weight gain [\[R, R, R\]](#).**

In fact, stress may lead to unhealthy eating in children as young as 8 years old [\[R\]](#).

The following relaxation techniques may help control eating behavior and weight:

- Mindfulness [\[R, R, R\]](#)
- Yoga [\[R\]](#)



PERSONALIZED TO YOUR GENES

**Stress may have a stronger effect on weight gain in people with your [RGS6](#) gene variant [\[R\]](#). Try to manage stress by practicing mindfulness or yoga.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs2239219</b>	/	

## Overactive Thyroid

IMPACT 

EVIDENCE 

**Stress may be a risk factor for Graves' disease**, especially in women [\[R, R, R, R, R, R, R, R\]](#).

Stress may contribute to Graves' disease by altering the immune response [\[R, R, R\]](#).

**Relaxation techniques such as meditation may help support thyroid health in some people.** Reduced stress may also make Graves' disease symptoms less severe [\[R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

**People with your CELF4 gene variant may be more prone to stress [\[R\]](#). Take special care to reduce stress by practicing relaxation techniques.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs11665070</b>	/	

## Underactive Thyroid

IMPACT 

EVIDENCE 

**Stress may affect thyroid function.** It may reduce or increase levels of thyroid hormones [\[R, R\]](#).

However, some studies found no clear link between stress and an underactive thyroid [\[R, R\]](#).

 PERSONALIZED TO YOUR GENES

**People with your CELF4 gene variant may be more prone to stress [\[R\]](#). Take special care to reduce stress by practicing relaxation techniques.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs11665070</b>	/	

## High Blood Sugar

IMPACT 

EVIDENCE 

Stress releases chemicals that are linked to high blood sugar levels. **Stress from work and trauma in particular may increase blood sugar** [\[R, R, R, R, R, R\]](#).

Relaxation techniques that may balance blood sugar include:

- **Meditation:** helps you clear the mind and be aware of the present moment [\[R, R, R\]](#)
- **Yoga:** helps calm you down by combining breathing, stretching, and meditation [\[R, R, R\]](#)

## Heavy Sweating

IMPACT  
 2 / 5

EVIDENCE  
 3 / 5

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

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

- Mindfulness
- Meditation
- Yoga
- Biofeedback



PERSONALIZED TO YOUR GENES

**People with your CRHR1 gene variant may be more prone to stress [[R](#)]. Take special care to reduce stress by practicing relaxation techniques.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs80143279</b>	/	

## Insulin Resistance

IMPACT  
 3 / 5

EVIDENCE  
 3 / 5

Stress releases chemicals that are linked to insulin resistance and high blood sugar levels. **Stress from work in particular may increase insulin resistance** [[R](#), [R](#), [R](#), [R](#)].

Relaxation techniques that may reduce insulin resistance and balance blood sugar include:

- **Meditation:** helps you clear the mind and be aware of the present moment [[R](#)]
- **Yoga:** helps calm you down by combining breathing, stretching, and meditation [[R](#), [R](#)]

## HbA1c

IMPACT  
 2 / 5

EVIDENCE  
 3 / 5

**Stress has been linked to higher HbA1c** and a greater risk of diabetes [[R](#), [R](#), [R](#)].

Stress hormones like cortisol contribute to insulin resistance and raise blood sugar levels [[R](#), [R](#)].

Reducing stress with the following strategies may help lower HbA1c:

- Mindfulness [[R](#), [R](#), [R](#), [R](#)]
- Yoga [[R](#), [R](#), [R](#), [R](#)]



## Visceral Fat

IMPACT



EVIDENCE



Stress is linked to higher levels of visceral fat [\[R\]](#), [\[R\]](#), [\[R\]](#).

Doing yoga for 16 weeks may help reduce visceral fat in people who are obese. It may help by altering levels of metabolic hormones [\[R\]](#).



PERSONALIZED TO YOUR GENES

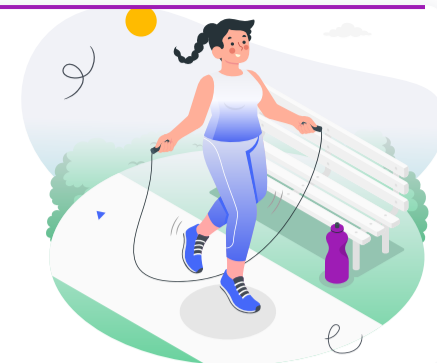
**Stress may have a stronger effect on body fat in people with your RGS6 gene variant [\[R\]](#). Try to manage stress by practicing relaxation techniques.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs2239219</b>	/	



## Maintain a Healthy Weight



Helps with the following



Uric Acid

IMPACT

4 / 5

EVIDENCE

5 / 5

Higher amounts of body fat cause inflammation and insulin resistance. This may raise uric acid [\[R\]](#).

In line with this, people with higher body weight tend to have higher uric acid [\[R, R\]](#).

**Experts say that losing weight may help reduce uric acid. It may also decrease the risk of gout [\[R, R, R, R\]](#).**

However, losing weight rapidly can cause a temporary rise in uric acid. **It may be best to lose weight gradually, by changing diet and exercise habits [\[R, R\]](#).**



PERSONALIZED TO YOUR GENES

**Maintaining a healthy weight helps reduce uric acid by targeting many of your gene variants at once [\[R\]](#).**

**Your *GCKR* gene variant is linked to higher levels of uric acid, especially in obese people [\[R, R\]](#). Take special care to maintain a healthy weight.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
GCKR	<b>rs780094</b>	/	4 / 5

## High Blood Sugar

IMPACT  5 / 5

EVIDENCE  5 / 5

Fat and insulin have a close relationship. Insulin tells your body to make more fat and store it. **In turn, having more body fat can lead to [insulin resistance](#)** [R, R, R].

**If you are overweight, losing weight can help you reduce blood sugar.** A healthy weight can also help prevent complications of diabetes, such as heart problems. [R, R, R].

**All health experts agree that healthy weight is essential for blood sugar control** [R, R, R].

Eating a low-calorie diet is a good way to lose weight. **It may also lower blood sugar, especially in overweight people** [R, R, R, R].

### PERSONALIZED TO YOUR GENES

**Weight control can help reduce your blood sugar by targeting many of your gene variants at once** [R].

**Your *ADIPOQ* gene variant (also related to the *ST6GAL1* gene) is linked to high blood sugar. Weight loss may decrease blood sugar more in people with this variant** [R].

#### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs1501299</b>	/	

## Underactive Thyroid

IMPACT  2 / 5

EVIDENCE  3 / 5

Obesity is linked to underactive thyroid. However, it's not clear which one might cause or worsen the other [R, R, R].

**People with excess body weight tend to have more inflammation.** This may impair thyroid function [R].

In turn, an underactive thyroid may contribute to weight gain by [R, R]:


- Slowing the body's metabolism
- Increasing fluid retention

Some thyroid hormones may decrease in the short term after weight loss. However, weight loss generally improves thyroid function in the long run [R, R, R, R].

### PERSONALIZED TO YOUR GENES

**Your *FTO* gene variant is linked to higher weight and body fat** [R, R]. **If you are overweight, weight loss may help improve thyroid function** [R, R].

#### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
<b>FTO</b>	<b>rs9939609</b>	/	

## Gout

IMPACT  
 5 / 5

EVIDENCE  
 4 / 5

People who are overweight or obese are more likely to have gout [\[R, R\]](#).

This may be because excess fat can raise uric acid levels and increase inflammation [\[R, R, R\]](#).

In people with gout, weight loss may help reduce uric acid levels. However, rapid weight loss may temporarily increase them [\[R, R\]](#).

Experts agree that overweight or obese people should lose weight to help with gout. It may be best to do so gradually, by changing diet and exercise habits [\[R, R, R\]](#).



PERSONALIZED TO YOUR GENES

**Maintaining a healthy weight helps prevent gout by targeting many of your gene variants at once** [\[R\]](#).

**Your GCKR gene variant is linked to higher odds of gout. It may have a stronger impact on uric acid levels in obese people** [\[R, R\]](#). Take special care to maintain a healthy weight.

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
GCKR	<b>rs780094</b>	/	

## Visceral Fat

IMPACT  
 4 / 5

EVIDENCE  
 5 / 5

People with excess weight tend to have more visceral fat. Having a high amount of body fat, especially in the belly, is also linked to increased visceral fat [\[R, R, R, R, R\]](#).

In line with this, weight gain may increase visceral fat [\[R, R\]](#).

Losing weight may help reduce visceral fat. Lowering calorie intake and exercising are the best ways to lose weight [\[R, R, R, R, R\]](#).

## Insulin Resistance

IMPACT  
 5 / 5

EVIDENCE  
 5 / 5

Fat and insulin have a close relationship. Insulin tells your body to make more fat and store it. **In turn, having more body fat can lead to insulin resistance** [\[R, R, R\]](#).

**If you are overweight, losing weight can help you reduce your insulin resistance.** A healthy weight can also help prevent complications of diabetes, such as heart problems [\[R, R, R\]](#).

**All health experts agree that healthy weight is essential for blood sugar control** [\[R, R, R\]](#).

Eating a low-calorie diet is a good way to lose weight. **It may also lower your insulin resistance, especially in overweight people** [\[R, R, R\]](#).



Having a higher body weight is linked to diabetes and higher HbA1c. Being overweight increases insulin resistance [\[R, R, R\]](#).

Experts agree that a healthy weight is essential for blood sugar control [\[R, R\]](#).

If you are overweight, losing weight can help lower HbA1c [\[R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

**Weight control can help control your blood sugar by targeting many of your gene variants at once** [\[R\]](#).

**Weight loss may cause a bigger drop in HbA1c in people with your ADRB3 gene variant** [\[R\]](#).

**Your ADIPOQ gene variant is linked to high blood sugar. Weight loss may decrease blood sugar more in people with this variant** [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs4994</b>	/	

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs1501299</b>	/	

Obesity is associated with higher PTH levels [\[R, R\]](#).

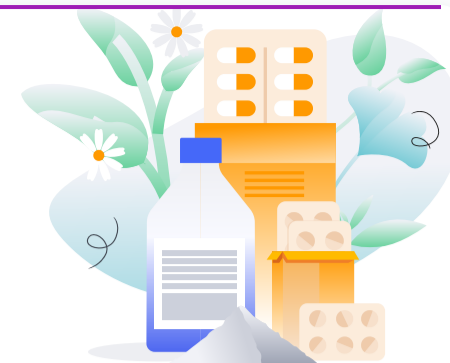
People who have a larger waist circumference may be up to **230%** more likely to have high PTH levels [\[R\]](#).

However, people who lose weight through gastric bypass surgery may be **6 times more likely to have high PTH levels** in the long-term [\[R\]](#).

Hence, you may want to focus on implementing lasting changes to your diet and exercise habits. Talk to your doctor for guidance and family and friends for support [\[R\]](#).



## Apple Cider Vinegar



Helps with the following



### Overweight

IMPACT



EVIDENCE



Apple vinegar (15-30 mL/day, in salads or diluted in water, for 12 weeks) may reduce body weight and fat by [\[R, R, R\]](#):

- Decreasing appetite
- Reducing fat production



### Insulin Resistance

IMPACT



EVIDENCE



**Please note:** *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.*

Recommendation References: [\[R, R\]](#)



### Fasting Glucose

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)



### Visceral Fat

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)



### High Blood Sugar

IMPACT



EVIDENCE



### HbA1c

IMPACT

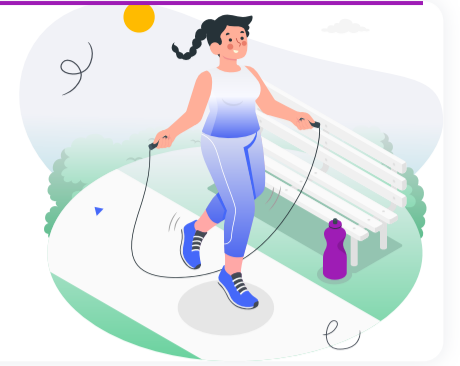


EVIDENCE





# Aerobic Exercise (Cardio)



Helps with the following



Overweight



Insulin Resistance



Fasting Glucose



Visceral Fat



High Blood Sugar



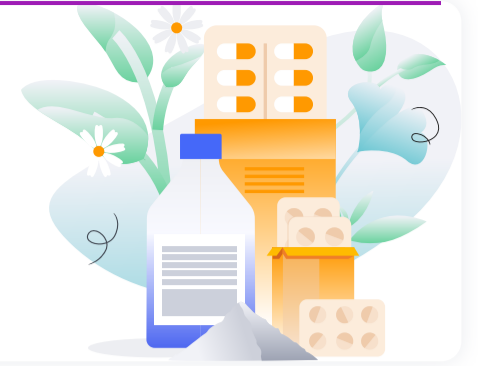
HbA1c





## Curcumin

Helps with the following



### Overweight

IMPACT



EVIDENCE



Curcumin may support weight loss at doses of **at least 1 g/day for 8-12 weeks**. Overweight people may benefit the most from it [\[R, R\]](#).

Curcumin may help by reducing the growth of fat cells. It also combats inflammation, which plays a major role in weight gain [\[R, R, R\]](#).

**Curcumin can be hard to absorb.** Supplements with *bioavailable* curcumin are easier to absorb. **Bioavailable curcumin may support weight loss better than regular curcumin** [\[R, R\]](#).

Combining curcumin with [piperine](#) (a compound in black pepper) may also help your body absorb it better [\[R\]](#).



### High Blood Sugar

IMPACT



EVIDENCE



**Curcumin (up to 4 g/day for 4-12 weeks) may lower blood sugar and improve insulin resistance** [\[R, R, R, R, R\]](#).

Curcumin may help by [\[R, R\]](#):

- Protecting against oxidative stress
- Lowering inflammation

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

Health experts say there's not enough evidence to recommend curcumin supplementation for diabetes [\[R\]](#).



### Visceral Fat

IMPACT



EVIDENCE



**Curcumin (up to 3,000 mg/day for 2-6 months) may help reduce visceral fat, however the evidence is mixed** [\[R, R, R, R\]](#).

Curcumin may help by altering levels of hormones that play a role in appetite and metabolism [\[R\]](#).

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



### HbA1c

IMPACT



EVIDENCE



**Curcumin (up to 4,000 mg/day for 3-9 months) may help support healthy HbA1c levels** [\[R, R, R, R, R, R, R, R, R, R, R, R\]](#).

It may help by [\[R, R\]](#):

- Making the body more sensitive to insulin
- Decreasing how much sugar is made in the body
- Protecting against oxidative stress

However, curcumin didn't reduce HbA1c in some studies [\[R, R\]](#).

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



## Insulin Resistance

IMPACT



EVIDENCE



**Curcumin (up to 4 g/day for 4-12 weeks) may lower blood sugar and improve insulin resistance.** Curcumin may help in people at risk of metabolic disorders, as well as those with type 2 diabetes and metabolic syndrome [\[R, R, R, R, R\]](#).

Curcumin may also reduce insulin resistance in women with PCOS [\[R, R, R\]](#).

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

Health experts say there's not enough evidence to recommend curcumin supplementation for diabetes [\[R\]](#).

---



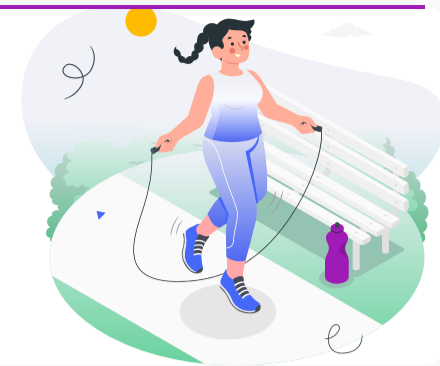
## Fasting Glucose

IMPACT



EVIDENCE





## High-Intensity Interval Training (HIIT)

Helps with the following



**Overweight**

IMPACT

1 / 5

EVIDENCE

4 / 5

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

Recommendation References: [R, R, R, R, R, R, R, R]



**High Blood Sugar**

IMPACT

3 / 5

EVIDENCE

3 / 5

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

Recommendation References: [R, R, R, R, R, R, R]



**Fasting Glucose**

IMPACT

3 / 5

EVIDENCE

3 / 5

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

Recommendation References: [R, R, R, R, R, R, R]



**Insulin Resistance**

IMPACT

3 / 5

EVIDENCE

3 / 5

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

Recommendation References: [R, R, R, R, R, R, R]



**HbA1c**

IMPACT

3 / 5

EVIDENCE

3 / 5

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [R].

Recommendation References: [R, R, R, R, R, R, R]



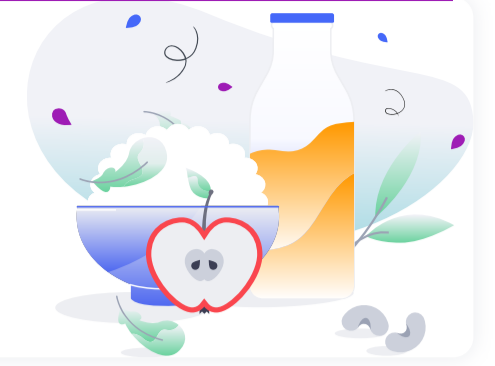
**Visceral Fat**

IMPACT

0 / 5

EVIDENCE

0 / 5



# Paleo Diet

Helps with the following



**Overweight**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Visceral Fat**



Recommendation References: [\[R\]](#)



**Fasting Glucose**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**High Blood Sugar**



**Insulin Resistance**



**HbA1c**





## Keto Diet



Helps with the following



**Overweight**

IMPACT

●●●●● 4 / 5

EVIDENCE

●●●●● 1 / 5

Recommendation References: [\[R, R, R, R, R, R, R, R, R, R, R, R, R, R\]](#)



**Visceral Fat**

IMPACT

●●●●● 4 / 5

EVIDENCE

●●●●● 1 / 5

Recommendation References: [\[R, R, R, R, R, R, R, R, R, R, R, R, R, R\]](#)



**Fasting Glucose**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 3 / 5

Recommendation References: [\[R, R\]](#)



**HbA1c**

IMPACT

●●●●● 4 / 5

EVIDENCE

●●●●● 3 / 5

Following the keto diet (for at least 4 weeks) may help lower HbA1c levels [\[R, R, R, R\]](#).

In people with elevated HbA1c, the ketogenic diet may also help [\[R, R\]](#):

- Reduce hunger
- Support weight loss

By limiting carb intake, the ketogenic diet may reduce blood sugar and insulin resistance [\[R, R\]](#).

**Please note:** Consult a doctor before changing your diet. The keto diet can significantly lower blood sugar levels, so people with diabetes should be carefully monitored in case their blood sugar levels become too low. Following this diet for too long may affect the liver, bones, and kidneys and may increase the risk of nutrient deficiencies [\[R\]](#).



**High Blood Sugar**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**Insulin Resistance**

IMPACT

●●●●● 0 / 5

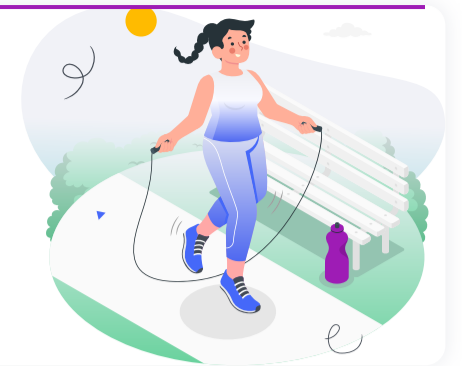
EVIDENCE

●●●●● 0 / 5





# Strength Training



Helps with the following



Overweight



Insulin Resistance



Fasting Glucose



HbA1c



High Blood Sugar

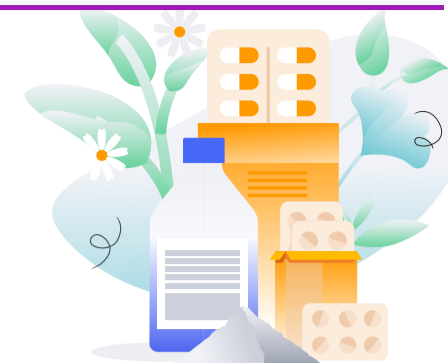


Visceral Fat





## Magnesium



### Helps with the following



#### Uric Acid

IMPACT

0 / 5

EVIDENCE

0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.

Genetically higher levels of magnesium may be associated with a lower uric acid levels. [R]



#### High Blood Sugar

IMPACT

2 / 5

EVIDENCE

3 / 5

Magnesium may help control blood sugar by supporting the effects of insulin. **Higher magnesium intake is linked to lower blood sugar** [R, R].

**Supplementing with magnesium (250-350 mg/day for 4-16 weeks) may lower blood sugar and insulin levels.** It may also improve insulin resistance [R, R, R, R, R].



#### Insulin Resistance

IMPACT

3 / 5

EVIDENCE

3 / 5

Magnesium may help control blood sugar by supporting the effects of insulin. **Higher magnesium intake is linked to lower blood sugar and insulin resistance** [R, R].

**Supplementing with magnesium (250-350 mg/day for 4-16 weeks) may lower insulin resistance and blood sugar levels.** It may help both people with diabetes and those at risk of this condition [R, R, R, R, R].



#### High PTH

IMPACT

2 / 5

EVIDENCE

2 / 5

Supplementation with magnesium may **lower PTH levels in people with kidney disease.** Magnesium may help by supporting calcium metabolism [R, R].

**Please note:** Magnesium supplements should not exceed 350 mg/day of elemental magnesium. Higher doses may cause diarrhea, nausea, and abdominal cramps. In addition, magnesium supplements may interact with some medications, including antibiotics and "water pills" (diuretics) [R].



#### Fasting Glucose

IMPACT

2 / 5

EVIDENCE

3 / 5



#### Gout

IMPACT

0 / 5

EVIDENCE

0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.

Genetically higher levels of magnesium may be associated with a lower risk for gout. [R, R]



## Avoid Sugary Foods



Helps with the following



Uric Acid

IMPACT

3 / 5

EVIDENCE

3 / 5

Foods high in sugar, especially fructose, are linked to high uric acid levels [\[R, R, R, R\]](#).

Sugars such as fructose increase the production of uric acid [\[R, R\]](#).

Experts say that avoiding sugary foods and drinks may help lower uric acid. It may also decrease the risk of gout attacks in people with gout. This also includes artificially flavored soft drinks and fresh fruit juice such as orange juice. [\[R, R, R\]](#).



PERSONALIZED TO YOUR GENES

Your **SLC2A9** gene variant is linked to lower levels of uric acid. However, sugar may have a worse effect on uric acid in people with this variant [\[R, R\]](#). Do your best to limit sugar intake.

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs11942223</b>	/	5 / 5



High Blood Sugar

IMPACT

5 / 5

EVIDENCE

5 / 5

Sugary foods can spike your blood sugar and insulin. Over time, this can lead to [insulin resistance](#) and increase the risk of type 2 diabetes [\[R, R, R\]](#).

All health experts recommend avoiding sugary foods to people at risk of diabetes [\[R, R, R\]](#).

Diets that limit sugary foods and help lower blood sugar include:

- The [Mediterranean diet](#) [\[R, R, R\]](#)
- The [keto diet](#) [\[R, R\]](#)
- The paleo diet [\[R, R\]](#)



PERSONALIZED TO YOUR GENES

Avoiding sugary foods can help reduce your blood sugar by targeting many of your gene variants at once [\[R, R\]](#).

## Gout

IMPACT 

EVIDENCE 

**A diet high in sugar, especially *fructose*, may increase the risk of gout.** Sweetened beverages, such as soda, are a main source of fructose. They may contribute to gout by raising uric acid levels [\[R, R, R, R, R, R\]](#).

**Experts recommend avoiding drinks sweetened with fructose to help with gout** [\[R, R, R\]](#).

In line with this, diets lower in sugar may help reduce uric acid levels [\[R\]](#).

It is important to note that whole fruit and 100% fruit juice also contain naturally occurring fructose. However, it is unclear if these foods increase the risk of gout [\[R, R, R\]](#).



PERSONALIZED TO YOUR GENES

**Your SLC2A9 gene variant is linked to lower odds of gout. However, sugar may have a worse effect on gout in people with this variant** [\[R, R\]](#). **Do your best to limit sugar intake.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs11942223</b>	/	

## Visceral Fat

IMPACT 

EVIDENCE 

Consuming a lot of carbs and sugar-sweetened drinks is linked to high visceral fat levels. Likewise, eating pastry may increase visceral fat [\[R, R, R, R, R\]](#).

Diets low in carbs may help reduce visceral fat. Drinking less sugary beverages may also help [\[R, R, R, R, R\]](#).

Sugary foods are higher in calories. Extra calories that our bodies don't use get converted into fat [\[R\]](#).

## HbA1c

IMPACT 

EVIDENCE 

Sugary foods can spike your blood sugar and insulin. **Over time, this can lead to [insulin resistance](#) and raise HbA1c levels** [\[R, R, R\]](#).

**Experts recommend that people with diabetes avoid sugary foods.** This may help lower HbA1c [\[R, R, R, R, R, R\]](#).

Specific diets that limit sugary foods and may help lower HbA1c include:

- Paleo diet [\[R, R, R\]](#)
- [Mediterranean diet](#) [\[R, R, R\]](#)
- Keto diet [\[R, R, R, R\]](#)



PERSONALIZED TO YOUR GENES

**Avoiding sugary foods can help reduce your blood sugar by targeting many of your gene variants at once** [\[R, R\]](#).

Sugary foods can spike your blood sugar and insulin. **Over time, this can lead to insulin resistance and increase the risk of type 2 diabetes** [\[R, R, R, R\]](#).

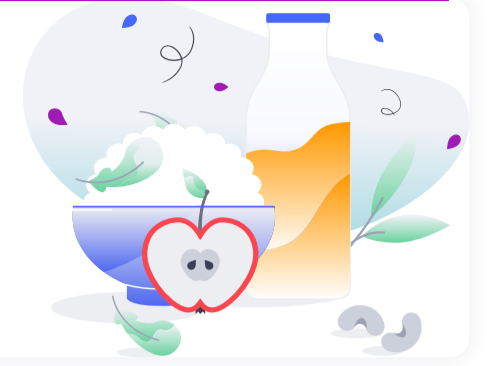
**All health experts recommend avoiding sugary foods for people with poor blood glucose control** [\[R, R, R\]](#).

Diets that limit sugary foods and help reduce insulin resistance include:

- The [Mediterranean diet](#) [\[R, R, R\]](#)
- The [keto diet](#) [\[R\]](#)
- The Paleo diet [\[R\]](#)



## Fasting Mimicking Diet



Helps with the following



**Overweight**

IMPACT  
● ● ● ● ● 2 / 5

EVIDENCE  
● ● ● ● ● 2 / 5

Recommendation References: [\[R, R, R, R, R\]](#)



**High Blood Sugar**

IMPACT  
● ● ● ● ● 1 / 5

EVIDENCE  
● ● ● ● ● 1 / 5

Recommendation References: [\[R, R\]](#)



**Fasting Glucose**

IMPACT  
● ● ● ● ● 1 / 5

EVIDENCE  
● ● ● ● ● 1 / 5

Recommendation References: [\[R, R\]](#)



**Insulin Resistance**

IMPACT  
● ● ● ● ● 1 / 5

EVIDENCE  
● ● ● ● ● 1 / 5

Recommendation References: [\[R, R\]](#)



**HbA1c**

IMPACT  
● ● ● ● ● 1 / 5

EVIDENCE  
● ● ● ● ● 1 / 5

Recommendation References: [\[R, R\]](#)



**Metabolic Rate**

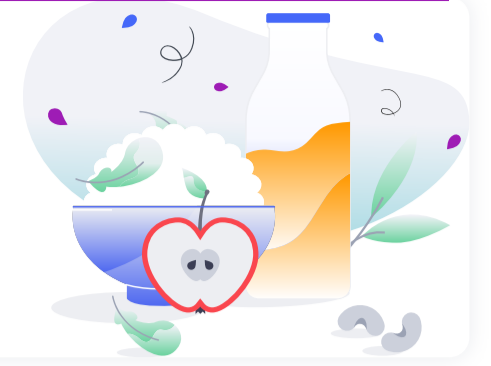
IMPACT  
● ● ● ● ● 2 / 5

EVIDENCE  
● ● ● ● ● 2 / 5

Recommendation References: [\[R, R, R, R, R\]](#)



# Low-Carbohydrate Diet



Helps with the following



Overweight



Underactive Thyroid



Fasting Glucose



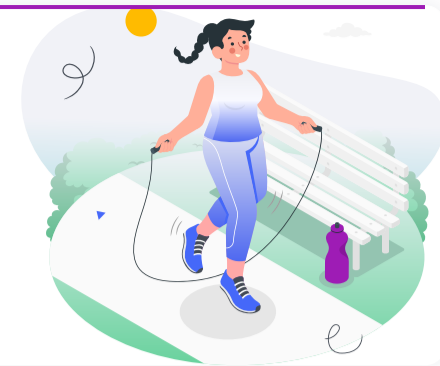
High Blood Sugar



HbA1c



30



## Optimize Sleep

Helps with the following



Overweight

IMPACT



EVIDENCE



Adults who don't get enough sleep are 25-55% more likely to be overweight or obese. In fact, the risk of obesity may increase by 9% for every hour of sleep lost [R, R, R, R].

Disrupting the natural sleep cycle may also promote weight gain. People who work night shifts are more likely to be obese [R, R, R].

Sleep may be even more important for weight control in children. The good news is that every 1-hour increase in sleep may lower their risk of weight gain by a whopping 21% [R, R, R, R, R].

Sleep helps keep hunger hormones like ghrelin and leptin in balance. Thus, lack of sleep may increase junk food cravings and total food intake [R, R, R].



PERSONALIZED TO YOUR GENES

People with your DRD2 gene variant may eat more junk food, especially late at night. They may experience bigger weight gain from sleep problems [R]. Try your best to optimize your sleep.

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs4245149	/	



High Blood Sugar

IMPACT



EVIDENCE



Poor sleep can alter [R, R]:

- Your appetite
- Food cravings
- Sugar metabolism
- Insulin sensitivity

Getting too little or too much sleep may increase blood sugar levels in the long run [R, R, R, R, R].

Lack of sleep in particular may cause insulin resistance [R, R].





## Underactive Thyroid

IMPACT 2 / 5

EVIDENCE 2 / 5

**Poor sleep is linked to an underactive thyroid.** Some potential issues include:

- Sleep apnea (interrupted breathing during sleep) [\[R, R, R\]](#)
- Getting too much sleep [\[R\]](#)
- Night shift work [\[R\]](#)
- Poor sleep quality [\[R\]](#)

Optimizing your sleep may help improve thyroid function [\[R\]](#).



PERSONALIZED TO YOUR GENES

**Your VGLL2 gene variant is linked to lower sleep quality [\[R\]](#). Make sure to optimize your sleep to potentially improve thyroid health.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs4946246</b>	/	



## HbA1c

IMPACT 2 / 5

EVIDENCE 3 / 5

Healthy sleep is crucial for blood sugar control. The following sleep problems may be linked to higher HbA1c and diabetes:

- Too little sleep [\[R, R\]](#)
- Poor sleep quality [\[R, R\]](#)
- Insomnia [\[R\]](#)
- Breathing problems during sleep (obstructive sleep apnea) [\[R, R, R\]](#)

In line with this, **experts recommend getting at least 7 hours of high-quality sleep to help control blood sugar [\[R\]](#).**

Sleep deprivation and poor sleep quality may raise blood sugar by causing insulin resistance [\[R, R, R, R\]](#).

However, some studies didn't find a link between sleep issues and blood sugar control [\[R, R\]](#).



## Insulin Resistance

IMPACT 3 / 5

EVIDENCE 3 / 5

Poor sleep can alter [\[R, R\]](#):

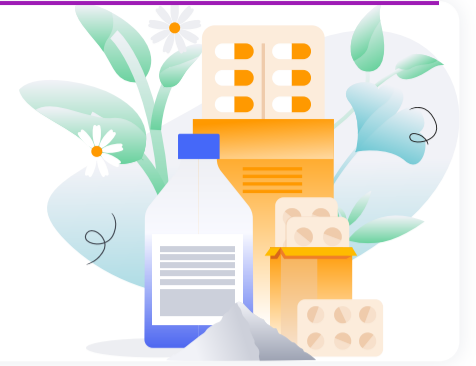
- Your appetite
- Food cravings
- Sugar metabolism
- Insulin sensitivity

**Getting insufficient sleep may increase blood sugar levels and cause insulin resistance in the long run.** Interventions improving sleep duration may help with insulin resistance [\[R, R, R\]](#).

People who work in shifts may also be at increased risk of insulin resistance [\[R\]](#).



## Zinc



Helps with the following



**Overweight**

IMPACT



EVIDENCE



**High Blood Sugar**

IMPACT



EVIDENCE



In some people, the pancreas produces too much insulin, which can lead to insulin resistance. **Zinc may be able to prevent this and protect the pancreas from damage** [R, R].

**Zinc-deficient people are more likely to have high blood sugar** [R].

**Supplementing with zinc (25-34 mg/day) may reduce blood sugar.** It may also lower the odds of type 2 diabetes [R, R, R, R, R, R].



**Underactive Thyroid**

IMPACT



EVIDENCE



**Low blood zinc levels are linked to an underactive thyroid.** This is likely because zinc supports the normal release of thyroid hormones [R, R, R].

Thyroid hormones also help the body absorb zinc. Thus, an underactive thyroid may lead to low zinc levels as well [R].

**Zinc (30 mg/day for 12 weeks)** may help increase levels of thyroid hormones in people with an underactive thyroid. However, not all studies found a clear benefit [R, R].

**Please note:** A high intake of zinc may cause stomach pain and gut irritation. Adults should not ingest more than **40 mg** of zinc per day [R, R].



**HbA1c**

IMPACT



EVIDENCE



**Zinc supplements (25-40 mg/day for at least 3 months) may help support healthy HbA1c levels** [R, R, R, R, R].

Zinc may help by improving sensitivity to insulin [R, R, R]:

**Please note:** Both low and high blood zinc levels have been linked to an increased risk of diabetes. A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day [R, R, R, R, R, R, R, R, R, R].



**Insulin Resistance**

IMPACT



EVIDENCE



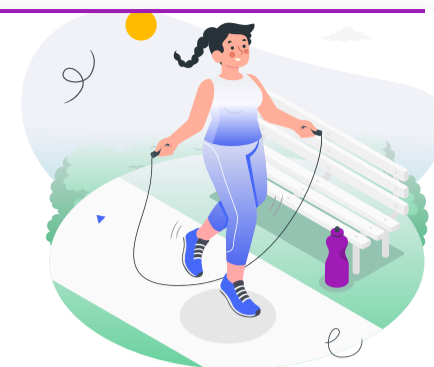
In some people, the pancreas produces too much insulin, which can lead to insulin resistance. **Zinc may be able to prevent this and protect the pancreas from damage** [R, R].

**Zinc-deficient people are more likely to have insulin resistance if they are overweight or obese** [R].

**Supplementing with zinc (25-34 mg/day) may reduce insulin resistance.** It may also lower the odds of type 2 diabetes [R, R, R].



## Yoga



Helps with the following



### Overweight

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

Yoga (1-7 days/week for at least 2 weeks) may help you lose weight by [\[R, R\]](#):

- Increasing energy use
- Reducing stress
- Reducing impulsive eating

However, the studies are small and of moderate quality [\[R, R\]](#).



### HbA1c

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



### High Blood Sugar

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



### Heavy Sweating

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



### Insulin Resistance

IMPACT

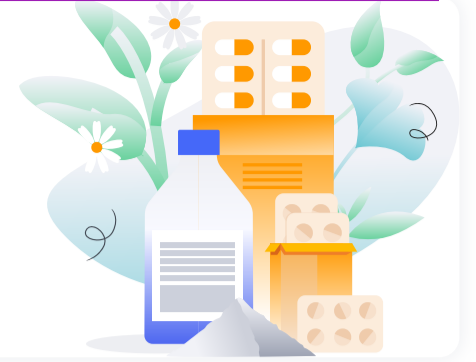
●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



## Alpha-Lipoic Acid



Helps with the following



### Overweight

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

Alpha-lipoic acid (300-1,200 mg/day for 8-20 weeks) may reduce weight by decreasing appetite [R, R, R].



### High Blood Sugar

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 3 / 5

**ALA has similar effects as insulin.** It may help your body use sugar more efficiently [R, R].

**ALA is also a powerful antioxidant.** [Oxidative stress](#) can make diabetes worse, and ALA may protect against it [R, R].

ALA is approved for diabetes in some countries. **It may help with complications of diabetes**, including [R, R, R, R]:

- Nerve damage
- Kidney damage
- Eye damage

**Supplementing with ALA may improve long-term blood sugar control.** It may also reduce inflammation and cholesterol [R, R, R].



### Insulin Resistance

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

**Alpha-lipoic acid (ALA) has similar effects as insulin.** It may help your body use sugar more efficiently [R, R].

**Supplementing with ALA may improve long-term blood sugar control and insulin resistance.** However, a study found no effects on insulin resistance [R, R, R].



### Fasting Glucose

IMPACT

●●●●● 1 / 5

EVIDENCE

●●●●● 2 / 5



### HbA1c

IMPACT

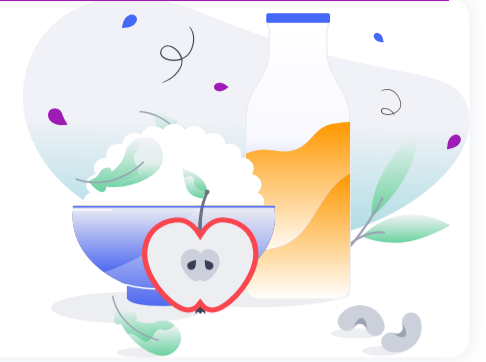
●●●●● 1 / 5

EVIDENCE

●●●●● 2 / 5



# Kimchi



Helps with the following



**Overweight**



Recommendation References: [\[R\]](#), [\[R\]](#)



**High Blood Sugar**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Fasting Glucose**



Recommendation References: [\[R\]](#), [\[R\]](#)



**Insulin Resistance**



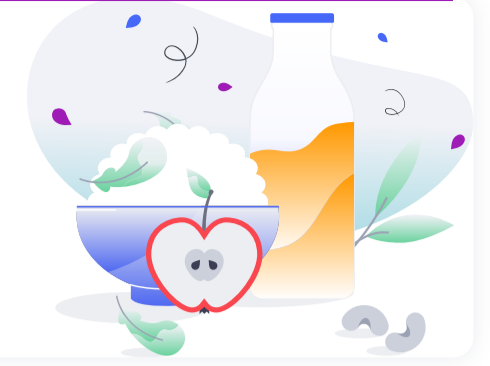
Recommendation References: [\[R\]](#)



**HbA1c**



Recommendation References: [\[R\]](#)



# Pistachios

Helps with the following



**Overweight**



Recommendation References: [\[R\]](#), [\[R\]](#)



**Fasting Glucose**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Insulin Resistance**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**HbA1c**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)

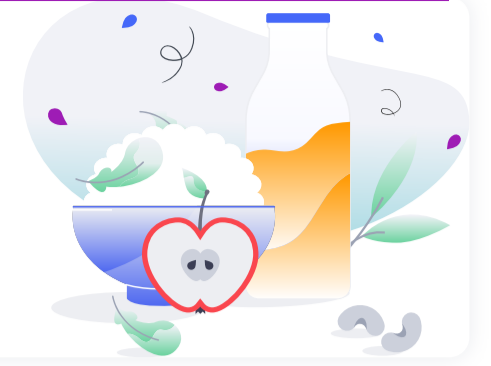


**High Blood Sugar**





# Vegetarian Diet



Helps with the following



**Overweight**



Recommendation References: [\[R, R, R, R, R, R, R\]](#)



**High Blood Sugar**



Recommendation References: [\[R, R, R, R, R, R, R\]](#)



**Fasting Glucose**



Recommendation References: [\[R, R, R, R, R, R, R\]](#)



**HbA1c**



Recommendation References: [\[R, R, R, R, R, R, R\]](#)



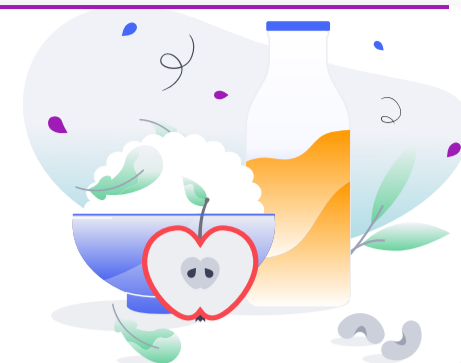
**Insulin Resistance**



Recommendation References: [\[R, R, R, R, R, R, R\]](#)



## Vegan Diet



Helps with the following



**Overweight**

IMPACT

●●●●● 4 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R, R, R, R, R\]](#)



**High Blood Sugar**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R, R, R, R\]](#)



**Fasting Glucose**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R, R, R, R\]](#)



**HbA1c**

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

Recommendation References: [\[R, R, R, R\]](#)



**Visceral Fat**

IMPACT

●●●●● 1 / 5

EVIDENCE

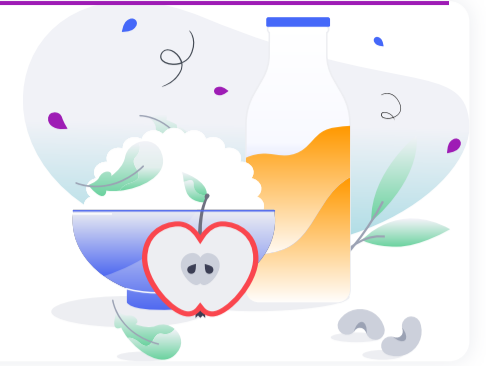
●●●●● 1 / 5

Recommendation References: [\[R, R, R\]](#)





## Limit Alcohol Intake



Helps with the following



**Uric Acid**

IMPACT



EVIDENCE



Alcohol supports the breakdown of purines to uric acid. Certain types of alcohol, like beer, also contain purines in large amounts [\[R, R\]](#).

In line with this, people who drink alcohol may have higher uric acid [\[R, R, R, R, R\]](#).

Experts say that avoiding alcohol may help lower uric acid. It may also prevent gout attacks in people with gout [\[R, R, R\]](#).



PERSONALIZED TO YOUR GENES

**Your SLC17A4 gene variant is linked to higher levels of uric acid. The effect of this variant may be stronger in alcohol drinkers [\[R, R\]](#). Make sure to limit your alcohol intake.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs2096386</b>	/	



**Gout**

IMPACT



EVIDENCE



Experts recommend limiting alcohol intake to help with gout [\[R, R, R\]](#).

**Drinking a lot of alcohol may increase the risk of this condition.** Beer and hard liquor may be especially harmful, even in low to moderate amounts [\[R, R, R, R, R, R\]](#).

Drinking alcohol may also reduce the response to gout medication [\[R\]](#).

Alcohol may contribute to gout by increasing uric acid [\[R, R\]](#).



PERSONALIZED TO YOUR GENES

**Your SLC17A4 gene variant is linked to higher odds of gout. It may increase uric acid levels, especially in alcohol drinkers [\[R, R, R\]](#). Make sure to limit your alcohol intake.**

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs2096386</b>	/	

---

## Heavy Sweating

IMPACT  
 2 / 5

EVIDENCE  
 3 / 5

Experts agree that alcohol may cause heavy sweating in some people [\[R, R\]](#).

Drinking alcohol is also linked to night sweats and hot flashes in women [\[R, R\]](#).

Alcohol may contribute to heavy sweating by widening your blood vessels and increasing your heart rate [\[R\]](#).

---

## Visceral Fat

IMPACT  
 2 / 5

EVIDENCE  
 1 / 5

Drinking alcohol is linked to high levels of visceral fat [\[R, R\]](#).

Alcohol may make the body produce more fats, in part by altering sex hormone levels. In addition, some alcoholic drinks are high in calories and sugar, which can further increase fat buildup [\[R, R, R\]](#).

---

## Low Blood Sugar

IMPACT  
 3 / 5

EVIDENCE  
 3 / 5

Drinking alcohol, especially in large amounts, may increase the risk of low blood sugar by [\[R, R, R\]](#):

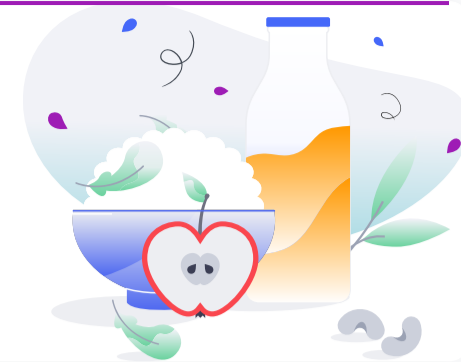
- Preventing the release of glucose from the liver
- Making people less aware of their symptoms
- Contributing to a sugar crash

However, alcohol alone in smaller amounts didn't alter blood sugar levels in some studies [\[R, R\]](#).

If you choose to drink alcohol, consider drinking it with a meal. Doing so may provide extra calories and help reduce the risk of low blood sugar [\[R, R\]](#).



## Fiber



Helps with the following



Overweight

IMPACT



EVIDENCE



Fiber makes you feel more full and thus eat less. **In fact, getting 14 g more fiber per day is linked to a 10% lower calorie intake** [\[R\]](#).

Supplementing with fiber may support weight loss. Sources of fiber include:

- [Resistant starch](#): 10-40 g/day for 4-12 weeks [\[R, R, R\]](#)
- [Psyllium](#): 6-16 g/day for 6-24 weeks [\[R\]](#)
- [Flaxseed](#): at least 30 g/day for 12 weeks [\[R\]](#)
- Indigestible dextrin: 34 g/day for 12 weeks [\[R\]](#)

Some fiber-rich diets that may help you control weight include:

- The Mediterranean diet [\[R, R, R, R\]](#)
- Vegetarian diets [\[R, R, R, R\]](#)
- The DASH diet [\[R, R, R, R, R\]](#)



PERSONALIZED TO YOUR GENES

**People with your TCF7L2 gene variant may lose more weight on a high-fiber diet** [\[R\]](#).

**People with your FTO gene variant are less likely to be obese if they get more fiber** [\[R\]](#).

### YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	<b>rs7903146</b>	/	

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs3751812</b>	/	

Fiber intake is linked to lower levels of visceral fat [\[R\]](#).

In line with this, eating whole-grain wheat bread (2.5 slices/day for 12 weeks) may help reduce visceral fat in people who are overweight or obese [\[R\]](#).

Other forms of fiber that may help reduce visceral fat include:

- Barley that contains  $\beta$ -glucan (4.4 g/day for 12 weeks) [\[R\]](#)
- Resistant maltodextrin (15 g/day for 12 weeks) [\[R\]](#)

Increased fiber intake may help lower calorie intake and maintain a healthy weight. It may also decrease fat production [\[R, R\]](#).



PERSONALIZED TO YOUR GENES

**People with your *FTO* gene variant may have more visceral fat. Getting more fiber may reduce the impact of this variant on body fat [\[R, R\]](#).**

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	<b>rs3751812</b>	/	

Dietary fiber may help reduce blood sugar levels. **People who eat more fiber may be at a lower risk of diabetes** [R, R, R].

This is because **fiber delays the absorption of sugar**, which prevents blood sugar spikes. It may even boost your response to insulin [R, R, R, R, R].

[Mediterranean](#) and vegetarian diets are rich in high-fiber foods that may help control blood sugar [R, R, R, R, R].

High-fiber foods that may benefit blood sugar include:

- [Flaxseed](#) [R, R]
- [Chia seed](#) [R, R, R]
- [Fenugreek](#) [R, R, R, R]

For people who don't get enough fiber from diet, potential supplements include:

- [Resistant starch](#) [R, R, R]
- [Inulin](#) [R, R, R]
- [Psyllium husk](#) [R, R, R, R]

**Note that a diet high in sugary foods may cancel out the protective effects of dietary fiber** [R].



PERSONALIZED TO YOUR GENES

**You carry two "farmer" variants of the TCF7L2 gene. This means you are likely better adapted to eating complex carb-rich foods such as grains. People with your variants who eat more fiber may be at a lower risk of diabetes** [R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	<b>rs7903146</b>	/	

Fiber may help reduce blood sugar. **People who eat more fiber may have lower HbA1c levels** [\[R, R, R, R\]](#).

This may be because **fiber delays the absorption of sugar**, which prevents blood sugar spikes. Fiber also increases the amount of “good” bacteria in the gut that help lower HbA1c [\[R, R, R\]](#).

High-fiber foods that may help lower HbA1c include:

- Whole grains [\[R, R\]](#)
- Oats [\[R, R, R\]](#)
- Fenugreek seeds [\[R, R, R, R\]](#)
- Pulses (beans, chickpeas, lentils) [\[R, R\]](#)

Fiber supplements that may have similar benefits include:

- [Resistant starch](#) [\[R, R\]](#)
- [Inulin](#) [\[R, R, R\]](#)
- [Psyllium husk](#) [\[R, R, R\]](#)



PERSONALIZED TO YOUR GENES

**People with your TCF7L2 gene variant who eat more fiber may have better blood sugar control** [\[R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	<b>rs7903146</b>	/	

**Dietary fiber may help reduce insulin resistance.** People who eat more fiber may also be at a lower risk of diabetes [\[R, R, R\]](#).

[Mediterranean](#) and vegetarian diets are rich in high-fiber foods that may help reduce insulin resistance [\[R, R, R\]](#).

High-fiber foods that may benefit insulin sensitivity include:

- [Flaxseed](#) [\[R, R, R\]](#)
- [Fenugreek](#) [\[R, R, R\]](#)

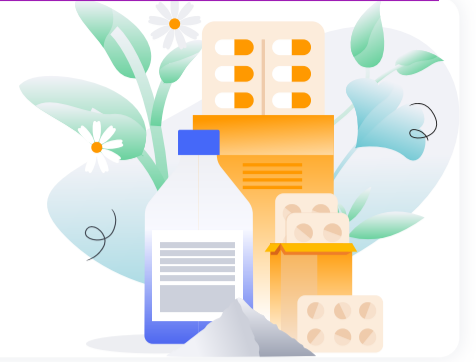
For people who don't get enough fiber from diet, potential supplements include:

- [Resistant starch](#) [\[R, R, R\]](#)
- [Inulin](#) [\[R, R, R\]](#)

**Note that a diet high in sugary foods may cancel out the protective effects of dietary fiber** [\[R\]](#).



# Tocotrienols



Helps with the following



Overweight



Visceral Fat



High Blood Sugar



Insulin Resistance

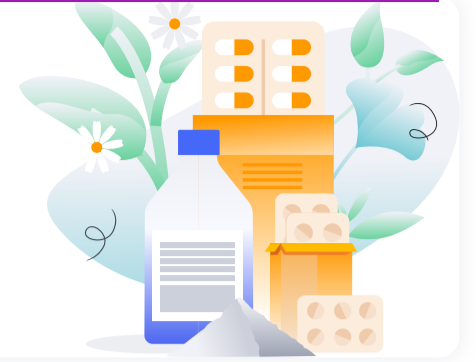


HbA1c





# Bergamot



Helps with the following



**Insulin Resistance**



**Visceral Fat**



Bergamot phytosome (1,000 mg/day for up to 12 weeks) may help reduce visceral fat in people who are overweight or obese [\[R\]](#).

Bergamot may help by reducing the amount of fat our body makes [\[R\]](#).



**High Blood Sugar**



**Fasting Glucose**







## Jiaogulan (Gynostemma Pentaphyllum)



Helps with the following



**Overweight**

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 1 / 5

Gynostemma extract (450 mg/day for 12 weeks) may reduce body weight by reducing fat production [R].



**Fasting Glucose**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**Visceral Fat**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**High Blood Sugar**

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



**Insulin Resistance**

IMPACT

●●●●● 0 / 5

EVIDENCE

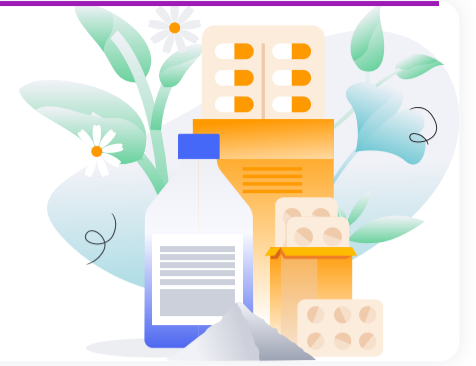
●●●●● 0 / 5

**Please note:** There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.



## Cinnamon

Helps with the following



### High Blood Sugar

IMPACT



EVIDENCE



Cassia cinnamon (120-6,000 mg/day for 4-18 weeks) may improve blood sugar control [\[R, R, R, R\]](#).

It may help by [\[R, R, R\]](#):

- Preventing oxidative stress
- Reducing [insulin resistance](#)

However, health experts say there's not enough evidence to recommend cinnamon supplementation for diabetes [\[R\]](#).

**Please note:** *Cassia cinnamon is high in coumarin. This substance may harm the liver in large amounts. Consult your doctor before supplementing with high doses of Cassia cinnamon [\[R, R, R\]](#).*



### Insulin Resistance

IMPACT



EVIDENCE



**Cassia cinnamon (120-6,000 mg/day for 4-18 weeks) may improve blood sugar control and insulin resistance in people at risk of diabetes or already living with thi condition [\[R\]](#).**

However, the evidence is mixed. In line with this, health experts say there's not enough evidence to recommend cinnamon supplementation for diabetes [\[R, R\]](#).

Cinnamon may also improve insulin resistance in women with PCOS [\[R\]](#).

**Please note:** *Cassia cinnamon is high in coumarin. This substance may harm the liver in large amounts. Consult your doctor before supplementing with high doses of Cassia cinnamon [\[R, R, R\]](#).*



### Visceral Fat

IMPACT

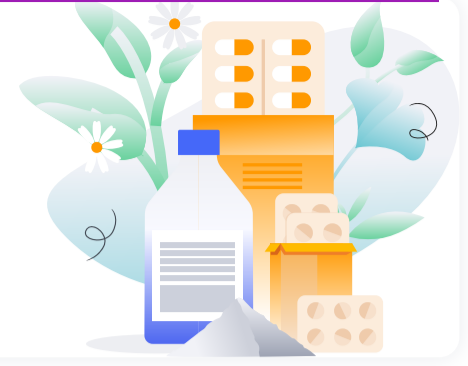


EVIDENCE





# Beta-Glucans



Helps with the following



**Overweight**



Beta-glucans (1-4 g/day for 4-12 weeks) may reduce body weight by [\[R\]](#):

- Decreasing appetite
- Improving insulin sensitivity



**HbA1c**



**High Blood Sugar**

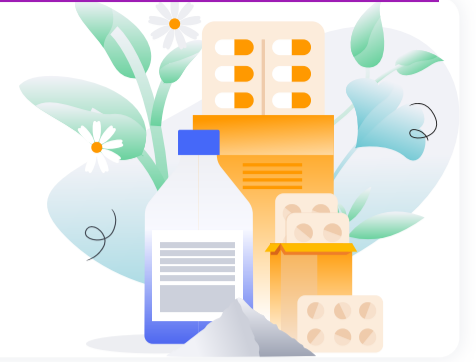


**Fasting Glucose**





# Bitter Melon Supplement



Helps with the following



Overweight



Fasting Glucose



HbA1c

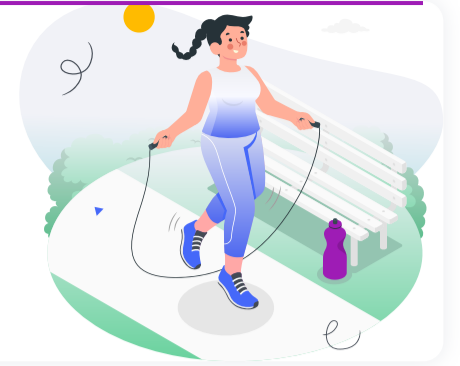


High Blood Sugar





# Diaphragmatic Breathing



Helps with the following



**Overweight**



Recommendation References: [\[R\]](#)



**High Blood Sugar**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#)



**HbA1c**



Recommendation References: [\[R\]](#), [\[R\]](#)



**Fasting Glucose**

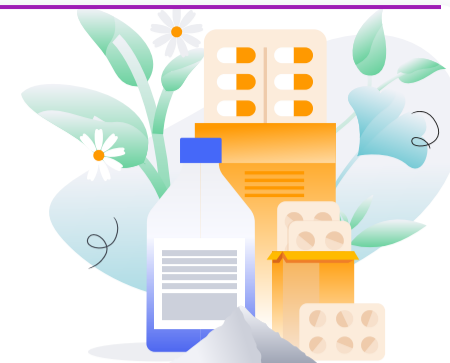


Recommendation References: [\[R\]](#)

47



# Glutamine



Helps with the following



High Blood Sugar

IMPACT



EVIDENCE



Fasting Glucose

IMPACT



EVIDENCE



HbA1c

IMPACT

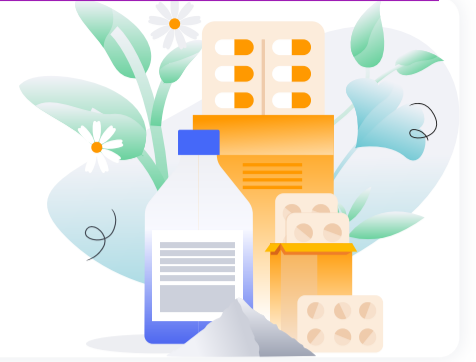


EVIDENCE





## Gymnema



Helps with the following



### Overweight

IMPACT



EVIDENCE



Gymnema extract (600 mg/day for 12 weeks) may reduce body weight [\[R, R\]](#).

However, one study found that gymnema doesn't benefit weight loss [\[R\]](#).



### Fasting Glucose

IMPACT



EVIDENCE



### HbA1c

IMPACT



EVIDENCE



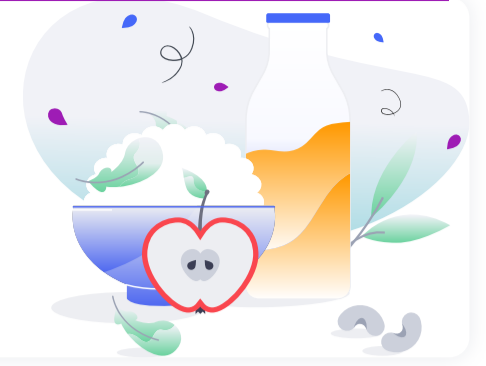
### High Blood Sugar

IMPACT



EVIDENCE





# Oats

Helps with the following



**Overweight**



Recommendation References: [\[R\]](#)



**High Blood Sugar**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**Fasting Glucose**



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



**HbA1c**





50



# Okra



Helps with the following



Overweight

IMPACT



EVIDENCE



High Blood Sugar

IMPACT



EVIDENCE



Fasting Glucose

IMPACT



EVIDENCE



HbA1c

IMPACT



EVIDENCE

