

Low Blood Sugar

DNA Health Report

REPORT CATEGORY —



Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



How this works

Our Wellness 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.



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.

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

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

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: lifestyle, diet, 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 the strength of evidence in the medical literature.

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



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:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

We all know the danger of eating too much sugar: type 2 diabetes.

If you have too much sugar in your blood, this is called hyperglycemia.

Well, what if you don't have enough sugar in the blood? **This is called hypoglycemia.**

It's most common in people with diabetes who take too much medication to lower their blood sugar.

A study found that over the course of one month, 4 in 5 individuals with type 1 diabetes who took medication had at least one low blood sugar event. In the US, 2 in 100 people on diabetes medication will suffer a severe case of hypoglycemia every year [\[R\]](#), [\[R\]](#).

Any low blood sugar event that causes symptoms and is left untreated can be life-threatening. Such cases of hypoglycemia require immediate medical attention.

Low blood sugar can even affect you while you sleep.

Blood sugar normally dips when you go a while without eating (which most of us do at night).

This can lead to a range of symptoms that you wouldn't necessarily think are linked to blood sugar levels, like nightmares, crying out, and excessive sweating. It can also contribute to feeling tired, irritable, and confused in the morning [\[R\]](#).

While a lot of those who experience low blood sugar are diabetic, some aren't. **Other factors that can increase the risk of hypoglycemia include age and genetics** [\[R\]](#), [\[R\]](#), [\[R\]](#).

For example, if you carry a specific variant of the [ADRB2](#) gene, you may be more prone to blood sugar drops between meals [\[R\]](#). In this instance, you should take care to optimize your nutrition.

Read on to find out more about:

- **How your genetics play a role in low blood sugar**
- **Your genetic risk score based on over 130,000 genetic variants**
- **Personalized recommendations based on your genetics**

Factors Affecting 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



MORE LIKELY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTNR1B	rs10830963	CG
GCK	rs4607517	AG
URAD	rs11619319	AA
TOP1	rs6072275	GG
PROX1	rs340874	TT
GCKR	rs780094	TC
FBRSL1	rs10747083	GG
PEAK1	rs7178572	AA
CRY2	rs11605924	AC
ZBED3	rs7708285	AA
TCF7L2	rs4506565	AT
KL	rs576674	GA
GLIS3	rs7034200	AC
PDE6C	rs2785137	AG
G6PC2	rs560887	CC
TMEM245	rs16913693	TT
FOXA2	rs6113722	GG
ADRA2A	rs10885122	GG
SLC30A8	rs11558471	AA
RPL22L1	rs11920090	TT
ZBTB38	rs11919595	TT
MADD	rs7944584	AA
ADCY5	rs11708067	AA
CDKN2A	rs10811661	TT

- 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].

GENE	SNP	GENOTYPE
STARD10	rs11603334	GG
FADS2	rs174550	TT
SLC25A29	rs3783347	GG
DUS2	rs8044995	GG
CARD9	rs3829109	GG
C2CD4B	rs11071657	AA
MANBA	rs223486	CG
QPCTL	rs2302593	CG
IGF1R	rs6598541	GA
AMT	rs11715915	CC
RGS17	rs1281962	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.

DOSAGE		DOSAGE			
1	Low-Intensity Exercise	1 hour	2	Chlorophyll	100 mg
3	Dietary Protein		4	Regular Sleep Schedule	
5	Apple Juice		6	Honey	
7	Psychoeducational Therapy		8	Bananas	

1



Low-Intensity Exercise

IMPACT3 / 5

EVIDENCE4 / 5

How to implement

Incorporate 60 minutes of low-intensity activities, such as walking or gentle yoga, into your daily routine. Aim to do this 5 days a week to achieve the best results.

TYPICAL STARTING DOSE

1 hour

Description

Low-intensity exercise, such as walking or gentle yoga, provides numerous health benefits, including improved cardiovascular health, stress reduction, and enhanced overall fitness without the strain of high-intensity workouts.

How it helps

Experts note that exercise can have many health benefits for people with diabetes. However, the details make a difference. Intense or extended exercise is more likely to cause low blood sugar in these people [\[R\]](#), [\[R\]](#).

If you have diabetes, work with your doctor to adjust your medication and exercise routine as needed. Some strategies that may help include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Adjusting the type and amount of food eaten before working out
- Adjusting the insulin dose or injection site before working out
- Choosing an exercise mode (continuous vs. interval training) that works best for you

Optimizing your exercise strategy may help by making sure your body meets energy demands while you work out.

2



Chlorophyll

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take chlorophyll supplements once daily, with a dose ranging from 100 to 300 milligrams. Consume it with a glass of water, preferably in the morning to coincide with your digestive cycle. It's advisable to continue this regimen daily for at least 3 to 4 weeks to assess its benefits.

TYPICAL STARTING DOSE

100 mg

Description

Chlorophyll is a pigment found in plants that may have antioxidant and anti-inflammatory properties. Some proponents suggest that consuming chlorophyll supplements or chlorophyll-rich foods may support detoxification and overall health

How it helps

Chlorophyll does not directly help low blood sugar. Instead, it may help stimulate insulin production, which is needed to regulate blood sugar levels.

In a non-placebo-controlled trial of 20 moderately overweight women, consuming plant tylakoids with test meals suppressed hunger motivation, increased CCK secretion 180 min after the meal, and prevented postprandial hypoglycaemia 90 min after food intake [\[R\]](#).

3



Dietary Protein

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Include a variety of protein sources such as meat, fish, eggs, dairy, beans, and nuts in your diet every day, aiming for at least 0.8 grams of protein per kilogram of body weight. For more active individuals or those looking to build muscle, increase intake to 1.2 to 2.0 grams per kilogram of body weight daily, spread out over all meals to maximize absorption.

Description

Protein is essential for building and repairing tissues, supporting muscle growth, and maintaining overall bodily functions. Adequate protein intake is crucial for overall health and well-being.

Foods that are high in protein include:

- Eggs
- Nuts
- Beef
- Chicken
- Fish
- Yogurt
- Tofu
- Pork
- Cottage cheese

How it helps

Including protein in meals can help stabilize blood sugar levels by slowing the absorption of carbohydrates.

4



Regular Sleep Schedule

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Go to bed and wake up at the same time every day, even on weekends and holidays. This helps regulate your body's internal clock, leading to better sleep quality. Aim for 7-9 hours of sleep per night.

Description

Maintaining a regular sleep schedule involves going to bed and waking up at consistent times each day. This practice helps regulate the body's internal clock and promotes better sleep quality, mood, and cognitive function.

How it helps

Keeping a regular sleep schedule helps maintain healthy circadian rhythms, which influence blood sugar control.

5



Apple Juice

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Consume 8 ounces (about 240 milliliters) of apple juice once daily, preferably in the morning with your breakfast. This routine should be maintained for at least 4 weeks to observe potential health benefits.

Description

Apple juice is known for its natural sweetness and pleasant taste. It is a good source of vitamin C and contains essential antioxidants, which can support immune health and provide a boost of hydration.

How it helps

Apple juice can provide a quick source of sugar, which can help raise blood glucose levels rapidly when they are too low.

6



Honey

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Consume 1-2 tablespoons of raw honey daily, either directly or by mixing it into warm water, tea, or yogurt. Continue this practice regularly to observe benefits.

Description

Honey is a natural sweetener known for its antimicrobial properties and potential benefits for wound healing. It contains antioxidants and may have soothing effects on sore throats and coughs.

[Honey](#) is a thick, sweet substance. It’s made by honeybees from the nectar of flowering plants. There are many different types of honey. Besides sugar, honey also contains amino acids (protein building blocks), vitamins, and minerals [\[R\]](#).

People use honey for its anti-inflammatory and antioxidant properties. It can potentially help with [\[R\]](#):

- Heart problems
- Gut problems
- Cough
- Burns

How it helps

Honey is a simple sugar that is easily absorbed into the bloodstream, increasing blood sugar levels shortly after consumption.

7



Psychoeducational Therapy

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Attend psychoeducational therapy sessions regularly, ideally once a week, for a period of at least 3 to 6 months. These sessions can be either individual or in groups and are conducted by a qualified therapist or psychologist.

Description

Psychoeducational therapy is an approach that combines psychotherapy with education to help individuals acquire knowledge and skills to manage mental health conditions effectively.

How it helps

Psychoeducational therapy, in relation to low blood sugar, does not directly prevent its occurrence. Instead, this therapy equips individuals with an understanding of their condition, necessary lifestyle modifications, and strategies to identify and manage their symptoms more effectively.

8



Bananas

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate 1-2 bananas into your daily diet. Bananas can be eaten as a standalone snack, added to cereal, oatmeal, or smoothies, or used as an ingredient in baking. Aim to include them regularly for ongoing dietary benefits.

Description

Bananas are a nutrient-rich fruit packed with potassium, fiber, and essential vitamins. They are a convenient and healthy snack option that can help support heart health, digestive regularity, and overall well-being.

Bananas are a good source of vitamins B6 and C, as well as numerous minerals, including potassium, copper, and magnesium. A single banana provides 0.4 mg of vitamin B6 or 25%DV.

How it helps

Bananas are rich in carbohydrates that can increase blood sugar levels quickly when needed.

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

