

GCKR (Blood Sugar)

Gene Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

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 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

Glucokinase is an enzyme that can convert blood sugar ([glucose](#)) to another compound (glucose-6-phosphate). This conversion is an early step in the release of the hormone [insulin](#) from the pancreas, and the production of the stored form of blood sugar (glycogen) in the liver [\[R\]](#).

Insulin can act on the liver to boost production of the stored form of blood sugar in response to elevated blood sugar levels; for example, after consumption of a meal [\[R\]](#).

The [GCKR](#) gene codes for the glucokinase regulator. This protein binds to and physically inhibits glucokinase from converting blood sugar to glucose-6-phosphate [\[R\]](#).

In this manner, the glucokinase regulator can lower the production of insulin and prevent the storage of blood sugar when blood sugar levels are low [\[R\]](#).

Variants of *GCKR* have been associated with elevated blood sugar [\[R\]](#), [\[R\]](#).

GCKR Variants & Blood Sugar

The main [GCKR](#) variants are:

- [rs1260326](#)
- [rs780093](#)
- [rs780094](#)

They are almost always inherited together, meaning you will most likely have either all or none of them. Their “**C**” **alleles** may be linked to **higher blood sugar levels and diabetes** [\[R\]](#), [\[R\]](#), [\[R\]](#).

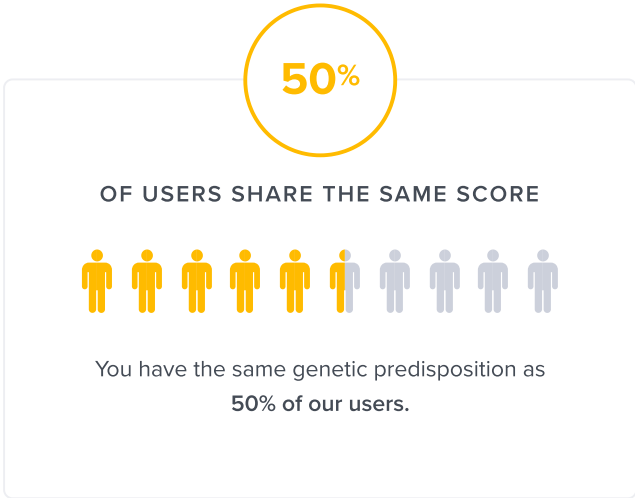
On the positive side, these variants are linked to lower levels of cholesterol and other blood lipids [\[R\]](#).

These variants may **increase** the production or activity of the glucokinase regulator, and thus inhibit the actions of glucokinase. This can result in elevated blood sugar levels — and lower blood lipids — by **decreasing insulin release** in response to meals [\[R\]](#), [\[R\]](#).



TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GCKR	rs780093	CC
GCKR	rs1260326	TC
GCKR	rs780094	TC

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	Avoid Sugary Foods & Drinks	2	Exercise At Least One Hour a Day1 hour
3	Cinnamon1g	4	Green Tea400 mg
5	Extra Virgin Olive Oil (EVOO)		

1



Avoid Sugary Foods & Drinks

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

To avoid sugary foods, eliminate or significantly reduce consumption of foods and beverages high in added sugars such as sodas, candies, baked goods, and sugary cereals from your diet. Instead, opt for natural sugar sources like fruits. Aim to do this daily for ongoing health benefits.

Description

High-sugar foods like baked goods, sweets, and sugary drinks, can spike your blood sugar levels. Consuming a lot of these types of foods can contribute to health issues like diabetes, obesity, insomnia, and heart disease.

High-sugar foods and refined carbs have a high glycemic index (GI). This means they tend to spike your blood sugar levels. They include [R](#), [R](#), [R](#):

- Sugary drinks
- Baked goods
- Sweets
- White bread
- White rice
- Pasta

Eating a lot of sugary foods can contribute to:

- Diabetes [R](#), [R](#), [R](#)
- Weight gain and obesity [R](#), [R](#)
- Insomnia [R](#)
- Heart disease [R](#)

You may also want to avoid processed sugars and sugary drinks. They may have a role in increasing IL-1B [R](#), [R](#).

How it helps

Variants of *GCKR* have been associated with elevated blood sugar. These variants may increase the production or activity of the glucokinase regulator, and thus inhibit the actions of glucokinase. This can result in elevated blood sugar levels by decreasing insulin release and decreasing production of the stored form of blood sugar [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](#).

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](#)

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Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

5 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps

Variants of *GCKR* have been associated with elevated blood sugar. These variants may increase the production or activity of the glucokinase regulator, and thus inhibit the actions of glucokinase. This can result in elevated blood sugar levels by decreasing insulin release and decreasing production of the stored form of blood sugar [\[R, R\]](#).

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

3



Cinnamon

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take a 1 g cinnamon supplement once daily, ideally with a meal to aid absorption. This can be in the form of a capsule or tablet. Continue this regimen as long as it aligns with your health goals and under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

1 g

Description

Cinnamon is a popular spice that may have various health benefits, including improving blood sugar control, reducing inflammation, and providing antioxidants. It's commonly used in both culinary and herbal applications.

[Cinnamon](#) is a spice made from the bark of *Cinnamomum* trees. Cinnamon can [\[R\]](#):

- Decrease inflammation
- Fight [oxidative stress](#)
- Kill microbes

Cinnamon is mainly used in cooking and fragrances. **As a natural remedy, people use cinnamon to reduce blood sugar** [\[R\]](#).

There are two main types of cinnamon [\[R\]](#):

- Ceylon or ‘true’ cinnamon (*Cinnamomum verum*)
- Chinese or Cassia cinnamon (*Cinnamomum cassia*)

How it helps

Multiple studies have shown that cinnamon may reduce blood sugar and [insulin resistance](#) in individuals who have been diagnosed with or are at risk of type 2 diabetes. However, many scientists have warned about highly variable results across different studies [\[R, R, R, R, R\]](#).

In individuals at high risk of diabetes, a combination of Indonesian cinnamon and [banaba leaf extract](#) improved insulin sensitivity [\[R\]](#).

Cinnamon contains coumarin, a compound that can promote blood thinning. Due to the possible blood-thinning effects of coumarin, consuming large amounts of cinnamon is not recommended. Chinese and Indonesian cinnamon in particular contain higher amounts of coumarin than Ceylon cinnamon.

Coumarin has been shown to reduce production of the glucokinase regulator in rats and human-derived cells [\[R\]](#).

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Green Tea

IMPACT

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EVIDENCE

2 / 5

How to implement

Consume 400 mg of green tea extract daily. This can be taken in the form of capsules or tablets available that specify the amount of green tea extract. Ensure the supplement is taken according to the product's specific instructions, usually once a day with water.

TYPICAL STARTING DOSE

400 mg

Description

Tea is a beverage made by steeping the leaves of the *Camellia sinensis* plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to antioxidants and other bioactive compounds.

[Green](#) and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [\[R\]](#), [\[R\]](#).

Tea contains antioxidants called **flavonoids**, which may help prevent [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart disease
- Cancer
- Diabetes

How it helps

In a meta-analysis of 7 studies with healthy participants, drinking [green tea](#) was associated with an 18% lower incidence of type 2 diabetes [\[R\]](#).

Its potential to improve blood sugar control in people who have been diagnosed with or are at risk of type 2 diabetes is less clear. While green tea was found to be effective at reducing fasting blood sugar and fasting [insulin](#) (at high doses), one study found green tea to be ineffective at lowering type 2 diabetes markers in at-risk individuals [\[R\]](#), [\[R\]](#), [\[R\]](#).

The differences observed may be due to variability in the populations studied. A meta-analysis found green tea to be especially effective at lowering fasting blood sugar, only in those under 55 years old or of Asian descent [\[R\]](#).

Green tea contains flavonoids (plant-based compounds) such as catechins. In male smokers, flavonoid capsules containing catechins were found to decrease production of the glucokinase regulator after 8 weeks of daily supplementation [\[R\]](#).

Please note: polyphenols from green tea may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using green tea [\[R\]](#).

5



Extra Virgin Olive Oil (EVOO)

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Incorporate 1-2 tablespoons of extra virgin olive oil into your daily diet. Use it as a dressing for salads, vegetables, or incorporate it into cooking, but avoid using it at high temperatures to preserve its health benefits.

Description

Extra virgin olive oil is a high-quality olive oil obtained from the first pressing of olives. It is rich in monounsaturated fats and antioxidants, like polyphenols, and is associated with various health benefits, including heart health and anti-inflammatory properties.

[Olive oil](#) is fat from the olive, a traditional tree of the Mediterranean Basin [\[R\]](#).

Olive oil has anti-inflammatory and antioxidant properties. It may also reduce the risk of [\[R\]](#), [\[R\]](#):

- Heart disease
- Diabetes
- Cancer

Olive oil is also the primary fat source in the [Mediterranean diet](#), which may improve brain and heart health [\[R\]](#).

How it helps

[Olive oil](#) consumption was found to reduce the risk of type 2 diabetes by 16%. The Mediterranean diet, which suggests that olive oil should be one’s main source of fat, has been shown to improve blood sugar control [\[R\]](#), [\[R\]](#).

In a clinical trial of overweight and diabetic people, olive oil consumption significantly reduced fasting blood sugar. In another trial focused on older adults with diabetes, an olive oil-containing diet prevented them from losing their eyesight [\[R\]](#), [\[R\]](#).

Olive oil contains the compound pentanal. In human-derived cells, pentanal was found to decrease the production of the glucokinase regulator [\[R\]](#).

Next Steps

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

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.

	HbA1c	30 mmol/mol		29 Dec 2025
	Glucose, Fasting	97 mg/dL		9 Nov 2025
	Insulin, Fasting	9.08 uU/mL		9 Nov 2025