SelfDecode™

TCF7L2 (Blood Sugar/Diet)

Gene Report

REPORT CATEGORIES

NUTRITION

BLOOD SUGAR CONTROL

Sample Client

Report date: 15 January 2026

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Table of Contents

Personal information

NAME

Sample Client

SEX AT BIRTH

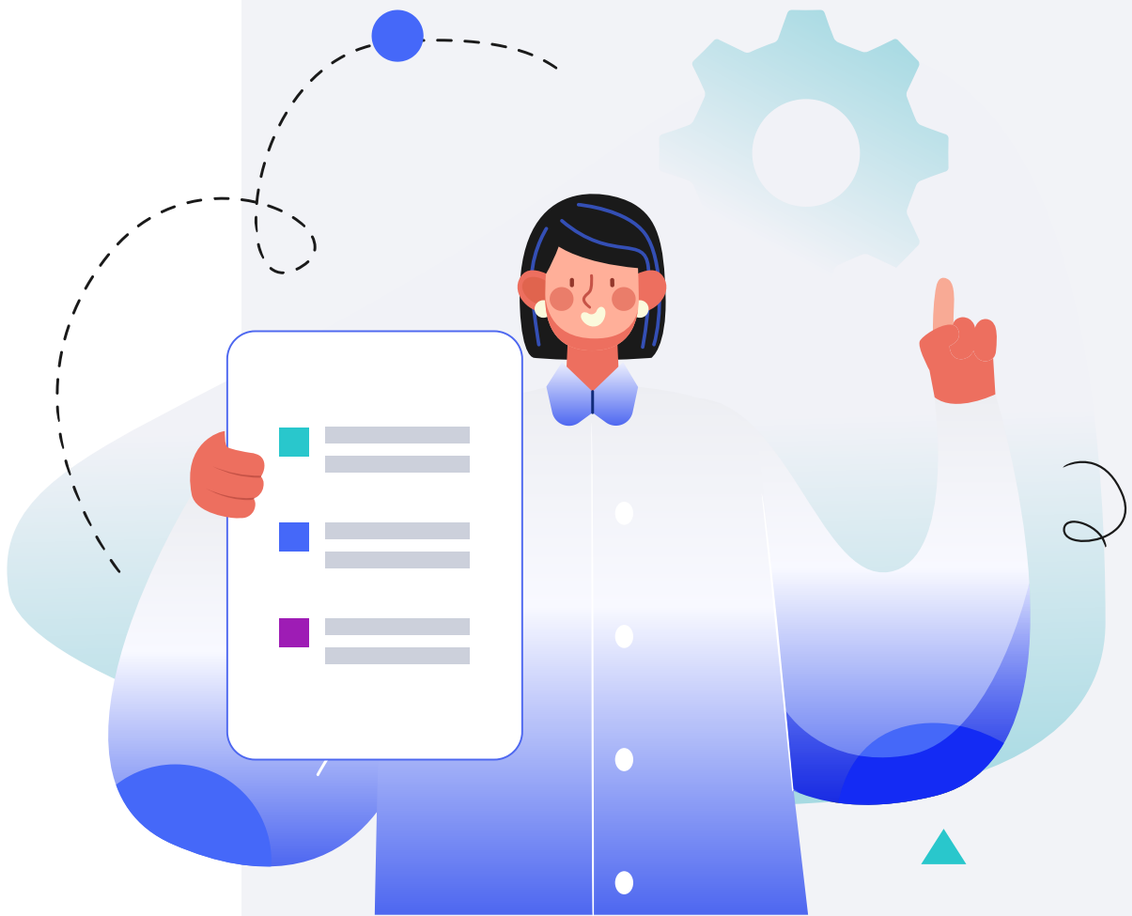
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

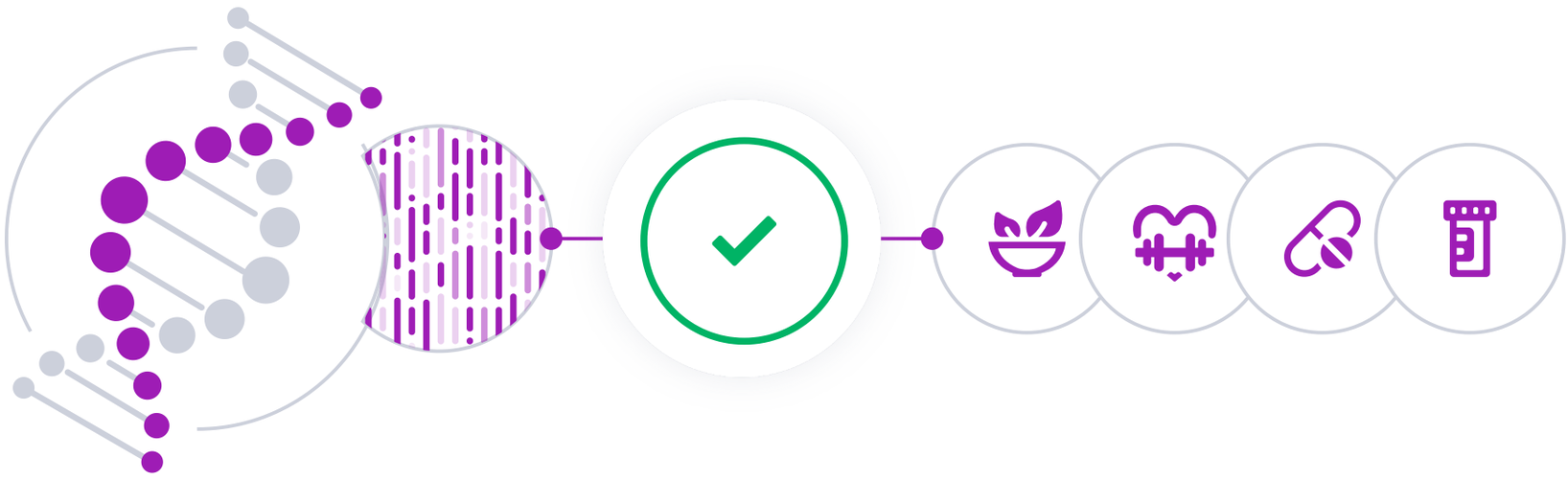


DISCLAIMER

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

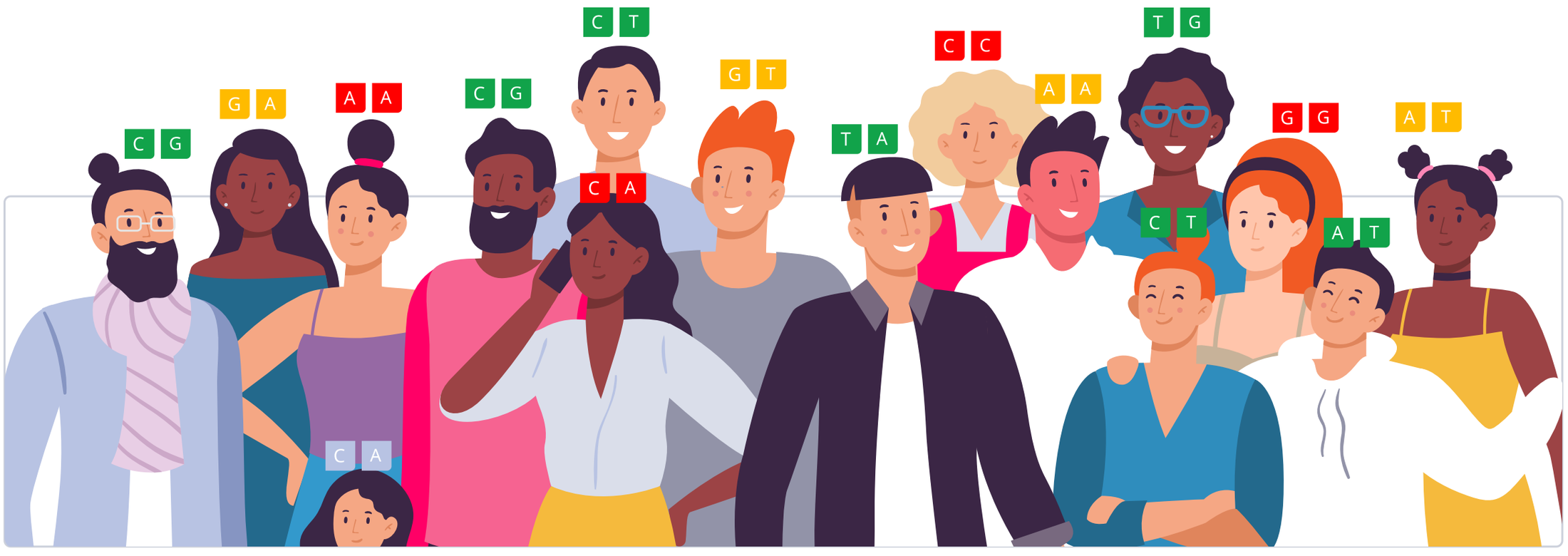
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

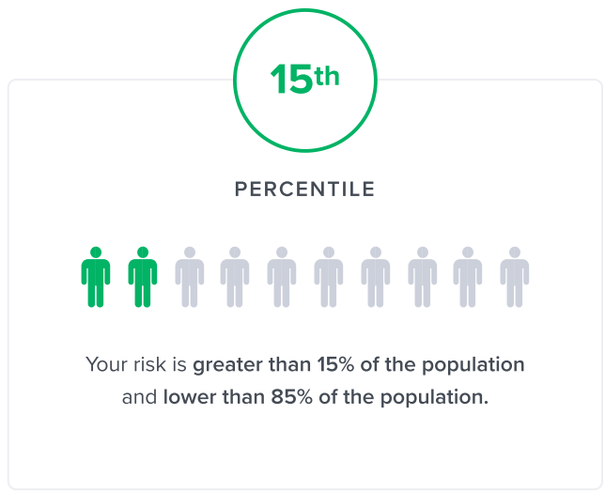
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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.

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.



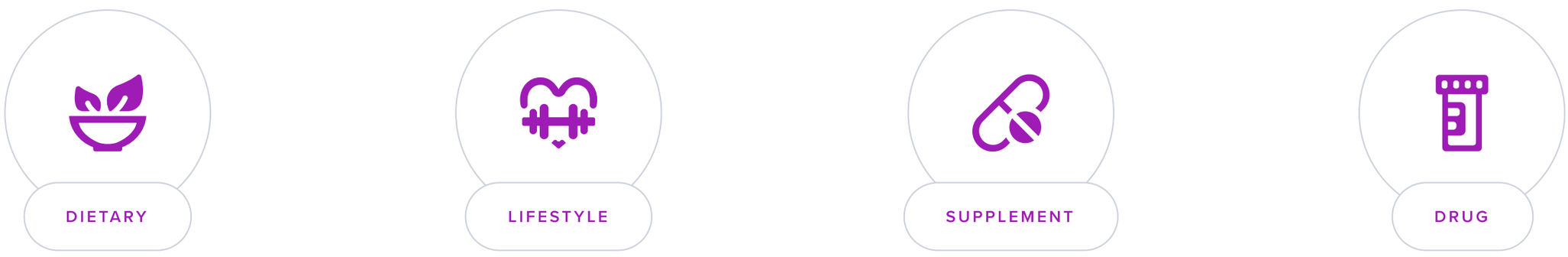
Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

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, afew 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

The *TCF7L2* gene, previously known as TCF4, codes for a vital transcription factor. It controls the expression of other genes in digestive organs such as the gut and pancreas, with a particular role in glucose metabolism and insulin secretion [R, R].

TCF7L2 research has mostly focused on its strong association with type 2 diabetes. However, variants in this gene also correlate with impaired lipid metabolism and heart disease [R, R, R, R].

From what we currently know, *TCF7L2* variants can impair insulin secretion but not insulin sensitivity. This gene controls the activity of GLP-1, an intestinal peptide that stimulates insulin secretion in response to food [R, R, R].

Besides its crucial role in glucose control, TCF7L2 impacts fat metabolism. It regulates the production of signalling proteins—such as leptin and adiponectin—for weight gain, appetite, and more. The exact mechanisms behind this control are still unknown [R, R].

TCF7L2 Variants and Diet Interactions

The two main *TCF7L2* variants are **rs7903146 and rs12255372**. They are almost always inherited together, which means they act as a single genetic factor.

Their "T" alleles have one of the strongest known links with type 2 diabetes. From studies on TCF7L2, diabetes & carbs, we learned that this link is much stronger in people who eat more carbs, especially starchy and refined cabs [R, R].

According to studies on TCF7L2 & dietary fat, people with these variants may want to [R, R]:

- Limit the intake of fat, especially saturated fat (fatty meat, butter, palm oil, coconut oil).
- Limit the intake of omega-6 fatty acids, mainly from sweets, pastries, and fried foods.
- Replace the above with fish, olive oil, nuts, and seeds in moderation.

It's hard to fit all of the above associations into a dietary pattern, but the interaction between these variants and the Mediterranean diet appears to be beneficial.

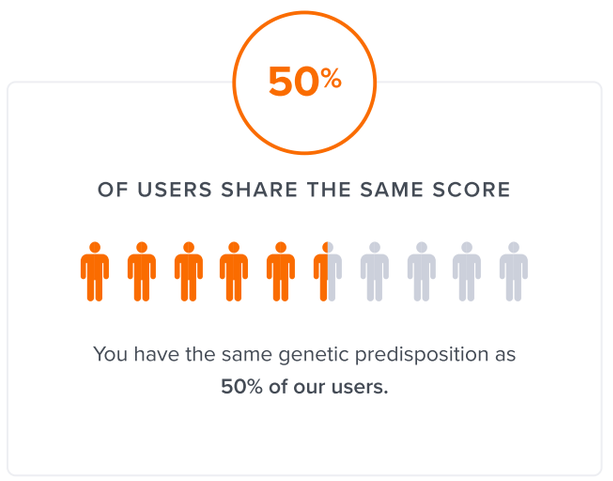
In two large studies, the Mediterranean diet reversed the harmful metabolic effects of these variants (higher blood sugar, LDL, and triglycerides) and promoted weight loss [R, R].

Certain people with these *TCF7L2* variants showed metabolic improvements on a low-fat diet. Still, it may not be the best choice, given the high carb content, which can hinder their blood glucose control. It may even correlate with higher stroke rates in people with these variants, unlike the Mediterranean diet [R, R, R].

According to the research, the quality of dietary fat and other nutrients in the Mediterranean diet may be more important than their quantity [R, R, R].

WORSE GENETICS

Likely worse TCF7L2 genetics based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TCF7L2	rs7903146	CT
TCF7L2	rs12255372	GT

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
1	Avoid Sugary Foods & Drinks	
2	Berberine	1000 mg
3	Exercise At Least One Hour a Day	1 hour
4	Resistant Starch	40 g
5	Mediterranean Diet	
6	Whole Grains	
7	Whey Protein	25 g
8	Cinnamon	1 g
9	Extra Virgin Olive Oil (EVOO)	
10	American Ginseng	200 mg
11	Glutamine	5 g
12	Bitter Melon Supplement	500 mg
13	Guar Gum	5 g
14	Butyrate	300 mg
15	Chicory	

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 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

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

Eating a diet rich in refined carbs and sugars may increase the risk of diabetes more in people with your *TCF7L2* gene variant [R, R].
Eating a diet rich in refined carbs and sugars may increase the risk of diabetes more in people with your *TCF7L2* gene variant [R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	**rs7903146**	CT	●●●●○

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	**rs7901695**	TC	●●●○○

2

Berberine

IMPACT ●●●●○ 4 / 5

EVIDENCE ●●●●● 5 / 5

How to implement

Take 500 mg of berberine two times a day before meals. Continue this regimen for up to three months, then evaluate its effects with your healthcare provider.

TYPICAL STARTING DOSE

1000 mg

Description

Berberine is a compound found in certain plants, known for its potential to support blood sugar control and heart health.

Berberine is an active compound of some plants used in traditional medicine, such as [R]:

- European barberry
- Oregon grape
- Goldenseal
- Chinese goldthread
- Tree turmeric

Berberine is also available as a supplement. People use it to help with [R, R, R]:

- Diabetes
- High cholesterol
- High blood pressure
- PCOS

How it helps

Berberine (0.5-1.5 g/day for 2-6 months) may help control blood sugar. It likely boosts sensitivity to insulin and lowers inflammation [R, R, R].

The combination of berberine and milk thistle may provide similar benefits [R, R, R, R].

Importantly, berberine may boost GLP-1 [R].

3

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

In a study of healthy men, a six-month exercise intervention significantly lowered the production of TCF7L2 [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].

4

Resistant Starch

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Incorporate 40g of Jo's resistant starch into your daily diet. This can be done by adding it to smoothies, yogurt, or baked goods. Ensure to spread the intake throughout the day for better tolerance.

TYPICAL STARTING DOSE

40 g

Description

Resistant starch is a type of starch that resists digestion in the small intestine, making it a prebiotic fiber that can benefit gut health. It can be found in foods like green bananas, legumes, and certain grains.

Resistant starch is starch that doesn't get digested in the small intestine [R, R].

Some types of resistant starch include [R]:

- **Type 1** occurs naturally in foods such as whole grains
- **Type 2** can be isolated from foods such as corn and green banana
- **Type 3** is created during the cooking and cooling process of starchy foods like potatoes

Resistant starch doesn't increase blood sugar like typical digestible starches do [R, R].

Instead, it feeds good bacteria in the colon that [R, R]:

- Support healthy gut function
- Support immunity
- Reduce inflammation

How it helps

Resistant starch supplements (10-30 g/day) may help reduce blood sugar and prevent diabetes [R, R, R].

Resistant starch **delays the absorption of sugar**, which prevents blood sugar spikes. It may even boost your response to insulin [R].

PERSONALIZED TO YOUR GENES

You carry the "hunter-gatherer" variant of the *TCF7L2* gene. People with your *TCF7L2* gene variant don't seem to handle carbs well. You may need to limit even high-fiber carbs like whole grains, which are protective against diabetes in other people [R, R, R, R].
To reap the benefits of fiber for blood sugar, try supplementing with resistant starch instead.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	**rs7903146**	CT	

5

Mediterranean Diet

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

Description

The Mediterranean diet is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats (olive oil).

The Mediterranean diet focuses on traditional cuisine from the Mediterranean regions. It's rich in [R]:

- Olive oil
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [R, R, R, R].

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [R].

How it helps

The Mediterranean diet may lower blood sugar levels in the long run. It's rich in foods that help reduce inflammation and insulin resistance [R, R, R, R, R, R].

People who stick to the Mediterranean diet may thus be less likely to have diabetes. Studies suggest this type of diet may be the best choice for people at risk of diabetes [R, R, R, R].

The Mediterranean diet is rich in olive oil. **Eating olive oil may lower blood sugar levels and reduce the risk of diabetes** [R].

PERSONALIZED TO YOUR GENES

Your *TCF7L2* gene variant is linked to higher blood sugar levels. The Mediterranean diet may cancel out the negative effects of this variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	**rs7903146**	CT	

6

Whole Grains

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Incorporate at least three servings of whole grains into your daily diet. This can include consuming foods such as whole grain bread, brown rice, whole grain pasta, and oats. Aim to replace refined grains with whole grains at each meal for optimal benefits.

Description

Whole grains encompass a variety of grains like wheat, oats, and quinoa, where the entire grain kernel is intact. They are rich in fiber, vitamins, minerals, and antioxidants, supporting heart health and reducing the risk of chronic diseases.

Unlike refined grains, whole grains contain nutritious parts of the grain like bran and germ.

Whole grains provide many crucial nutrients, including:

- Fiber
- B-vitamins
- Iron
- Magnesium
- Phosphorus

Due to their high fiber content, whole grains don't tend to spike blood sugar like refined grains do.

How it helps

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].

As opposed to refined grains, which spike your blood sugar and insulin, refined grains are a rich source of fiber that may help manage blood sugar. **Note that a diet high in sugary foods may cancel out the protective effects of whole grains** [R].

7

Whey Protein

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Mix one scoop (approximately 25-30 grams) of whey protein powder with 8-12 ounces of water, milk, or your preferred beverage. Consume this drink 1-2 times per day, ideally post-workout or as a meal replacement.

TYPICAL STARTING DOSE

25 g

Description

Whey protein is a complete protein derived from milk during cheese production. It is rich in essential amino acids and is used to support muscle recovery, promote muscle growth, and provide a convenient protein source for athletes and fitness enthusiasts.

Whey is the liquid that separates from milk when cheese is made. Whey protein is full of amino acids (protein building blocks) that the body needs [R, R].

Whey protein usually comes in the form of a powder that can be added to soft foods and drinks. People often use it to help with [R, R]:

- Athletic performance
- Nutritional deficiencies

How it helps

In 8 non-placebo-controlled trials of 216 type 2 diabetic subjects, whey protein (27.6-55 g) taken during a meal increased the insulin response (by 31-57%) and significantly decreased the blood glucose response (by 13-46%) [R, R, R, R, R, R, R, R].

In 3 non-placebo-controlled trials of 42 healthy volunteers, whey protein (9-70 g) significantly increased insulin response while decreasing blood glucose response [R, R, R].

Whey protein also lowered fasting glucose and insulin resistance while increasing blood insulin in 4 non-placebo-controlled trials of 111 overweight and obese people [R, R, R, R].

A meta-analysis of 37 studies concluded that whey protein significantly reduces fasting blood glucose in obese and overweight people [R].

Supplementing with whey protein before meals may raise GLP-1 levels [R].

8

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

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].

Cinnamon may help by boosting GLP-1 [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].

9

Extra Virgin Olive Oil (EVOO)

IMPACT 2 / 5

EVIDENCE 3 / 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

A meta-analysis of 4 trials associated high dietary olive oil intake with a 16% reduced risk of type 2 diabetes. Extra virgin olive oil lowers insulin and insulin resistance according to a meta-analysis of 39 trials. However, another meta-analysis only found non-significant effects of extra virgin olive oil on glycemic control [R, R, R].

Olive oil stimulates GLP-1 secretion and may thus lower the impact of detrimental *TCF7L2* variants [R].

10

American Ginseng

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 200-400 mg of American ginseng extract daily, preferably with a meal to enhance absorption. This regimen can be followed continuously for up to 12 weeks, after which a break or reassessment of the need to continue should be considered.

TYPICAL STARTING DOSE

200 mg

Description

American ginseng is a perennial herb native to North America, particularly regions of the United States and Canada. It is valued for its potential health benefits, including immune system support, stress reduction, and enhanced cognitive function, with the primary active compounds being ginsenosides.

Ginseng is a plant people use to improve [R, R, R, R]:

- Sexual function
- Immunity
- Fatigue
- Attention

There are many different types of ginseng. The most common ones are [R, R, R]:

- Korean red ginseng, also called Asian ginseng (*Panax ginseng*)
- American ginseng (*Panax quinquefolius*)
- Chinese notoginseng, also called Sanchi (*Panax notoginseng*)

How it helps

In 4 placebo-controlled trials of 45 healthy people, a dose of 1-9 g taken at least 40 minutes before a meal lowered glucose spikes and improved insulin sensitivity. In 3 placebo-controlled trials of 43 people with type 2 diabetes, American ginseng reduced blood glucose levels (both fasting and post-meal) and HbA1c [R, R, R, R, R, R, R].

A meta-analysis of 16 studies and 1688 participants concluded that ginseng (both Korean and American) modestly reduces fasting blood glucose but pointed out that the different ginseng types may differ in their effectiveness, making it necessary to conduct more clinical studies [R].

American ginseng may help by boosting GLP-1 [R].

11

Glutamine

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 5 to 10 grams of glutamine powder, mixed with water or another beverage, daily. It can be divided into two servings, one in the morning and the other in the evening. This supplementation is generally considered safe for long-term use, but it's best to consult with a healthcare provider for personalized advice.

TYPICAL STARTING DOSE

5 g

Description

Glutamine is an amino acid that plays a role in various bodily functions, including immune support and gut health. It may help with muscle recovery and overall well-being, particularly for individuals engaging in strenuous exercise.

L-glutamine is an amino acid produced by the body. Its levels may decrease during periods of stress or illness. It is important for protein and energy production, and helps control kidney pH balance [R].

Some people take L-glutamine as a supplement to help with [R]:

- Gut health
- Immunity
- Exercise recovery and muscle performance
- Brain health

How it helps

In 4 placebo-controlled trials of 13 patients with type 2 diabetes, supplementation with glutamine (30 g/day) for up to 6 weeks lowered HbA1c, body fat, body mass, waist circumference, postprandial glucose while increasing postprandial insulin, GLP-1, GIP, and insulin [R, R, R, R].

Supplementation with glutamine may increase circulating GLP-1 levels in both healthy individuals and type 2 diabetics [R, R].

12

Bitter Melon Supplement

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a bitter melon supplement in the form of capsules or tablets, typically ranging from 500 mg to 1000 mg per day, split into two to three doses before meals. It's recommended to follow the dosage instructions on the product label or consult a healthcare provider for personalized advice. Continue for as long as recommended by the healthcare provider, usually a few weeks to months, to monitor effectiveness and tolerance.

TYPICAL STARTING DOSE

500 mg

Description

Bitter melon supplements are often used in traditional medicine for their potential to support blood sugar control. They contain compounds that may help regulate glucose metabolism and promote overall metabolic health.

How it helps

Consuming bitter melon powder (2.5-4.8 g/day) or extract (400-2,000 mg/day) for 1-12 weeks lowered blood glucose (both before and after meals), improved insulin secretion, and reduced insulin resistance in 5 trials (3 of them controlled) of 76 people with prediabetes, 215 with type 2 diabetes, and 42 with metabolic syndrome. However, it was ineffective in 2 trials of 5 overweight men and 40 type 2 diabetes patients [R, R, R, R, R, R, R].

When compared to antidiabetic drugs, bitter melon was as effective as rosiglitazone but less than metformin and glibenclamide in 3 non-placebo-controlled trials of 249 people with type 2 diabetes. Interestingly, it was more effective than glibenclamide at preventing clogged arteries [R, R, R].

Bitter melon may help by boosting GLP-1 [R].

PERSONALIZED TO YOUR GENES

The *TCF7L2* gene plays a crucial role in sugar metabolism and insulin release. It controls the activity of GLP-1, a protein that stimulates the release of insulin. *TCF7L2* has the strongest known association with type 2 diabetes [R, R, R, R, R].

Your genotype for **rs7903146** is strongly associated with high blood sugar levels. It may prevent GLP-1 from stimulating insulin release and reducing blood sugar after meals [R, R, R, R].

Bitter melon works by increasing GLP-1, making it a valuable choice for people with *TCF7L2* variants [R, R, R].

>>> To learn more about the link between the TCF7L2 gene and blood sugar, check out the full SelfDecode blog post here.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	**rs7903146**	CT	

13

Guar Gum

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 5-10 grams of guar gum with at least 8 ounces of water. Start with a lower dose to assess your tolerance, then gradually increase as needed. It is best taken before meals, up to three times a day.

TYPICAL STARTING DOSE

5 g

Description

Guar gum is a soluble fiber derived from guar beans and is commonly used as a food thickener and stabilizer. Its ability to slow down digestion and promote a feeling of fullness can be beneficial for managing appetite and supporting digestive health when consumed as part of a balanced diet.

Guar gum is a fiber made from the seeds of the Indian cluster bean (*Cyamopsis tetragonolobus*). It is used in food products to help bind and thicken them [R].

Guar gum may help with blood pressure control and support the immune system [R].

How it helps

In a non-placebo-controlled trial of 28 overweight or obese individuals and 30 normal-weight subjects, those with excess weight had lower GLP-1 levels after breakfast but adding guar gum to the breakfast attenuated these differences [R].

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Butyrate

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take butyrate supplements orally with a full glass of water, typically starting with a dose of 300 to 600 mg per day. It can be taken with or without food, but if stomach upset occurs, try taking it with meals. The specific dosage and duration of use should be based on the guidance of a healthcare professional, tailored to individual health needs.

TYPICAL STARTING DOSE

300 mg

Description

Butyrate is a short-chain fatty acid produced by gut bacteria during the digestion of dietary fiber. It plays a crucial role in maintaining gut health, supporting the integrity of the intestinal lining, and contributing to overall digestive well-being.

Butyrate is a short-chain fatty acid produced when the gut bacteria ferment indigestible fibers. It prevents inflammation in the gut and is essential for maintaining a healthy barrier between the large bowel and the bloodstream [R].

People take butyrate to support gut health, improve insulin sensitivity, and promote weight loss.

How it helps

In a placebo-controlled trial of 42 patients with type 2 diabetes, supplementation with sodium butyrate for 6 weeks reduced systolic and diastolic blood pressure and blood sugar 2-hr postprandial [R].

Sodium butyrate, both alone and in combination with inulin, raised GLP-1 levels in a placebo-controlled trial of 60 patients with type 2 diabetes [R].

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Chicory

IMPACT 1 / 5

EVIDENCE 1 / 5

Description

Chicory is a nutrient-rich vegetable that has been shown to have a number of health benefits. It is a good source of fiber, vitamin K, and antioxidants. Chicory may also help to improve digestion, lower blood sugar levels, and boost the immune system.

How it helps

In a placebo-controlled trial of 47 healthy adults, drinking 300 mL/day of chicory root extract for 4 weeks lowered HbA1c levels. Another trial of 46 patients with type 2 diabetes mellitus showed that enriched chicory inulin supplementation reduced fasting serum glucose and HbA1C. Additionally, a larger trial with 150 patients with type 2 diabetes reported that 12 weeks of chicory seeds supplementation effectively lowered HbA1c [R, R, R].

In a placebo-controlled trial of 10 healthy volunteers, supplementation with a prebiotic (chicory root fructans, 16 g/day) for 2 weeks raised plasma GLP-1 levels [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	26 36 48	29 Dec 2025
Glucose, Fasting	97 mg/dL	55 65 80 95 100 126	9 Nov 2025
Insulin, Fasting	9.08 uU/mL	1 6 19.6 25	9 Nov 2025
HbA1c (%)	4 %	4.3 4.5 5.4 5.6 6.5	29 Dec 2025