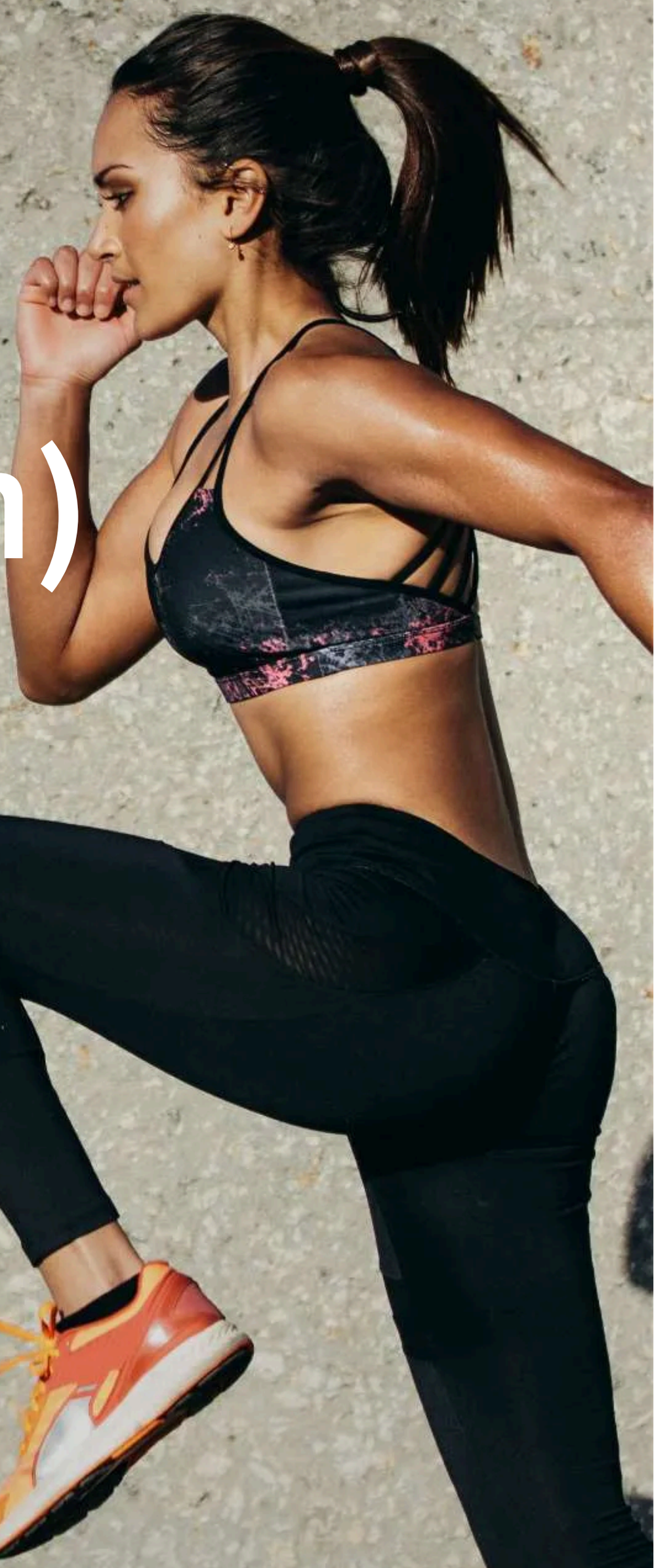
SelfDecode™

PPARG (Metabolism)

Gene Report



REPORT CATEGORIES

WEIGHT & BODY FAT

BLOOD SUGAR CONTROL

Sample Client

Report date: 15 January 2026

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Personal information

NAME

Sample Client

SEX AT BIRTH

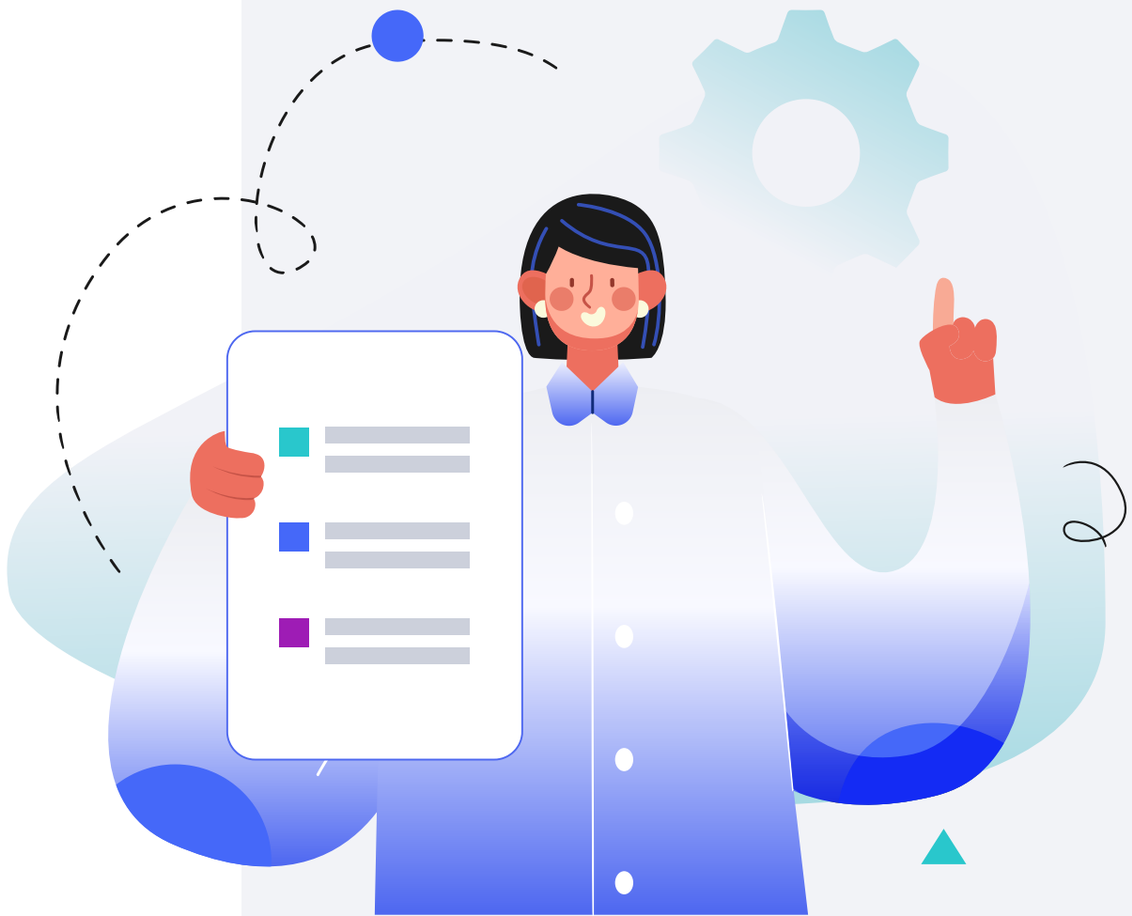
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

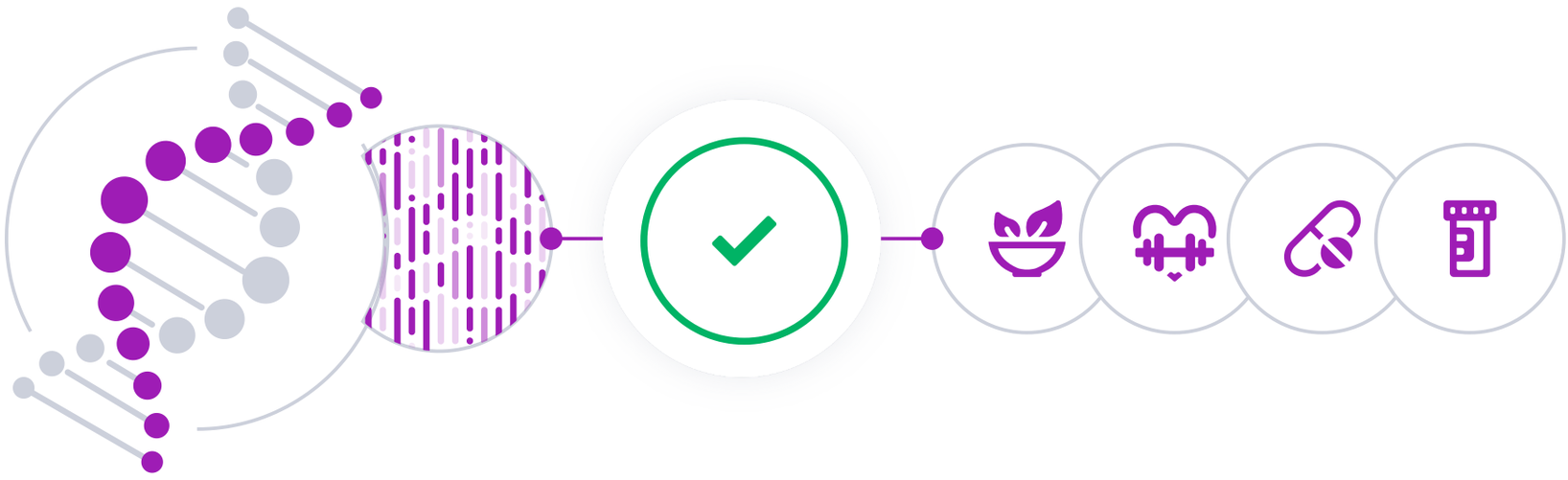


DISCLAIMER

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

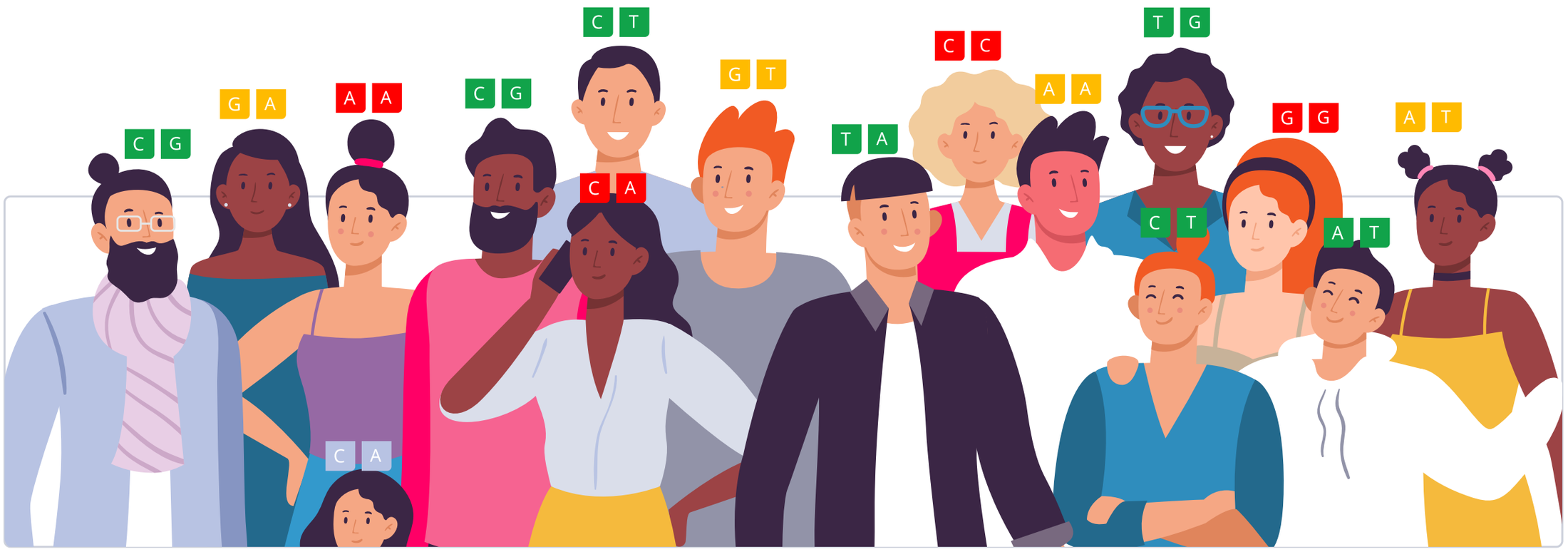
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

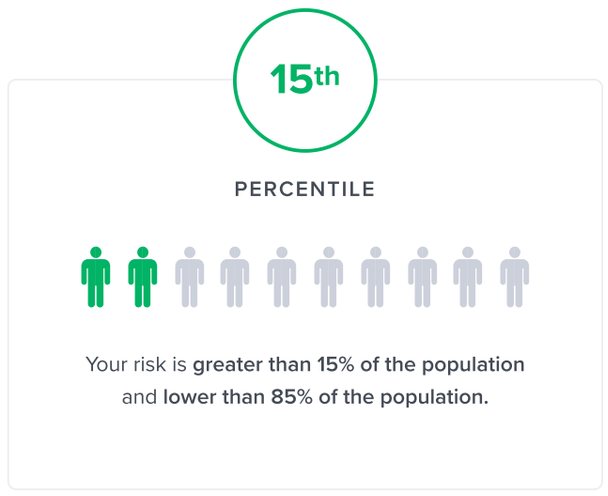
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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.

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 *PPARG* gene encodes a protein called PPAR-γ (peroxisome proliferator-activated receptor-gamma) [R].

PPAR-γ affects metabolic health and response to diet, acting as a master regulator between [R, R]:

- Nutrient intake
- Weight control
- Inflammation
- Fat burning
- Insulin sensitivity

Different dietary compounds activate different PPARs, making them a central topic in nutrigenomics and personalized nutrition. The primary PPAR-γ activators are omega-3 fatty acids (DHA and EPA), and omega-6 fatty acids (linoleic acid, alpha-linolenic acid) [R, R].

PPAR-γ has been mostly researched with respect to its role in weight control. On the one hand, it seems to maintain the function of existing fat cells but *decreases* their size, preventing weight gain, obesity-related inflammation, and mitochondrial dysfunction [R, R, R].

On the other hand, studies suggest that PPAR-γ can also jump-start the creation of new fat cells. This effect may protect against metabolic issues due to overeating but also contribute to persistent obesity [R, R].

PPAR-γ also reduces inflammation and allows fats cells to take up glucose and free fatty acids, enhancing insulin sensitivity [R, R, R, R].

PPARG Genetics

Out of the different SNPs in the *PPARG* gene, researchers have mostly focused on rs1801282 (*Pro12Ala,* referred to as rs1805192 in some studies). Its 'G' allele changes one amino acid in the PPAR-γ structure, reducing its ability to activate target genes [R, R].

In a large meta-analysis of 75 studies and 49,000 subjects, the 'G' allele correlated with a slightly higher BMI. The link was more robust in European populations. A 2015 meta-analysis of 56 trials came to a similar conclusion. Another meta-analysis associated the 'G' allele with 55% higher obesity rates [R, R, R].

However, some studies failed to confirm a relationship between this variant and body weight, and some even observed a protective effect of the 'G' allele [R, R, R, R, R].

Among 978 elderly subjects, rs1801282-G correlated with 66% higher obesity rates. The lack of physical activity and increased intake of carbs amplified this genetic effect [R].

Interestingly, three studies found that people with rs1801282-G respond better to physical activity when it comes to metabolic improvements [R, R, R].

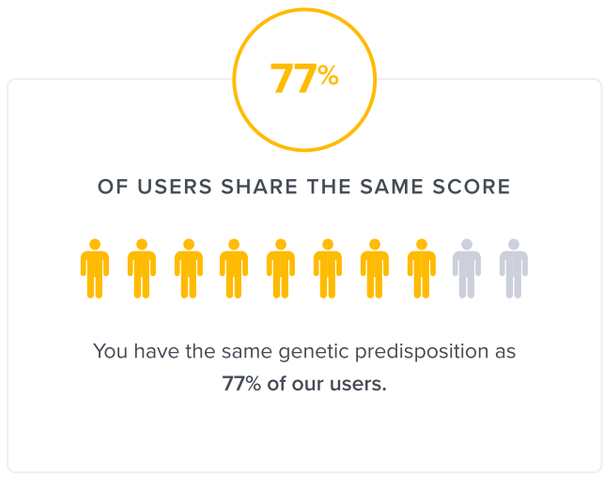
This variant may also affect weight loss from the Mediterranean diet. Several studies found that 'G' carriers lost more weight when eating a Mediterranean diet rich in MUFAs, PUFAs, and extra virgin olive oil but lost less or even gained it when eating a diet low in these and high in saturated fats [R, R, R, R, R].

PPAR-γ can be a double-edged sword when it comes to regulating blood sugar levels. While its activity in the liver and pancreas enhances glucose metabolism and insulin sensitivity, excess PPAR-γ activity in fat cells can accumulate fatty acids and other factors that contribute to insulin resistance and elevated blood sugar [R, R, R, R].

This may explain why the 'C' variant has been associated with higher blood sugar and increased rates of type 2 diabetes. In one of the studies, obesity further increased the risk of type 2 diabetes associated with this variant [R, R, R, R].

TYPICAL ACTIVITY

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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PPARG	rs1801282	CC

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

Two other variants, ‘C’ at rs1899951 and ‘C’ at rs17036160, have also been associated with high blood sugar and type 2 diabetes. However, they act as a single genetic factor because the three variants are usually inherited together [R, R].

Finally, the ‘G’ variant of rs1801282 has also been associated with reduced rates and severity of acne [R, R].

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	Exercise At Least One Hour a Day	1 hour
2	Limit Calorie Intake	
3	Eat More Protein and Less Carbs	
4	Limit Saturated Fat	
5	Mediterranean Diet	
6	Extra Virgin Olive Oil (EVOO)	
7	Probiotics	30 billion CFU
8	Cold Exposure	1 minutesute
9	Berberine	1000 mg

1

Exercise At Least One Hour a Day

IMPACT 5 / 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

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].

2

Limit Calorie Intake

IMPACT 5 / 5

EVIDENCE 5 / 5

How to implement

Consume fewer calories than your body needs for maintenance. Calculate your daily caloric needs using an online calculator based on your sex, age, weight, height, and activity level, then reduce that number by 500-1000 calories per day to safely lose 1-2 pounds per week. Adjust the caloric intake as needed based on your progress.

Description

People often limit their calorie intake to help them lose weight [R, R].
However, moderate calorie restriction may also help you stay healthier and age better [R, R, R, R, R].

There are different ways to take in fewer calories. You can:

- **Eat low-calorie foods**, such as those rich in proteins, fiber, and water. Avoid fatty and sugary foods, which tend to be high in calories [R].
- **Try intermittent fasting**, which involves changing how often you eat [R].

If you are restricting your calories, make sure your diet remains healthy and balanced. Experts also recommend being physically active, to prevent the loss of muscle and bone mass.

How it helps

Caloric restriction may reduce PPAR-gamma2 activity in fat cells [R, R].

To promote weight loss, experts recommend lowering your calorie intake by 30% of your daily requirement [R, R].

Eating fewer calories and intermittent fasting may support short-term weight loss equally. On the other hand, people who eat fewer calories may maintain their weight loss better in the long run [R, R, R, R, R, R].

Types of intermittent fasting that may be especially helpful for weight loss include:

- **Alternate-day fasting**: fasting every other day [R]
- **Time-restricted eating**: eating within a certain time frame each day [R, R, R, R, R]

A good way to limit calorie intake is to eat more low-calorie foods. These include soups and foods rich in protein and fiber. You can also try eating a low-calorie snack before a meal [R, R, R].

These methods can help make you feel more full and thus eat less [R, R, R].

Please note: *Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Children, pregnant women, and people with certain chronic conditions or substance abuse disorders shouldn't do intermittent fasting. Talk to your doctor before implementing any drastic calorie restriction* [R].

3

Eat More Protein and Less Carbs

IMPACT 5 / 5

EVIDENCE 4 / 5

How to implement

Include a source of lean protein such as chicken, fish, beans, or tofu in each meal, aiming for 20-30 grams per serving, while reducing carbohydrate-rich foods like bread, pasta, and sweets, aiming to make proteins about 30-40% of your daily caloric intake. Replace at least one carbohydrate-heavy meal or snack with a high-protein option daily.

Description

A diet that includes more protein and fewer carbohydrates can promote weight management and satiety, potentially aiding in weight loss efforts. Protein-rich foods can help control hunger and support muscle maintenance.

Proteins, fats, and carbs are macronutrients. You need these nutrients in large (‘macro’) amounts. They provide your body with the energy it needs to function properly [R].

For a healthier diet, experts recommend eating foods that are higher in protein but lower in fat and carbs [R, R].

This is because simple carbs can spike your blood sugar levels. Likewise, too much saturated fat can increase “bad” (LDL) cholesterol [R, R, R, R, R, R].

Eating a lot of high-carb or high-fat foods may lead to conditions like diabetes, obesity, and heart disease [R, R, R, R].

Meanwhile, protein boosts muscle mass and helps control your weight [R].

How it helps

Most weight loss experts recommend following a diet that’s high in protein but lower in carbs or fat [R, R].

This is because protein [R, R]:

- Boosts your metabolism
- Makes you feel more full
- Helps control your appetite

In contrast, carbs and fats make you crave junk food by activating the reward areas of your brain [R, R].

Simple carbs can also spike your insulin, which is linked to a higher risk of obesity [R].

Some low-carb diets that may help you lose weight include:

- **Keto diet**: low-carb and high-fat diet [R, R, R]
- **Atkins diet**: low-carb diet [R, R, R, R, R]
- **Paleo diet**: hunter-gatherer diet (limited carbs, dairy products, and legumes) [R, R, R]
- **Zone diet**: meals consist of 40% complex carbs, 30% protein, and 30% fat [R]

Sticking to a low-fat diet for 2-12 months may also support weight loss [R, R, R, R, R]. However, a **low-carb diet may be more effective** [R, R, R, R, R].

Note: *In the long run, high-protein diets may contribute to heart disease, calcium loss, constipation, and other health problems. If you have problems with kidneys or bones, consult your doctor or dietitian before adopting a high-protein diet* [R, R].

4

Limit Saturated Fat

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Reduce your intake of saturated fats by choosing lean cuts of meat, opting for low-fat or fat-free dairy products, and using cooking oils high in unsaturated fats (like olive or canola oil) instead of butter or lard. Aim to keep saturated fat to less than 10% of your total daily calories. For someone consuming 2000 calories a day, this means 20 grams or less of saturated fat per day.

Description

Limiting saturated fat intake is crucial for managing cholesterol levels and reducing the risk of heart disease. Choosing lean protein sources and incorporating unsaturated fats into the diet supports cardiovascular health and overall well-being.

How it helps

Low-energy-density foods are foods that provide few calories per weight. Fatty and sugary foods are especially energy-dense, while those rich in proteins, fiber, and water reduce dietary energy density. In 4 non-placebo-controlled trials of 431 people on weight loss programs, those who ate less energy-dense foods lost more weight and maintained it better in the long term [R, R, R, R].

In weight-loss interventions lasting 2-12 months, weight reduction increases by 0.37 kg for every 1% reduction of dietary fat according to a meta-analysis of 16 trials and 1,728 participants [R].

Five meta-analyses (the most recent one with 37 trials and over 57k participants) found that adopting a low-fat diet reduces weight (by 1.4-5.41 kg), BMI (by 0.5 kg/m2), waist circumference (by 0.3 cm), body fat (by 0.3-10.2%), and energy intake (by 1,138 kJ/day) when compared with the usual diet. Greater fat reductions resulted in greater weight loss [R, R, R, R, R].

5

Mediterranean Diet

IMPACT 3 / 5

EVIDENCE 3 / 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 support weight loss more than a low-fat diet. Combining the Mediterranean diet with exercise and calorie restriction may even boost its effects on weight [R, R, R, R, R].

What makes the Mediterranean diet a great choice?

- It's low in saturated fat [R]
- It's rich in healthy fat sources like olive oil and fish [R, R]
- It's rich in fiber [R]

This diet may also support weight loss in people with type 2 diabetes [R, R, R, R].

6

Extra Virgin Olive Oil (EVOO)

IMPACT 3 / 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 11 studies concluded that diets rich in olive oil, but not olive oil capsules, reduce weight (by 0.92 kg), waist circumference (by 0.6 cm), and BMI (by 0.90 kg/m2) [R].

In a non-placebo-controlled trial of 62 patients with depression, consuming EVOO (25 mL/day) for 52 days decreased waist circumference (by 2.15 cm) [R].

The same dose of EVOO consumed for 9 weeks reduced body fat by 80% more than the same amount of soybean oil in a placebo-controlled trial of 41 women with excess weight [R].

Eating a Mediterranean diet enriched in virgin olive oil for 3 years reduced body weight in a non-placebo-controlled trial of 187 participants at high cardiovascular risk [R].

7

Probiotics

IMPACT 2 / 5

EVIDENCE 3 / 5

How to implement

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE

30 billion CFU

Description

Probiotics are live beneficial bacteria and yeasts that can support gut health and digestive function when consumed as supplements or found in fermented foods like yogurt and sauerkraut. They may be beneficial to gut health, immune function, blood sugar, and mood.

Probiotic bacteria are "good" bacteria found mainly in the large intestine. They support your body and mind by [R, R, R, R, R, R, R, R]:

- Maintaining gut health
- Supporting a healthy immune system
- Improving your mood
- Helping to maintain healthy blood sugar

Prebiotics are certain types of fiber and other complex carbs that serve as food for gut bacteria. **They support gut health by helping boost the activity and growth of "good" bacteria** [R, R].

Prebiotics are also added to foods and supplements. Common prebiotic ingredients are [R, R]:

- Oligo-fructose
- Oligo-galactose
- Inulin

Mixtures of probiotics and prebiotics are known as **synbiotics** [R].

How it helps

In preclinical research, different probiotic strains increased the levels and activity of PPAR-gamma [R, R, R].

Probiotics (for at least 8 weeks) may reduce body weight and fat. Probiotics with multiple bacteria may offer greater benefits. The most commonly studied probiotics include [R, R]:

- *L. gasseri* [R, R, R]
- *L. rhamnosus* [R, R, R]
- *L. plantarum* [R, R, R]
- *L. acidophilus* [R, R]
- *Bifidobacterium breve* [R, R, R]
- *B. animalis* [R, R, R]
- *Streptococcus thermophilus* [R, R]

Probiotics may help by improving the gut microbiome [R].

8

Cold Exposure

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Gradually expose yourself to cold temperatures for short periods, starting with 1-2 minutes and increasing up to 5-10 minutes. This can be achieved through cold showers, outdoor exposure in cold weather, or ice baths. Aim to do this 2-3 times per week.

TYPICAL STARTING DOSE

1 minutesute

Description

Cold exposure, when done safely and gradually, can have potential health benefits like increased calorie burn, improved circulation, and enhanced resilience to cold temperatures. Cold exposure techniques, such as cold showers or outdoor winter activities, may help boost metabolism and promote overall well-being when practiced mindfully.

Please note: rapid instead of gradual cold exposure causes dangerous, and even fatal, changes in the breath and heart rates, known as the cold shock response. Be cautious with any form of sudden temperature change in your environment, especially if you have heart disease or other chronic conditions [R].

How it helps

Acute cold exposure is a way to boost PPAR-gamma naturally [R, R].

In a study of 11 young lean men, researchers employed an individualized cooling protocol in a cold room, gradually decreasing the cooling vest's temperature until participants shivered. This resulted in a notable increase in energy expenditure and a substantial rise in fat oxidation. Another study with 28 participants found that cold exposure led to increased metabolic rate, particularly at room temperature. Additionally, a 10-day cold acclimation protocol increased brown adipose tissue activity and nonshivering thermogenesis. In a separate experiment with 6 men exposed to cold, the brown adipose tissue showed oxidative metabolism activation, leading to elevated energy expenditure [R, R, R, R, R].

Cold exposure may help by forcing the body to burn additional calories to stay warm. Plus, it can stimulate the growth of calorie-burning brown fat.

Please note: *Rapid cold exposure can cause life-threatening changes to your breathing and heart rate. This is called the cold-shock response. Be cautious of any form of sudden temperature change to your environment, especially if you have heart disease or other health conditions* [R].

9

Berberine

IMPACT 1 / 5

EVIDENCE 3 / 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 can reduce PPAR-gamma activity in fat cells [R, R].

Berberine (300-500 mg, 3x/day for 12 weeks) may reduce weight by [R, R, R, R]:

- Decreasing appetite
- Improving the gut microbiome
- Improving sugar and fat metabolism

However, some studies found that berberine doesn't benefit weight loss [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
Triglycerides	54 mg/dL	0 – 90 – 150 – 500	9 Nov 2025
HDL Cholesterol	42 mg/dL	40 – 90	9 Nov 2025
Insulin, Fasting	9.08 uU/mL	1 – 6 – 19.6 – 25	9 Nov 2025