

PPARD (Longevity)

Gene Report

REPORT CATEGORY —



LONGEVITY

Sample Client

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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

The [PPARD](#) gene encodes a protein called **PPAR- δ** (also sometimes known as PPAR- β or NR1C2). This protein can be found throughout the body, including the muscles, lungs, brain, and skin [\[R, R\]](#).

PPAR- δ primarily works by regulating the expression of other genes and is involved in several processes, including [\[R, R\]](#):

- Fat metabolism
- [Inflammation](#) control
- [Insulin](#) regulation

Research suggests that certain genetic variants of *PPARD* may be associated with various health conditions, such as high [cholesterol](#), obesity, and high blood pressure [\[R, R, R\]](#).

Interestingly enough, there is also some evidence that certain variants of *PPARD* may even be linked to [longer lifespans](#) [\[R, R\]](#).

PPARD Genetics

The [rs2016520](#) polymorphism (also known as *PPARD* +294T/C) was found to be significantly more common in those who live exceptionally long lives. According to a study of nearly 1,000 Chinese people originating from a region called Bama, **the ‘TT’ genotype is more frequently found in those aged 90 and above** [\[R\]](#).

However, this association was only present in women. Moreover, long-lived individuals also had significantly *higher* cholesterol and [triglyceride](#) levels compared to younger subjects.

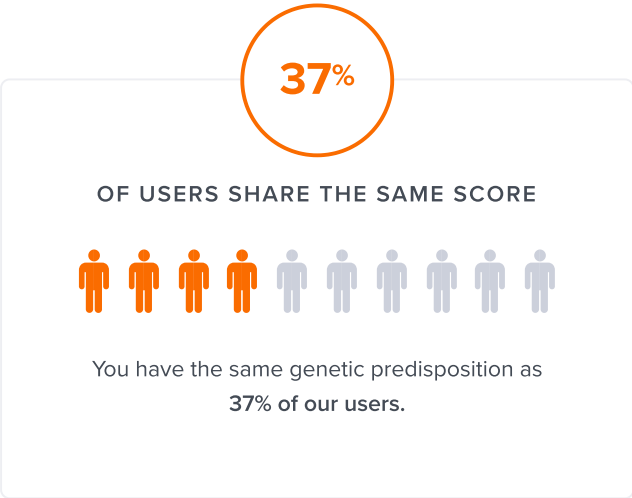
According to some researchers, *PPARD* may be able to improve longevity by counteracting some of the processes seen in aging [\[R\]](#).

For example, as humans age, the body naturally shifts from using fats as the preferred energy source to using carbohydrates. The *PPARD* gene counteracts this shift by promoting the use of fat as energy. By improving fat metabolism, *PPARD* may increase longevity by preventing health disorders related to increased body fat [\[R\]](#).

[Oxidative stress](#) related to inflammation and [insulin resistance](#) also increase with age. Activation of *PPARD* can potentially counteract these processes, which may also contribute to longer lifespans [\[R\]](#).



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



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DEF6	rs2016520	CT

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

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

1

Exercise At Least One Hour a Day

1 hour

2

Fruits And Vegetables

3

Fish

4

Limit Saturated Fat

5

Mediterranean Diet

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

[Exercise](#) produces many of the same beneficial health effects that have been linked to *PPARD*.

For example, regular physical activity is an effective way to reduce cholesterol and triglyceride (fat) levels in the blood, according to strong clinical research [\[R\]](#).

Studies also show that consistent aerobic exercise reduces the risk of insulin resistance [\[R\]](#).

Interestingly enough, PPAR- δ is found in muscles and expression of *PPARD* is increased after exercise, leading to an increase in muscle fibers [\[R\]](#).

Regardless of the relationship between exercise and the *PPARD* gene, regular physical activity has consistently been shown to be one of the best ways to extend lifespan and improve quality of life [\[R\]](#), [\[R\]](#), [\[R\]](#).

2



Fruits And Vegetables

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Increase your intake of fruits and vegetables to at least five servings per day, aiming for a variety of types and colors to ensure a broad range of nutrients. Each serving size should roughly be the amount you can fit in one hand. Try to incorporate at least one serving of fruits or vegetables into every meal and snack throughout the day.

Description

A diet rich in fruits and vegetables provides essential nutrients, antioxidants, and dietary fiber. This combination supports overall health, helps maintain a healthy weight, and reduces the risk of chronic diseases such as heart disease and certain cancers.

How it helps

The *PPARD* gene plays a key role in fat metabolism and animal studies show that high-fat diets can increase the activity of PPAR- δ , although it’s uncertain how this plays into longevity [\[R\]](#).

What is certain is that certain food choices can help reduce cholesterol, reduce triglyceride levels, and potentially improve longevity. These recommendations include [\[R\]](#), [\[R\]](#):

- Reducing the amount of saturated and trans fats in the diet
- Eating more fruits and vegetables
- Eating more fish and other seafood
- Trying the Mediterranean diet

3



Fish

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Incorporate two servings of fish into your diet each week, focusing on oily fish like salmon, mackerel, or sardines for their high omega-3 fatty acid content. Each serving should be about 3.5 ounces cooked, or about ¾ cup of flaked fish.

Description

Fish, particularly fatty fish like salmon and mackerel, is an excellent source of omega-3 fatty acids, which support cardiovascular health, brain function, and inflammation management. Regular consumption of fish can promote heart health and overall well-being.

Fish is a great source of [omega-3s](#), protein, and other essential nutrients. Omega-3s from fish (EPA and DHA) are some of the healthiest fats we can eat. They help reduce inflammation and **protect the heart, brain, and eyes** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don’t eat fish regularly [\[R\]](#).

How it helps

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What is certain is that certain food choices can help reduce cholesterol, reduce triglyceride levels, and potentially improve longevity. These recommendations include [\[R\]](#), [\[R\]](#):

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- Eating more fruits and vegetables
- Eating more fish and other seafood
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4



Limit Saturated Fat

IMPACT3 / 5

EVIDENCE3 / 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

The *PPARD* gene plays a key role in fat metabolism and animal studies show that high-fat diets can increase the activity of PPAR- δ , although it’s uncertain how this plays into longevity [\[R\]](#).

What is certain is that certain food choices can help reduce cholesterol, reduce triglyceride levels, and potentially improve longevity. These recommendations include [\[R\]](#), [\[R\]](#):

- Reducing the amount of saturated and trans fats in the diet
- Eating more fruits and vegetables
- Eating more fish and other seafood
- Trying the Mediterranean diet

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 *PPARD* gene plays a key role in fat metabolism and animal studies show that high-fat diets can increase the activity of PPAR- δ , although it’s uncertain how this plays into longevity [\[R\]](#).

What is certain is that certain food choices can help reduce cholesterol, reduce triglyceride levels, and potentially improve longevity. These recommendations include [\[R, R\]](#):

- Reducing the amount of saturated and trans fats in the diet
- Eating more fruits and vegetables
- Eating more fish and other seafood
- Trying the Mediterranean diet

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.

