

# LDL Particle Number (LDL-P)

Biohacker Report

REPORT CATEGORY —



HEART & BLOOD  
VESSELS

Sample Client

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# Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

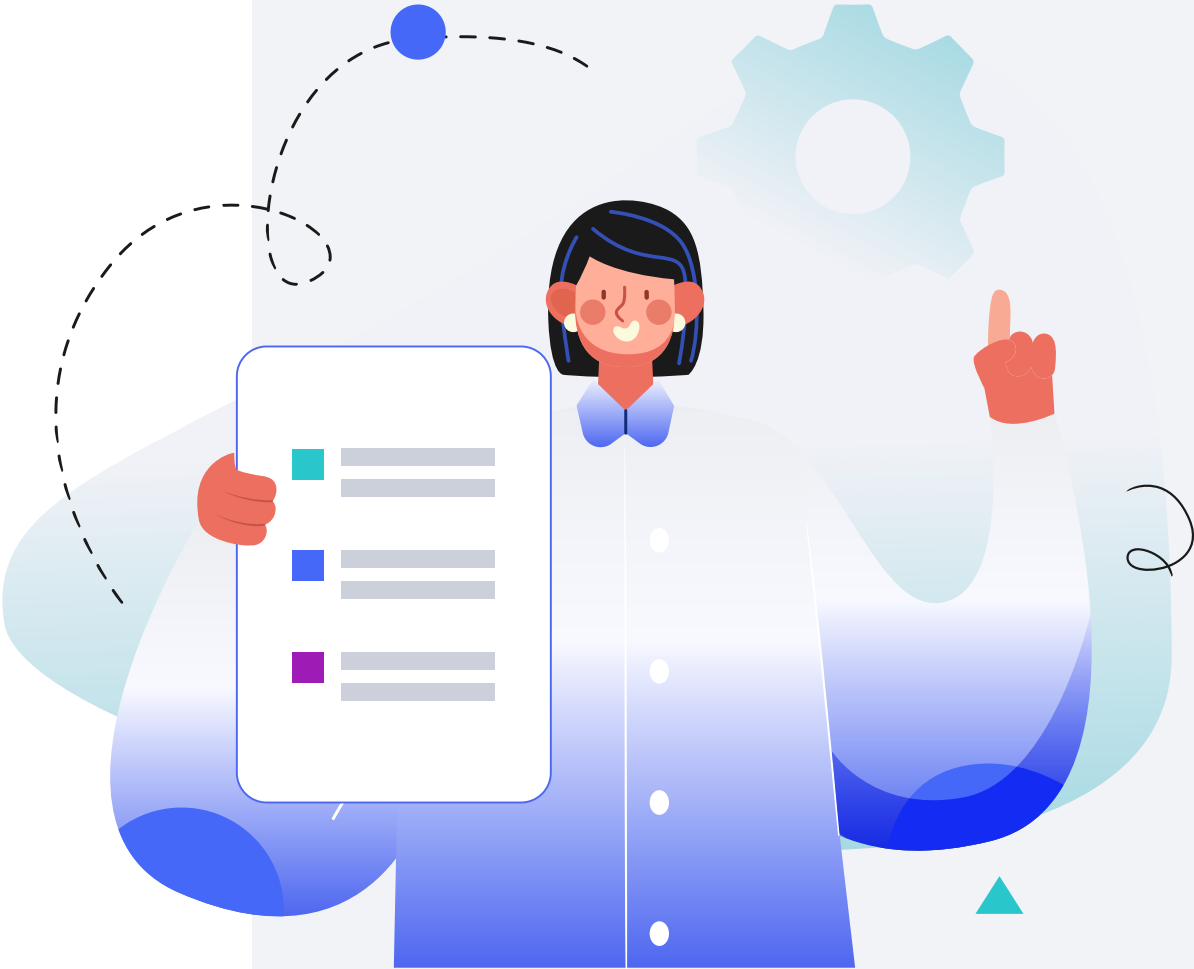
5ft 5" 165cm

WEIGHT

137lb 62kg

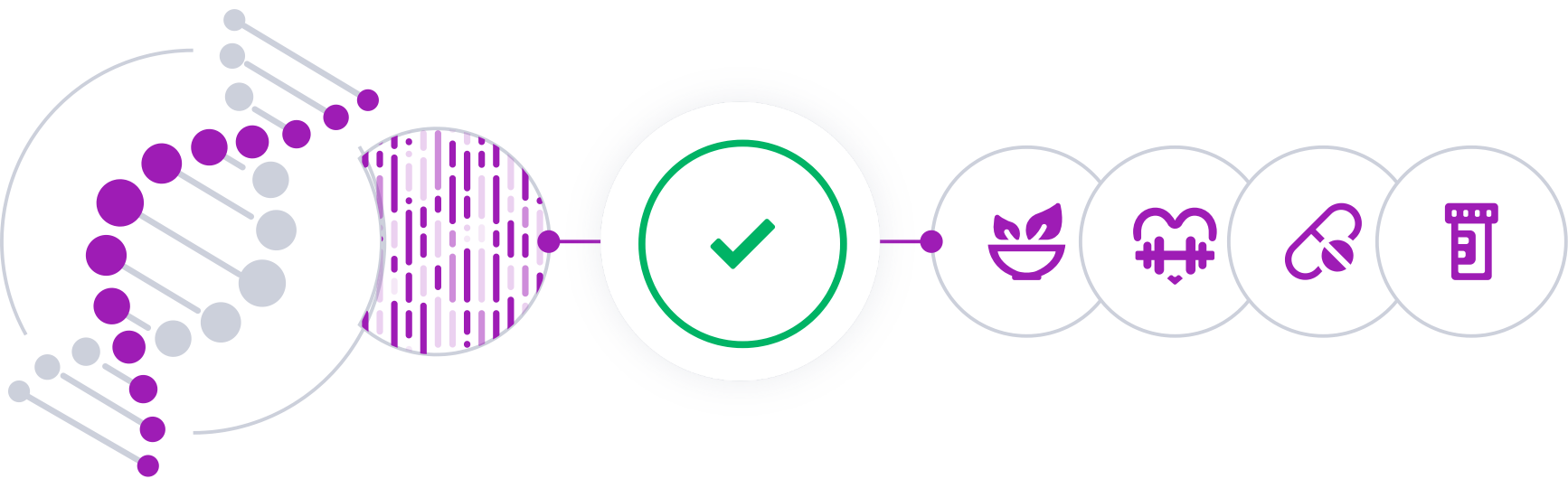
DISCLAIMER

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

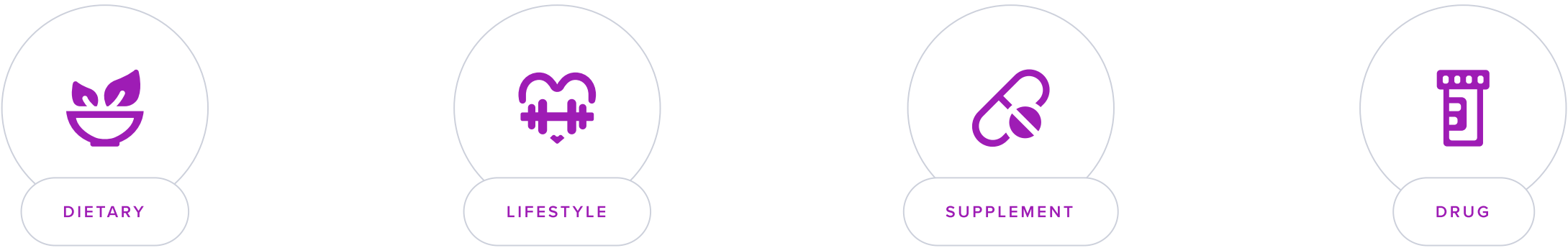
You have 2 risk alleles

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 LDL Particle Number (LDL-P) refers to the number of LDL (Low-Density Lipoprotein) particles in the blood. While traditional cholesterol tests measure the amount of cholesterol within LDL (LDL-C), LDL-P assesses the actual number of LDL particles.

Research suggests that the LDL particle number may be a more accurate predictor of cardiovascular risk than traditional LDL cholesterol levels alone. Individuals can have normal LDL-C levels but elevated LDL-P, which might still place them at higher risk for cardiovascular events.

Consultation with a healthcare professional can provide tailored advice and intervention strategies based on individual LDL-P levels.

# Factors Influencing LDL-P Levels

Several factors can impact LDL-P levels:

- **Diet:** Diets high in saturated fats and trans fats can elevate LDL-P levels. Conversely, diets rich in fiber and unsaturated fats can help modulate them.
- **Physical Activity:** Engaging in regular cardiovascular exercise can positively influence LDL-P, leading to lower numbers of small, dense LDL particles, which are considered more atherogenic.
- **Weight:** Obesity, especially visceral fat, can be associated with increased LDL particle numbers.
- **Insulin Resistance:** Insulin resistance can lead to higher LDL-P levels, often seen in conditions like metabolic syndrome and type 2 diabetes.
- **Medications:** Statins and other lipid-lowering medications can influence LDL particle number and size. It's crucial to monitor these numbers when on such medications.
- **Other Health Conditions:** Hypothyroidism, chronic kidney disease, and certain inflammatory conditions can influence LDL-P levels.
- **Genetics:** There is a notable genetic component to LDL-P levels. Certain genetic variants and mutations have been linked to differences in LDL particle number and size among individuals.



Predisposed to typical LDL-P based on 5 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

| GENE  | SNP       | GENOTYPE |
|-------|-----------|----------|
| CD36  | rs1761665 | TC       |
| CD36  | rs1722507 | AG       |
| CD36  | rs7755    | GA       |
| GNAT3 | rs6970109 | CC       |
| CD36  | rs3211842 | GG       |

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

# Your Recommendations

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

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

| DOSAGE |                                 | DOSAGE |                                          |
|--------|---------------------------------|--------|------------------------------------------|
| 1      | Low-Carbohydrate Diet           | 2      | Exercise At Least One Hour a Day1 hour   |
| 3      | Omega-3 (Fish Oil)2000 mg       | 4      | Oats                                     |
| 5      | Berberine1000 mg                | 6      | Niacin Supplements20 mg                  |
| 7      | Aerobic Exercise (Cardio)1 hour | 8      | Extra Virgin Olive Oil (EVOO)            |
| 9      | Eat Fiber-Rich Foods            | 10     | Maintain Optimal Vitamin D Levels1000 iu |
| 11     | Guggul500 mg                    | 12     | Cycling                                  |
| 13     | Red Yeast Rice500 mg            | 14     | Artichoke Leaf Extract500 mg             |
| 15     | Walking30 minutes               | 16     | Stress Management Therapy1 hour          |
| 17     | Garlic                          | 18     | Oat Bran                                 |
| 19     | Mediterranean Diet              | 20     | Soy Protein20 g                          |
| 21     | Plant Sterols & Stanols300 mg   | 22     | Brazil Nuts                              |
| 23     | Avocado                         | 24     | Strength Training1 hour                  |

1



Low-Carbohydrate Diet

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Limit your daily intake of carbohydrates to less than 26% of your total daily calories. For a standard 2000-calorie diet, this means consuming no more than 130 grams of carbohydrates per day. Focus on including non-starchy vegetables, lean proteins, and healthy fats in your meals while minimizing the intake of sugars, bread, pasta, and other high-carb foods.

## Description

Low-carbohydrate diets can promote weight loss, improve blood sugar control, and support heart health. They may also be beneficial for individuals with certain medical conditions, such as epilepsy or metabolic syndrome.

## How it helps

Reducing carb intake (for up to 12 months) may reduce LDL-P. The benefit may occur regardless of weight loss [\[R\]](#), [\[R\]](#).

Eating a low-carbohydrate, low-calorie diet may lower LDL-cholesterol more in people with certain gene variants [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Eating a low-carbohydrate, low-calorie diet may lower LDL-cholesterol more in people with your [ADIPOQ](#) gene variant [\[R\]](#).

| YOUR GENETIC VARIANTS |           |          |                                                                    |
|-----------------------|-----------|----------|--------------------------------------------------------------------|
| GENE                  | SNP       | GENOTYPE | EVIDENCE                                                           |
| ST6GAL1               | rs1501299 | GG       | <div><div></div><div></div><div></div><div></div><div></div></div> |

2



Exercise At Least One Hour a Day

IMPACT

0 / 5

EVIDENCE

0 / 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

Engaging in at least 30 minutes of exercise each day helps in maintaining healthy lipid levels, including lowering LDL particle number. Regular physical activity aids in boosting metabolism and enhancing the body's ability to manage cholesterol levels.

3



Omega-3 (Fish Oil)

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

2000 mg

## Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA [\[R\]](#), [\[R\]](#).

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

Omega-3 fatty acids can help reduce LDL particle number by lowering the amount of triglycerides and improving lipid metabolism.

4



Oats

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate oats into your diet daily by having them for breakfast as oatmeal, or adding them to smoothies, baking recipes, or overnight oats. Aim for at least a half-cup (40 grams) of dry oats to reap the health benefits.

## Description

Oats are a whole grain known for their high fiber content and nutritional value, like zinc, iron, and manganese. Including oats in one's diet can promote heart health, stabilize blood sugar levels, and provide sustained energy.

**Oats** are a good source for manganese, zinc, iron, magnesium, and vitamins B1 and B5. A ½ cup serving provides 0.7 mg of manganese or 30%DV.

## How it helps

Like oat bran, oats are rich in beta-glucan fiber, which has been shown to lower LDL particle numbers by reducing cholesterol absorption.

5



Berberine

IMPACT

0 / 5

EVIDENCE

0 / 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 LDL particle numbers by enhancing the activity of LDL receptors, which helps in removing LDL from the bloodstream.

6



Niacin Supplements

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Take a 20 mg niacin supplement daily, preferably with a meal to aid in absorption and minimize potential stomach upset.

TYPICAL STARTING DOSE

20 mg

## Description

Niacin is an essential B vitamin that plays a vital role in metabolism, supporting heart health, maintaining healthy cholesterol levels, and promoting overall cellular function when included in a balanced diet or as a supplement.

[Niacin](#) (vitamin B3) is found in many foods. It supports your nervous system, skin, gut, and more [\[R\]](#).

Adults should get **16 mg** of niacin a day, and most people get enough from their diets [\[R\]](#).

Experts recommend getting niacin from food rather than supplements [\[R, R\]](#).

## How it helps

Niacin can reduce LDL particle number by inhibiting the release of free fatty acids from fat tissue, decreasing VLDL and LDL production in the liver.

7



Aerobic Exercise (Cardio)

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

## Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.

**Interval training** is a type of cardio that combines periods of high-intensity training with brief rest periods.

## How it helps

Aerobic exercise, such as running or cycling, can help lower LDL particle number (LDL-P) levels. This type of exercise improves cardiovascular health by increasing the body's ability to process fats and cholesterol, thereby reducing LDL-C and LDL-P levels.

8



Extra Virgin Olive Oil (EVOO)

IMPACT

0 / 5

EVIDENCE

0 / 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

Extra virgin olive oil is high in monounsaturated fats and antioxidants that can lower LDL particle number and improve overall lipid profiles, contributing to better heart health.

9



Eat Fiber-Rich Foods

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate foods high in fiber, such as fruits, vegetables, whole grains, and legumes, into your daily meals. Aim for a total dietary fiber intake of 25 to 30 grams per day, spread out over all meals.

## Description

Fiber is a type of carb that your body can’t digest which supports digestion, heart health, and blood sugar control. You can get fiber by eating things like whole grains, fruits, nuts, seeds, and leafy greens.

**Fiber is a type of carb that your body can’t digest. It supports digestion, heart health, blood sugar control, and more** [\[R, R\]](#).

**Adults should get 28 g of fiber every day.** Most people in the US don’t get enough fiber [\[R, R\]](#).

**You can get more fiber by eating** [\[R, R\]](#):

- Whole grains
- Fruits
- Leafy greens
- Nuts and seeds
- Beans
- Broccoli

Fiber supplements, such as [psyllium husk](#), are available for people who don’t get enough fiber from their diets [\[R, R\]](#).

## How it helps

Fiber-rich foods, such as whole grains, fruits, and vegetables, help lower LDL particle number by binding to cholesterol in the digestive system and removing it from the body.

10



Maintain Optimal Vitamin D Levels

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE  
1000 iu

## Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs [vitamin D](#) for strong bones. Vitamin D also plays a role in [\[R\]](#):

- Mood
- Immunity
- Heart health
- Blood sugar control

[Sunlight](#) is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R\]](#), [\[R\]](#).

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [\[R\]](#).

## How it helps

Genetically predicted higher vitamin D levels may be associated with lower levels of total cholesterol and reduced LDL particle number [\[R\]](#).

**Please note:** *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.*

11



Guggul

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Take a guggul supplement, usually in capsule form, at a dosage of about 500-1000 mg per day, divided into 2-3 doses. This should be taken with meals and continued for a minimum of 3 months to evaluate its effectiveness.

TYPICAL STARTING DOSE

500 mg

## Description

Guggul is an herbal resin used in traditional Ayurvedic medicine for various health concerns, including cholesterol management. It may have potential benefits for lipid profiles and overall cardiovascular health.

## How it helps

In a placebo-controlled trial of 61 patients with hypercholesterolemia, supplementation with guggulipid (50 mg, 2x/day) for 24 weeks lowered LDL-C by 12.5% [\[R\]](#).

In a non-placebo-controlled trial of 205 patients with hyperlipidemia, supplementation with gugulipid (500 mg, 3x/day for 8 weeks) was as effective as clofibrate at lowering LDL-C in responders [\[R\]](#).

However, guggul (2160 mg/day for 12 weeks) didn't lower LDL-C more than the placebo in a placebo-controlled trial of 43 participants with moderately increased cholesterol [\[R\]](#).

In a placebo-controlled trial of 103 older adults, supplementation with guggulipid (1000-2000 mg, 3x/day) for 8 weeks even raised LDL-C [\[R\]](#).

The combination of guggul and Triphala (3x/day for 3 months) also failed to lower LDL-C in a placebo-controlled trial of 90 individuals at low-moderate cardiovascular risk [\[R\]](#).

12



Cycling

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Begin cycling with moderate rides to build up your stamina, targeting 2 to 4 times a week for 30 to 60 minutes per session. Ensure your bicycle is the right size and properly adjusted for your comfort. Safety gear, including helmets, is essential. Mix up your routes for interest and challenge, and consider joining a cycling group for social and motivational benefits. Maintenance of your bicycle will ensure a smooth ride and prolong its life.

## Description

Cycling is a low-impact, environmentally friendly exercise that offers significant cardiovascular benefits, muscle strengthening, and flexibility improvement. It's suitable for all fitness levels and can be enjoyed both recreationally and competitively. Cycling promotes weight loss, decreases stress levels, and improves joint mobility. It's also a convenient mode of transportation that encourages outdoor exploration and reduces air pollution.

## How it helps

Cycling is a form of aerobic exercise that helps reduce LDL-P by promoting cardiovascular health and enhancing fat metabolism. Regular cycling can lower overall LDL cholesterol levels and improve heart function.

13



Red Yeast Rice

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Take a 500 mg capsule of red yeast rice supplement once daily, preferably with your evening meal to help with absorption and efficacy.

TYPICAL STARTING DOSE

500 mg

## Description

Red yeast rice is a fermented product made from rice and red yeast (*Monascus purpureus*). It has a long history of use in traditional Chinese medicine, and it is commonly used today as a dietary supplement to help lower cholesterol levels due to the presence of naturally occurring compounds called monacolins.

[Red yeast rice](#) is made when a type of fungus grows on rice. As the fungus ferments the rice, it produces a chemical called *monacolin K*. This chemical is very similar to a cholesterol-lowering drug [\[R\]](#).

**People mostly use red yeast rice to manage their cholesterol.** It may also help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Inflammation
- High blood pressure
- High blood sugar

## How it helps

Red yeast rice contains compounds called monacolins, which inhibit the enzyme HMG-CoA reductase responsible for cholesterol production, thereby reducing LDL particle number.

14



Artichoke Leaf Extract

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Take 500 mg of artichoke leaf extract daily with a glass of water, preferably with or after a meal to aid absorption.

TYPICAL STARTING DOSE

500 mg

## Description

Artichoke leaf extract is derived from the leaves of the artichoke plant and is used as a dietary supplement. It is being researched for its potential to support liver health and digestive function.

[Artichokes](#) are packed with antioxidants and fiber. People eat the heart of the artichoke. However, many of the plant’s active compounds are also found in its leaves [\[R\]](#), [\[R\]](#).

People use artichoke leaf extracts to help [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lower cholesterol
- Lower blood pressure
- Improve digestion

## How it helps

Artichoke Leaf Extract can lower LDL particles as it contains compounds like cynarin and luteolin that improve cholesterol metabolism and reduce cholesterol levels in the blood.

15



Walking

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate at least 30 minutes of brisk walking into your daily routine, aiming for a minimum of five days a week. This can be done in one continuous session or broken into shorter periods, such as three 10-minute walks throughout the day.

TYPICAL STARTING DOSE

30 minutes

## Description

Walking is a low-impact form of exercise that can contribute to cardiovascular fitness, weight management, and improved overall health. It is used to support physical activity goals, enhance mood, and promote better cardiovascular health.

## How it helps

Regular walking improves overall cardiovascular health and helps reduce LDL particle numbers by increasing HDL (good) cholesterol and aiding lipid metabolism.

16



Stress Management Therapy

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Engage in stress management therapy sessions, such as cognitive-behavioral therapy (CBT), for at least 1 hour per week over a course of 8 to 12 weeks. Techniques can include mindfulness, deep breathing exercises, and identifying stressors to develop coping strategies.

TYPICAL STARTING DOSE

1 hour

## Description

Stress management therapy refers to various techniques and approaches aimed at reducing and coping with stress. It can improve mental and physical well-being by helping individuals better manage the effects of stress on their health.

## How it helps

Chronic stress can lead to hormonal changes that increase LDL levels and negatively affect lipid profiles. Stress management techniques help reduce these hormonal imbalances.

17



Garlic

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate 1-2 cloves of raw garlic into your meals daily. This can be achieved by finely chopping or crushing the garlic and letting it sit for a few minutes before adding it to your dishes to maximize its health benefits.

## Description

Garlic is a popular herb known for its potential cardiovascular benefits, including lowering blood pressure and cholesterol levels. It also possesses antimicrobial properties and may support immune function.

[Garlic](#) is a vegetable often used to flavor food. It’s been a part of traditional medicine for thousands of years [\[R\]](#).

Today, people take garlic to help control their blood pressure and cholesterol [\[R\]](#).

## How it helps

Garlic has been shown to lower LDL cholesterol and LDL particle number by reducing cholesterol synthesis in the liver and enhancing its excretion.

18



Oat Bran

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate oat bran into your diet by adding 1-2 tablespoons to your breakfast cereal or yogurt daily. You can also use it as an ingredient in homemade bread, muffins, or pancakes. Aim to include oat bran in at least one meal per day for ongoing dietary benefits.

## Description

Oat bran is the outer layer of oat grains and is rich in soluble fiber, making it a heart-healthy addition to diets. Consuming oat bran may help lower cholesterol levels and support digestive regularity.

## How it helps

Oat bran contains beta-glucan, a type of soluble fiber that can help reduce LDL particle number by binding to cholesterol in the digestive system, preventing its absorption into the bloodstream.

19



Mediterranean Diet

IMPACT

0 / 5

EVIDENCE

0 / 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, which is rich in healthy fats, fruits, vegetables, and whole grains, is known to improve lipid profiles and lower LDL particle number.

20



Soy Protein

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Include 20 grams of soy protein in your daily diet. This can be achieved by consuming soy-based products such as tofu, soy milk, or soy nuts throughout the day.

TYPICAL STARTING DOSE

20 g

## Description

Soy protein is a high-quality plant-based protein derived from soybeans. It is commonly used in vegetarian and vegan diets and may support muscle growth, weight management, and overall nutritional needs.

**Soy is a common food in many cuisines around the world**, especially Asian cuisines [\[R\]](#).  
It's a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

## How it helps

Soy protein can help reduce LDL particle numbers by lowering LDL cholesterol levels. It contains compounds called isoflavones which have been shown to have a cholesterol-lowering effect.

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Plant Sterols & Stanols

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Consume a total of 300 mg of plant sterols and stanols per day. This can be achieved by incorporating foods fortified with these compounds, such as certain margarines, orange juice, and yogurt drinks, into your daily diet or by taking a specific supplement that meets this dosage requirement.

TYPICAL STARTING DOSE

300 mg

## Description

Plant sterols and stanols are plant compounds found in foods like fruits, vegetables, and whole grains. They are known for their cholesterol-lowering properties and can be beneficial when included in a diet aimed at reducing LDL cholesterol levels and promoting heart health.

**Sterols and stanols are compounds in plants that are similar to cholesterol** [\[R\]](#), [\[R\]](#).

They are naturally found in foods like **nuts, vegetable oils, and fruits**. However, people usually don’t eat enough of these [\[R\]](#).

Some companies add sterols and stanols to foods like **orange juice and margarine** [\[R\]](#), [\[R\]](#).

## How it helps

Plant sterols and stanols have been shown to lower LDL particle number by reducing the absorption of cholesterol in the intestines.

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Brazil Nuts

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Consume 1-2 Brazil nuts daily to meet your selenium needs and potentially improve heart health and thyroid function. Do not exceed this amount to avoid selenium toxicity.

## Description

Brazil nuts are a nutritious snack rich in selenium, a mineral essential for various bodily functions, including thyroid health and immune support.

**Brazil nuts** have an enormous amount of selenium along with other minerals like magnesium, phosphorus, and copper, and vitamins E and B1. A 1-ounce (6–8 nuts) serving provides 544 mcg of selenium or 989%DV.

## How it helps

Consuming Brazil nuts may lower blood glucose levels more in people with certain gene variants [\[R\]](#).

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Avocado

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Incorporate half to one whole avocado into your daily diet. You can add it to salads, sandwiches, or use it as a healthy fat substitute for spreads or dressings.

## Description

Avocado is a nutrient-dense fruit known for its creamy texture and healthy monounsaturated fats. It is packed with vitamins, minerals, and dietary fiber, and may support heart health, skin health, and overall nutrition.

[Avocado](#) is a fruit first cultivated in Mexico in 500 BCE [\[R\]](#), [\[R\]](#).

**You can eat it raw in salads, sandwiches, and dips.** Avocado oil has recently become popular, but it’s much less nutritious than the whole fruit.

Avocado is rich in antioxidants, vitamins, minerals, and fiber. It may support [\[R\]](#):

- Heart health
- Healthy weight
- Healthy aging

## How it helps

Avocados contain monounsaturated fats and fiber that help lower LDL particle number and cholesterol levels by improving lipid profiles.

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Strength Training

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

## Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

## How it helps

Strength training can improve lipid profiles by reducing LDL levels and increasing muscle mass, which enhances metabolism and overall cardiovascular health.

# 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.