

Lutein

Biohacker Report

REPORT CATEGORY —



Sample Client

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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.

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



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

Lutein is a type of carotenoid antioxidant that is naturally found in various foods, especially dark green leafy vegetables, and is important for health, particularly eye health. It is a pigment that gives plants like spinach, kale, and yellow carrots their rich colors. Humans acquire lutein from their diet, and it is used by the body, especially in the eyes, to help protect against oxidative stress.

Dietary sources of lutein include:

- Spinach
- Kale
- Broccoli
- Peas
- Brussels sprouts
- Corn
- Egg yolks
- Oranges

Lutein is especially beneficial for:

- Eye health: Lutein is best known for its role in promoting eye health. It is concentrated in the macula, a part of the retina responsible for central vision. Lutein helps filter high-energy blue light from natural and artificial sources, protecting the eyes from damage and reducing the risk of age-related macular degeneration (AMD) and cataracts. It is often paired with another carotenoid called zeaxanthin for maximum effectiveness in eye health supplements.
- Skin health: As an antioxidant, lutein helps combat oxidative stress in skin cells caused by exposure to ultraviolet rays from the sun. This can help prevent premature skin aging and promote healthier skin.
- Cognitive function: Emerging research suggests that lutein may also support brain health. Higher dietary intakes of lutein have been linked to improved cognitive function in older adults, possibly because of its antioxidant and anti-inflammatory properties.

Managing Blood Lutein Levels

While there is no official recommended daily allowance for lutein, studies suggest that a daily intake of 6-10 mg can yield health benefits, particularly for eye health. Regular consumption of fruits and vegetables rich in lutein is encouraged as part of a healthy diet.

Supplementation is another option, particularly for individuals who may not get sufficient lutein from their diet. Lutein supplements are widely available, often combined with zeaxanthin and other nutrients beneficial for eye health, such as vitamins C and E, zinc, and omega-3 fatty acids.

Monitoring and managing blood lutein levels can be an important aspect of dietary management, especially for individuals at risk of or currently managing conditions like AMD. Such individuals should consult healthcare providers for tailored dietary advice and potential use of supplements.



TYPICAL LEVELS

Predisposed to typical lutein levels based on 4,953 genetic variants we looked at



PERCENTILE



Your risk is greater than 44% of the population and lower than 56% of the population.

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

Leafy Green Vegetables
- 2

Eggs
- 3

Kale
- 4

Swiss Chard
- 5

Spinach
- 6

Lutein

1



Leafy Green Vegetables

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate at least one serving of leafy green vegetables, such as spinach, kale, or Swiss chard, into your diet daily. This can be done by adding them to salads, smoothies, or as a side dish to your meals.

Description

Leafy green vegetables like spinach and kale are packed with vitamins, minerals, and antioxidants. Incorporating them into your diet can promote overall health by providing essential nutrients, supporting digestion, and reducing the risk of chronic diseases like heart disease and certain cancers.

Leafy green vegetables, also called leafy greens, or greens, are edible plant leaves, which can include stalks and shoots as well. Common examples include: lettuce, spinach, kale, chard, endive, and fennel.

Leafy greens contain a host of vitamins and minerals, as well as fiber. Most of them are a particularly good source of vitamin K.

How it helps

Leafy green vegetables like spinach and kale are high in lutein. Consuming them can significantly increase lutein levels in the body, which is essential for eye health and may help protect against age-related macular degeneration.

2



Eggs

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate eggs into your diet 3-4 times a week, preferably for breakfast or as part of a balanced meal. They can be boiled, scrambled, or made into omelets, ensuring they are cooked thoroughly.

Description

Eggs are a nutrient-dense food rich in protein, vitamins, and minerals. They support various aspects of health, including muscle development, brain function, and eye health.

Eggs are great nutrition sources, with protein, healthy fats, arachidonic acid, and numerous vitamins and minerals.

How it helps

Eggs contain lutein and other beneficial nutrients that can improve eye health. The fat in eggs also helps with the absorption of lutein into the body.

3



Kale

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate at least one cup of kale, cooked or raw, into your daily diet. You can add it to smoothies, salads, or use it as a cooked vegetable side dish.

Description

Jumping, such as through activities like jumping jacks or trampolining, is a cardiovascular exercise that can improve heart health, strengthen muscles, and boost overall fitness. It's an effective way to increase physical activity and promote a healthy lifestyle.

Kale is a good source of calcium, and is also abundant in vitamins A, C, and K, manganese, and potassium. A 1-cup serving (cooked) has 94 mg of calcium or 7%DV.

How it helps

Kale is one of the best dietary sources of lutein. Eating kale can boost the levels of lutein in your body, which supports eye health and may protect against age-related eye conditions.

4



Swiss Chard

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate Swiss chard into your diet by adding it to salads, sautéing it with olive oil and garlic for a side dish, or mixing it into soups and stews. Aim to eat Swiss chard 2-3 times per week to benefit from its nutrients.

Description

Swiss chard is a leafy green vegetable rich in vitamins K, A, and C, as well as minerals like potassium and magnesium. It supports bone health, immunity, and overall nutrition.

How it helps

Swiss Chard is rich in lutein, providing benefits for eye health by filtering harmful blue light and preserving eyesight.

5



Spinach

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate one cup of fresh spinach or half a cup of cooked spinach into your daily diet. You can add spinach to salads, smoothies, omelets, or pastas to easily increase your intake.

Description

Spinach is a leafy green vegetable packed with essential nutrients, including vitamins A and K, iron, and folate. Incorporating spinach into the diet supports eye health, bone health, and overall nutrition.

Spinach is a good source of molybdenum, folate, calcium, and iron, as well as vitamins A, C, and K1. A ½ cup serving provides 8 mcg of molybdenum or 18%DV.

How it helps

Spinach is rich in lutein, which is a type of carotenoid beneficial for eye health, helping to protect against macular degeneration and cataracts.

6



Lutein

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Increase your intake of lutein by eating more dark, leafy greens such as spinach and kale, as well as other foods like corn, peas, and egg yolks. Aim to include these in your daily diet, consuming at least one serving of lutein-rich foods per meal. It can also be taken as a supplement.

Description

Lutein is an antioxidant pigment found in the eye, and may support eye health. It is commonly found in leafy green vegetables.

Lutein is an antioxidant pigment found in the eye. Many plants contain lutein, including [\[R\]](#), [\[R\]](#):

- Leafy greens (kale, spinach, leeks, lettuce)
- Cantaloupe
- Corn
- Peas
- Peppers
- Herbs (basil, parsley)

Lutein may help support eye health [\[R\]](#), [\[R\]](#).

How it helps

Lutein is known to support eye health. It acts as an antioxidant, protecting the eyes from oxidative stress, and can improve or maintain visual functions.