

Lysine

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

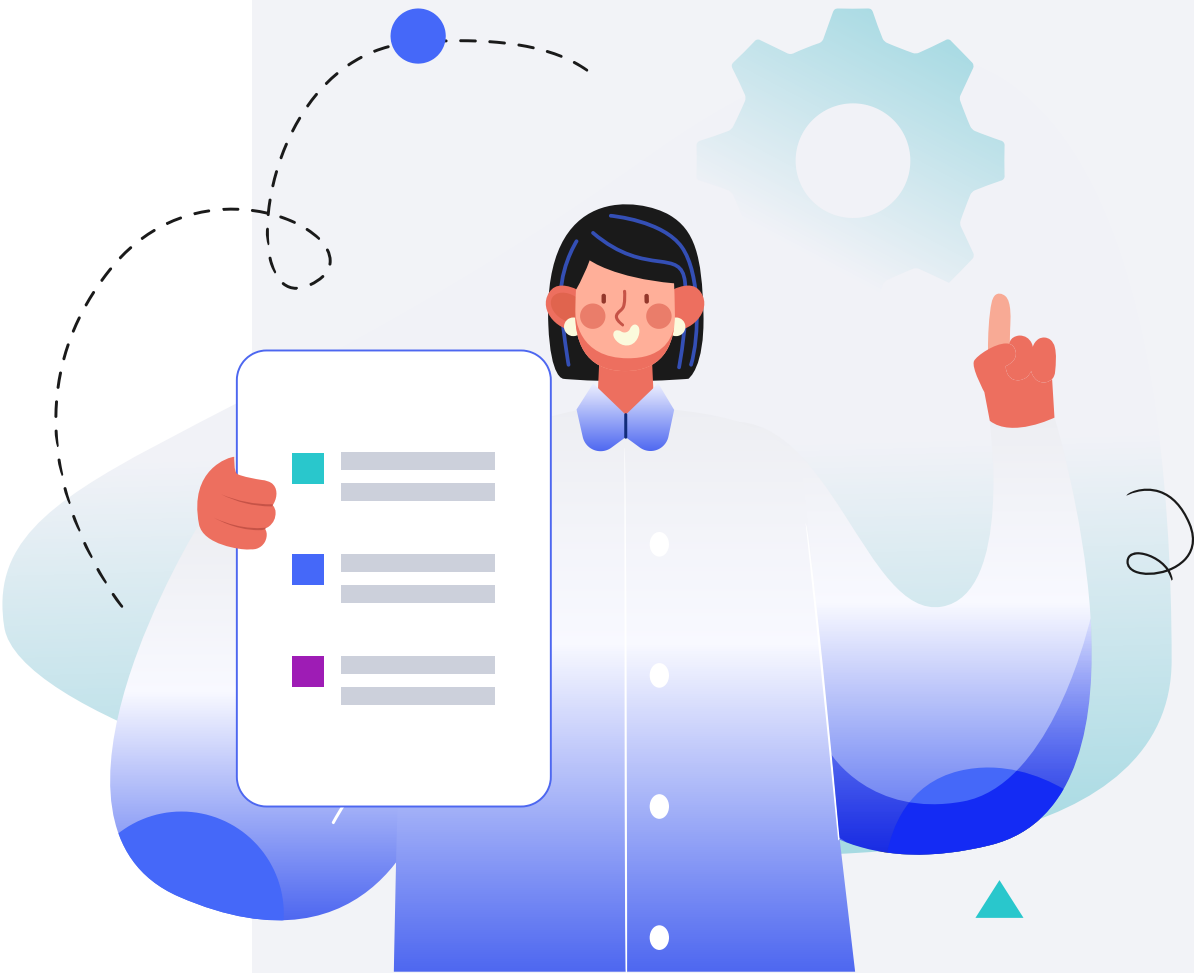
Male

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

Lysine is an essential amino acid. This means that the human body can't make it and we need to get it through diet. Lysine-rich foods include [\[R\]](#):

- Meat
- Spinach
- Legumes (e.g., soybean, green peas, chick peaks, and lentils)
- Nuts and seeds (e.g., pistachios and pumpkin seeds)

Lysine can also be taken as a supplement.

Lysine is a building block for proteins. It plays important roles in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Metabolism
- Collagen production
- Gene activity

Low lysine levels may impair fat metabolism and reduce energy production [\[R\]](#), [\[R\]](#).

Factors Influencing Lysine Levels

Key Takeaways:

- Up to **60%** of differences in people's lysine levels may be due to genetics.
- Factors affecting low lysine levels include malnutrition and grain-based diets. Factors affecting high levels include over-supplementing with lysine and rare genetic disorders.
- If your genetic risk is high, overall risk is still going to be low unless you don't eat enough lysine-containing foods.
- Click the **Recommendations** tab for potential dietary and lifestyle changes. Click the **next steps** tab for relevant labs.

Up to **60% of differences in people's lysine levels may be due to genetics**. Involved genes influence lysine transport [\[R\]](#), [\[R\]](#), [\[R\]](#).

Other factors that may reduce lysine levels include [\[R\]](#), [\[R\]](#):

- Malnutrition
- Grain-based diets (e.g., wheat)

High lysine levels may result from [\[R\]](#), [\[R\]](#):

- Excessive lysine supplementation
- Rare genetic disorders

Genetically higher lysine levels may be associated with increased risk for high blood sugar (type 2 diabetes). [\[R\]](#)



TYPICAL NEED

Likely typical need for lysine based on 9 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC7A6	rs8056893	AA
TST	rs11554714	GG
ELF2	rs7658095	GG
ARG1	rs2608920	TT
SLC25A29	rs1059263	AC
SPRYD4	rs2657880	CG
PPDPFL	rs7005693	AA
NADK2	rs138373837	CC
SLC7A2	rs2517237	AA

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	Chicken	2	Tuna
3	Pork	4	Turkey
5	L-Lysine1000 mg	6	Lobster
7	Haddock	8	Crab
9	Soy Protein20 g	10	Cod
11	Tilapia		

1



Chicken

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate chicken into your meals 2-3 times a week, preferably opting for lean cuts like breast meat. Cook it through methods such as grilling, baking, or boiling to avoid adding excess fats. Aim for a portion size of about 3-4 ounces (85-113 grams) per serving.

Description

Chicken is a lean source of protein and essential nutrients like vitamin B12 and selenium. It can be a healthy part of a balanced diet that supports muscle growth and overall nutritional well-being.

Chicken and particularly dark meat like the thigh, is a good source of omega-6s that also contains protein, vitamins, and even needed trace minerals like selenium. One chicken thigh contains 3792 mg of omega-6.

How it helps

Chicken is rich in the essential amino acid lysine, which your body uses for proper growth and tissue repair. A diet including chicken can therefore help prevent lysine deficiency, supporting healthy body function.

2



Tuna

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate tuna into your meals 2-3 times per week, aiming for a serving size of about 3.5 ounces (100 grams) per meal. Choose fresh or water-packed tuna instead of oil-packed to reduce unnecessary calorie intake.

Description

Tuna is a type of saltwater fish commonly consumed worldwide, rich in lean protein, omega-3 fatty acids, and essential vitamins and minerals. Its health benefits include heart health support, improved brain function, and reduced inflammation. Tuna is often included in diets for conditions like cardiovascular disease prevention and cognitive enhancement.

Tuna is a source of niacin, vitamin D, as well as being a very good source of protein and omega-3 fatty acids. A 3-ounce serving has 8.6 mg of niacin or 54%DV.

How it helps

Tuna is rich in amino acid Lysine, which is essential for human health but can't be produced by the body. By including Tuna in your diet, your body gets Lysine which helps in collagen formation, absorption of calcium, and production of antibodies to maintain overall health.

3



Pork

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate lean cuts of pork, such as tenderloin or loin chop, into your diet 2-3 times per week, aiming for a portion size of about 3-4 ounces (85-113 grams) per meal. Cook it using healthy methods like grilling, baking, or broiling to minimize added fats.

Description

Pork is a meat obtained from pigs, and is a great source of zinc, protein, and iron, as well as leucine, selenium, phosphorus, and B-vitamins.

Pork is a good source of protein, chromium, selenium, phosphorus, zinc, and potassium. A 3-ounce serving provides 3.6 mcg of chromium or 10%DV.

How it helps

Pork is a high protein food source, which means it contains amino acid lysine abundantly. Incorporating it into your diet can help to supplement lysine in your body and thereby, prevent lysine deficiency associated health issues.

4



Turkey

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate turkey into your diet 2-3 times per week, choosing lean cuts like turkey breast. Aim for portions about the size of a deck of cards (3-4 ounces) for each serving.

Description

Turkey is a poultry meat known for its lean protein content and is a good source of nutrients like selenium and B vitamins. It is valued for its health benefits, including muscle growth, immune support, and stress reduction due to its content of tryptophan, which is a precursor to serotonin.

Turkey is a good source of zine, and rich in B-vitamins, minerals like selenium and phosphorus, and protein. A 3-ounce serving provides 1.5 mg of zinc or 14%DV.

How it helps

Turkey is a rich source of the essential amino acid lysine, which your body needs but cannot produce. Consuming turkey can help maintain lysine levels, vital for proper growth and playing a part in the production of collagen, a substance important for skin, bone, and muscle health.

5



L-Lysine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an L-lysine supplement of 1,000 to 1,500 mg per day, divided into two or three doses, with meals to avoid stomach upset. This regimen can be ongoing for individuals looking to support general health or for specific conditions as advised by a healthcare provider.

TYPICAL STARTING DOSE

1000 mg

Description

A **lysine supplement** of 38 mg/kg/d can be taken to meet daily needs not achieved through diet. This typically is in the form of L-lysine and comes in tablets from 500-1000mg.

How it helps

L-Lysine supplementation helps by supplying the body with adequate lysine, an essential amino acid that our body can't produce on its own. This helps promote protein synthesis, enhance immune function and support the production of hormones, enzymes, and antibodies, preventing lysine deficiency conditions.

6



Lobster

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate lobster into your diet 1-2 times per week, either steamed, grilled, or baked, to benefit from its high protein content and vitamins. Ensure it's cooked thoroughly to avoid foodborne illnesses.

Description

Lobster is a nutrient-rich seafood that provides a source of lean protein, vitamins, and minerals. Its consumption supports muscle health, heart health, and overall nutritional well-being.

Lobster is high in protein, contains lysine, and other nutrients like copper, selenium, zinc, and vitamin B12. Lobster contains 36.41 mg of lysine per gram.

How it helps

Lobster is rich in lysine, an essential amino acid that helps in body growth and energy production. Regular intake of lobster provides the body with this amino acid, therefore helping to prevent any deficiencies.

7



Haddock

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate haddock into your diet 2 to 3 times per week, choosing to grill, bake, or steam it as a healthier preparation method. Portion size for adults should be about 3 to 4 ounces (85 to 113 grams) per serving.

Description

Haddock is a low-fat fish rich in protein and essential nutrients like vitamin B12 and selenium. Consuming haddock as part of a balanced diet may support heart health, promote muscle development, and provide important vitamins and minerals.

Haddock is a good source of lysine, protein, B-vitamins, and minerals like phosphorus, selenium, and magnesium. Haddock contains 39.91 mg of lysine per gram.

How it helps

Haddock is rich in lysine, an essential amino acid that your body cannot produce. Eating haddock regularly can provide the necessary lysine to support protein synthesis, aiding in tissue repair and growth.

8



Crab

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate crab meat into your diet 2-3 times per week, ensuring it is cooked thoroughly to avoid foodborne illness. Crab can be added to salads, pastas, or eaten as a main dish with a side of vegetables.

Description

Crab is a good source of zinc, iron, selenium, glutamine, folate, vitamin B12, niacin, and is lower in mercury than most white fish.

Crab is an excellent source of copper, zinc, iron, selenium, folate, vitamin B12 and niacin, as well as being lower in mercury than most white fish. A 3-ounce serving provides 624 mcg of copper or 69%DV.

How it helps

Crabs are rich in essential amino acids, including lysine which your body needs for various functions like collagen production and calcium absorption. By including crab in your diet, you can help to prevent lysine deficiency and the health issues related to it.

9



Soy Protein

IMPACT1 / 5

EVIDENCE1 / 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 is rich in essential amino acids, including lysine, which your body cannot produce on its own. Consuming soy protein helps maintain lysine levels in your body, preventing lysine deficiency and supporting functions such as collagen formation and calcium absorption.

10



Cod

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate cod into your diet 2-3 times per week, choosing baked or grilled options to maximize health benefits. Each serving should be about 3-4 ounces (85-113 grams).

Description

Cod is a common white fish with protein, iodine, choline, B-vitamins, as well as phosphorus and selenium.

Cod is a common white fish with protein, iodine, choline, B-vitamins, as well as phosphorus and selenium. One 3-ounce serving provides 158 mcg of iodine or 106%DV.

How it helps

Cod is rich in lysine, a critical amino acid your body needs but can't produce itself. Eating cod can supply this and help mitigate lysine deficiency, supporting body functions such as protein synthesis, hormone production, and immune responses.

11



Tilapia

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate tilapia into your diet 2-3 times a week, opting for baked, grilled, or steamed preparations rather than fried to maximize health benefits. Each serving should be about the size of a deck of cards (3-4 ounces for adults).

Description

Tilapia is a freshwater fish species known for its lean protein content and mild flavor. It is a good source of protein, EPA, vitamin B12, and selenium, supporting muscle health and immune function.

Tilapia is rich in protein and a good source for lysine, niacin, vitamin B12, phosphorus, selenium and potassium. Tilapia contains 37.71 mg of lysine per gram.

How it helps

Tilapia, being a rich source of lysine, helps support important bodily functions such as tissue repair and nutrient absorption thus preventing lysine deficiency diseases. High lysine intake is essential as it's an amino acid that the body can't produce.

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.