

Beta-Carotene

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

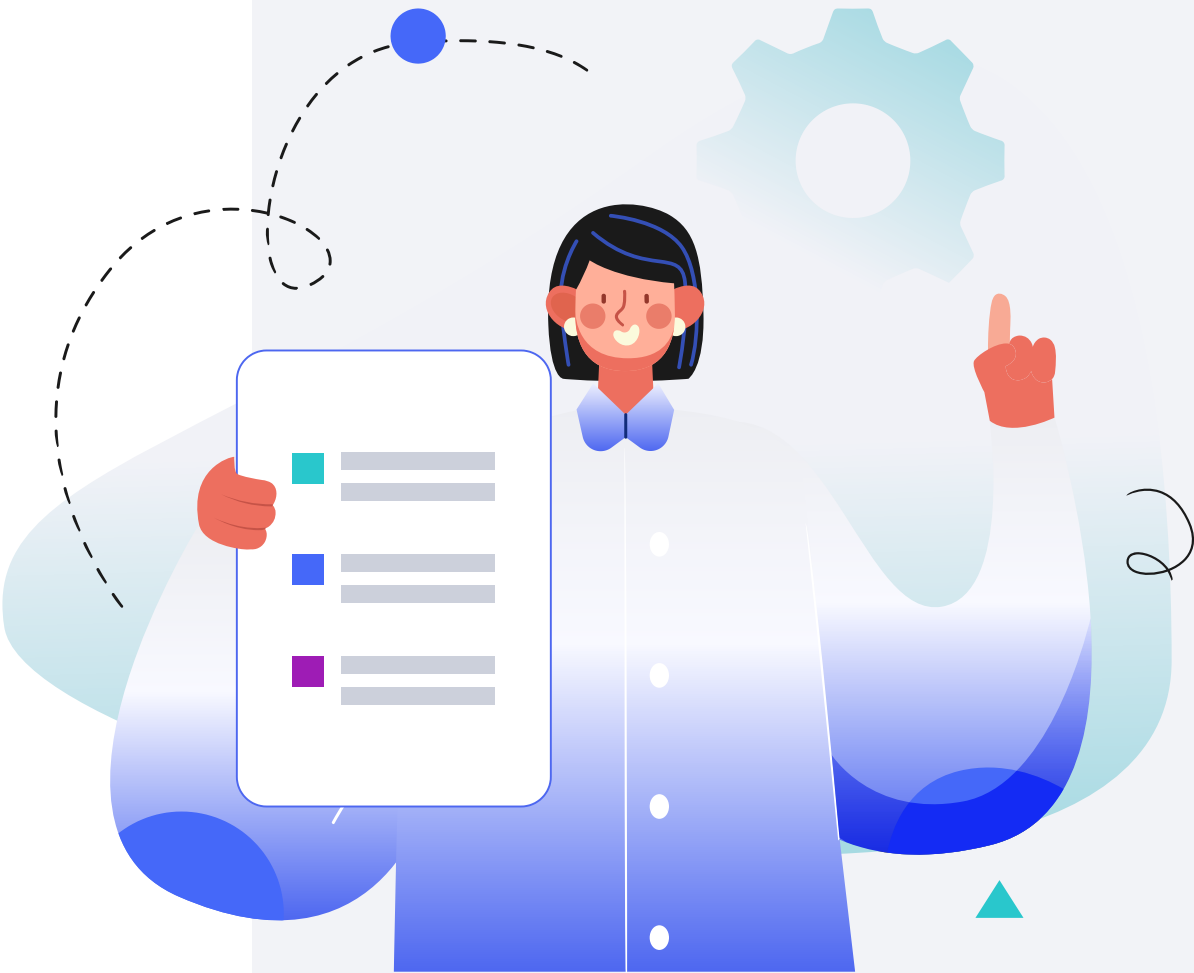
Male

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

[Beta-carotene](#) is a plant-derived pigment (carotenoid). **It's a precursor of [vitamin A](#)** (retinol), meaning that the body can convert beta-carotene into this vitamin [\[R\]](#).

Beta-carotene is found in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fruits (apricots, peaches, persimmons, melon, citrus, tomatoes, etc.)
- Green vegetables (spinach, broccoli, parsley, collard greens)
- Orange tuber vegetables (carrots, sweet potatoes)
- Animal tissues and products (salmon, egg yolk, butterfat)

Beta-carotene can also be obtained from supplements. While supplementation is generally safe, high doses might not be suitable for everyone. For instance, they have been linked to an **increased risk of lung cancer in smokers**. For most people, the best approach is to consume a diet rich in a variety of fruits and vegetables to ensure an adequate intake [\[R\]](#).

Beta-carotene **contributes about 30-35% of the dietary vitamin A intake** in western countries, but in the developing countries it represents the most abundant, and in some instances the sole source of vitamin A [\[R\]](#), [\[R\]](#).

Vitamin A is a nutrient important for [\[R\]](#), [\[R\]](#):

- Vision
- Immunity
- Gut health
- Skin health

Factors Affecting Beta-Carotene Levels

 PERSONALIZED TO GENES

Based on the genetic variants we looked at, you may be predisposed to typical beta-carotene levels. This means your body may have a typical ability to turn beta-carotene into vitamin A.

Beta-carotene levels can be measured by a simple blood test. Women will usually have slightly higher levels than men [\[R\]](#).

While dietary intake is the primary source of beta-carotene, genetics can also play a role in how the body processes and utilizes this nutrient. Genes affecting beta-carotene and vitamin A levels may affect beta-carotene uptake in the gut, its conversion into vitamin A, and its transport in and out of cells [\[R\]](#), [\[R\]](#).

Genetic variants that affect the conversion of beta-carotene into vitamin A have the strongest impact on its blood levels. For this reason, **genetic predisposition towards lower beta-carotene levels is not necessarily a bad thing — it may indicate a better conversion into vitamin A**, which is the active form. Likewise, a predisposition towards higher beta-carotene may indicate poor conversion to vitamin A. [\[R\]](#).

In line with this, lower beta-carotene levels are associated with lower odds of:

- Rheumatoid arthritis [\[R\]](#)
- Ovarian cancer [\[R\]](#)
- Heart attack [\[R\]](#)

However, they may be linked to higher odds of:

- Lung cancer [\[R\]](#)
- Osteoporosis [\[R\]](#)
- Colorectal polyps [\[R\]](#)



TYPICAL LEVELS

Predisposed to typical beta-carotene levels based on 7 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
C16ORF46	rs8044334	TT
C16ORF46	rs6564851	TT
BCO1	rs12934922	AA
BCO1	rs6420424	GG
BCO1	rs7501331	CT
PTPRT	rs6513787	CC
C16ORF46	rs11645428	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.

- 1

Pumpkin
- 2

Red Bell Peppers
- 3

Sweet Potatoes
- 4

Apricots
- 5

Spinach
- 6

Carrots
- 7

Cantaloupe

1



Pumpkin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate pumpkin into your diet by adding it to meals a few times a week. This can be in the form of roasted pumpkin as a side dish, pumpkin puree in soups and sauces, or adding pumpkin seeds to salads, yogurts, or as a snack on their own.

Description

Pumpkin is a nutritious orange squash rich in nutrients such as vitamin K, C, E, and B6, and minerals like potassium, iron, manganese, magnesium. Eating pumpkin may provide benefits for eye health.

Pumpkin is a good source of vitamin K, C, E, and B6, and minerals like potassium, iron, manganese, magnesium. A ½ cup serving provides 20 mcg of vitamin K or 17%DV.

How it helps

Pumpkin is high in beta-carotene, which supports eye health, antioxidant activity, and immune function by converting to vitamin A in the body.

2



Red Bell Peppers

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate one cup of sliced red bell peppers into your daily diet. You can add them raw to salads, sandwiches, or eat them as a snack with hummus. Alternatively, you can cook them and include them in dishes like stir-fries, stews, and fajitas.

Description

Red bell peppers are a type of Capsicum annuum, originating from Central and South America. They are known for being rich in nutrients, including vitamin C, vitamin A, dietary fiber, and antioxidants, which may support immune health, vision, and digestion.

Red bell peppers are excellent sources of both vitamin A and C, as well as being good sources of antioxidants. A ½ cup serving provides 117 mcg of vitamin A or 13%DV.

How it helps

Red bell peppers contain significant amounts of beta-carotene, contributing to the body's vitamin A levels and helping maintain skin and eye health.

3



Sweet Potatoes

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate sweet potatoes into your diet 2-3 times per week, either baked, steamed, or boiled, as a side dish or part of your main meals.

Description

Sweet potatoes are nutritious root vegetables packed with vitamins A and C, fiber, and antioxidants. They contribute to eye health, immune support, and overall nutrition.

Sweet potatoes are a rich source of vitamins, minerals, and antioxidants, including vitamins A, C, B5, and B6, fiber, manganese, and potassium. One potato provides 1,403 mcg of vitamin A or 156%DV.

How it helps

Sweet potatoes are high in beta-carotene, which the body converts to vitamin A. This nutrient supports eye health, immune function, and skin health.

4



Apricots

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate fresh or dried apricots into your diet daily. Fresh apricots can be eaten as a snack, sliced into salads, or blended into smoothies. Dried apricots can be added to oatmeal, yogurt, or trail mix. Aim for a serving size of about 30 grams (approximately 4 fresh apricots or a handful of dried apricots) per day.

Description

Apricots are a nutritious fruit packed with vitamins, minerals, and fiber. They support eye health, provide immune-boosting antioxidants, and contribute to overall well-being when included in a balanced diet.

Apricots are a nutritious little fruit, containing vitamins A, C, and E, potassium, and several antioxidants. A ½ cup serving provides 755 mcg of potassium or 16%DV.

How it helps

Apricots contain beta-carotene, an antioxidant that the body converts into vitamin A. This helps improve vision, supports the immune system, and maintains healthy skin.

5



Spinach

IMPACT

1 / 5

EVIDENCE

1 / 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 a good source of beta-carotene and other antioxidants. Its high beta-carotene content supports eye health and immune function.

6



Carrots

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate at least one medium-sized carrot (about 61 grams) into your daily diet by either eating it raw, steamed, or as part of salads, soups, and stews to support eye health and provide essential nutrients.

Description

Carrots are a nutritious vegetable known for their high vitamin A content and numerous health benefits. They support eye health, provide essential nutrients, and contribute to a well-rounded diet.

Carrots are an excellent source of vitamin A, as well as biotin, vitamins K1 and B6, potassium, and antioxidants. A ½ cup serving provides 459 mcg of vitamin A or 51%DV.

How it helps

Carrots are rich in beta-carotene, which the body converts into vitamin A. This micronutrient is important for maintaining healthy skin, vision, and immune function.

7



Cantaloupe

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate one serving (approximately one cup of diced fruit) of cantaloupe into your daily diet. You can enjoy this as a part of your breakfast, as a snack between meals, or as a sweet, nutritious dessert.

Description

Cantaloupe is a good source of vitamin A and C, beta-carotene, fiber, folate, potassium, and several other vitamins and minerals.

Cantaloupe is a good source of vitamin C, beta-carotene, fiber, folate, potassium, and a lesser source for many vitamins and minerals. A ½ cup serving provides 29 mg of vitamin C or 32%DV.

How it helps

Cantaloupe is a good source of beta-carotene. When consumed, the body converts beta-carotene into vitamin A, which is crucial for skin, vision, and immune 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.