

Lycopene

Biohacker Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026



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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

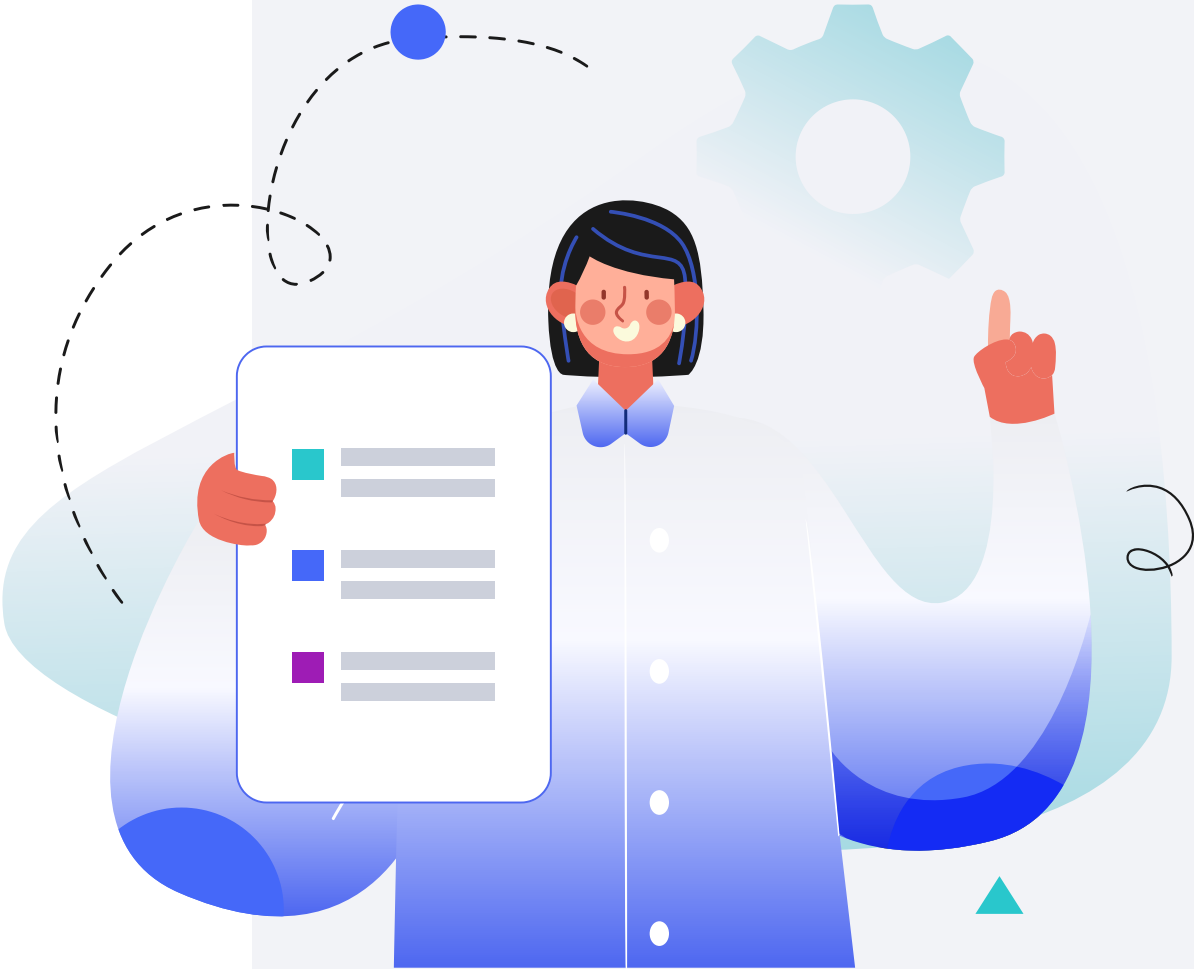
Male

HEIGHT

5ft 5" 165cm

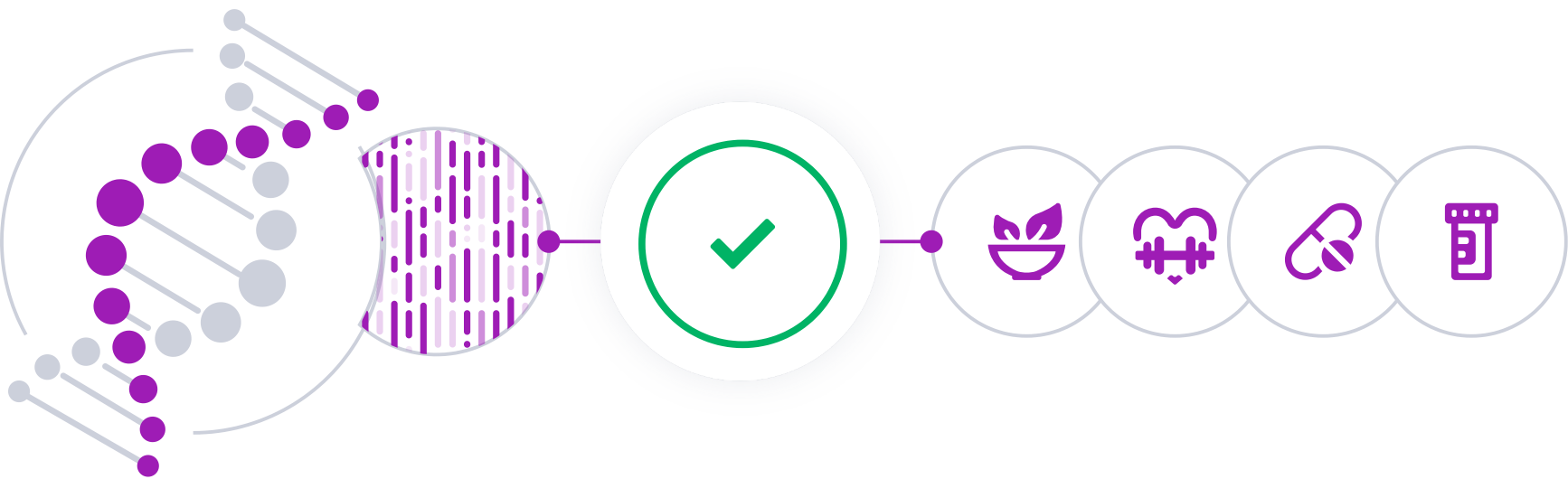
WEIGHT

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.

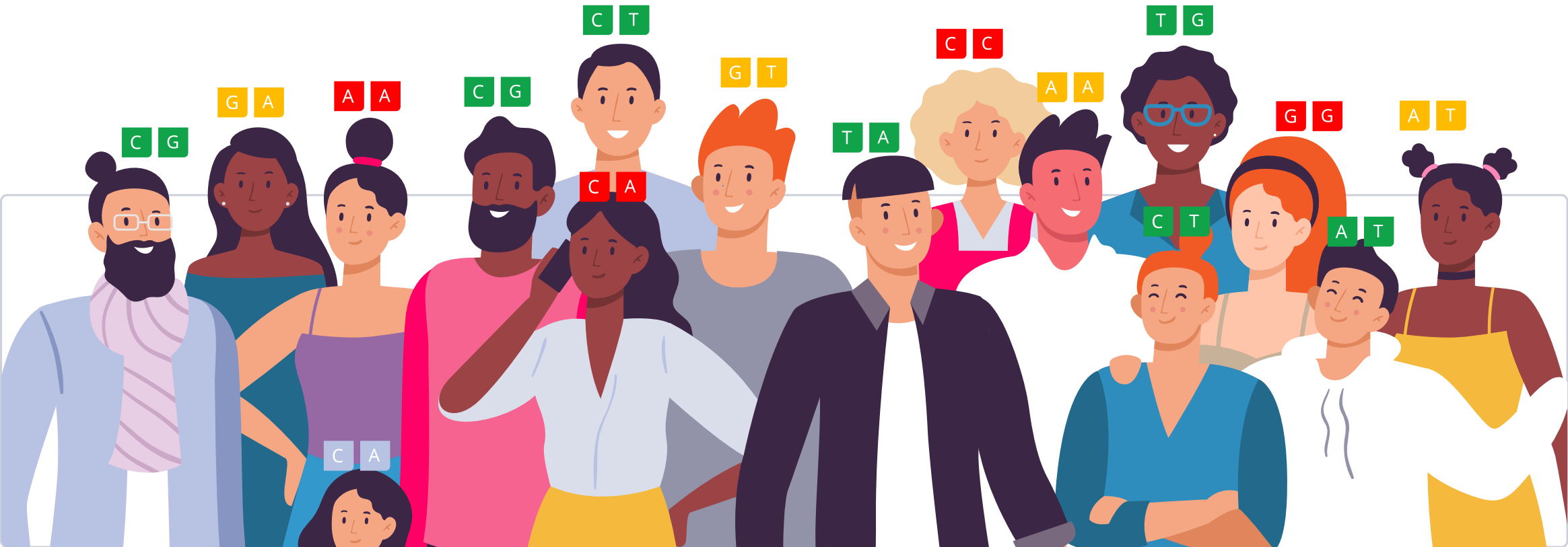


Similarly, our Trait Reports look at how your DNA influences your traits.



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

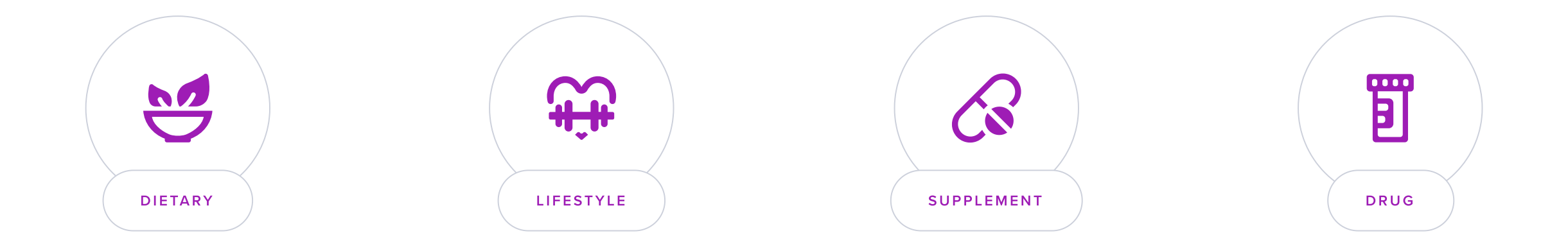
You have 2 risk alleles

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

[Lycopene](#) is a bright red pigment that gives color to a number of fruits and vegetables. Tomatoes are its main food source in Western societies and make up 85% of total lycopene intake [\[R\]](#).

Lycopene belongs to the large family of **carotenoids**, which includes over 600 pigments. The best-known ones are [beta-carotene](#) and lutein. Unlike some other carotenoids, lycopene does not convert to vitamin A in the human body. Its antioxidant properties are believed to help protect cells from damage [\[R\]](#).

Lycopene is found in red and pink fruits and vegetables, including:

- Tomatoes and tomato products (like tomato sauce and paste).
- Watermelon
- Pink grapefruit
- Guava
- Papaya
- Rose hips

The main potential health benefits of lycopene include:

- Antioxidant properties: Lycopene scavenges free radicals, reducing oxidative stress and potentially preventing cellular damage [\[R\]](#).
- Heart health: Research suggests that lycopene may help lower LDL cholesterol levels and blood pressure, and reduce the risk of atherosclerosis and heart attacks [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).
- Cancer prevention: Research indicates a potential link between lycopene intake and a reduced risk of certain cancers, especially prostate cancer. Dietary lycopene may also help prevent breast, throat, stomach, and colon cancer [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).
- Skin protection: Lycopene may help protect the skin from sun damage and improve skin health [\[R\]](#), [\[R\]](#).
- Brain health: Lycopene may improve cognition in older people and help prevent age-related cognitive decline [\[R\]](#), [\[R\]](#).

Factors Affecting Lycopene Levels

A low intake of tomatoes and other food sources is the most common cause of low blood lycopene levels. You can increase them and get the antioxidant benefits with just a pint of tomato juice or about 4 oz of tomato sauce per day. This scenario would give you about 20 mg of lycopene [R].

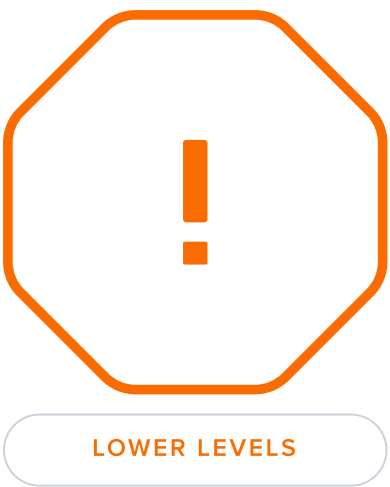
Because lycopene is fat-soluble, consuming it in combination with healthy fats can improve its absorption. In line with this, lycopene from tomatoes is more bioavailable when they are cooked, especially fried. Processed tomato products also tend to have higher lycopene content than fresh tomatoes.

People who don't like or tolerate tomatoes (e.g., those who are allergic to nighthshades) may consider consuming up to 60 mg/day from lycopene supplements to raise their blood levels [R].

Excess lycopene intake may cause **lycopenodermia** or lycopenemia, conditions in which lycopene literally starts turning your skin red like a tomato. It may also cause **digestive upset and pain**. According to clinical reports, you would need to ingest a *lot* of tomatoes regularly to trigger it (e.g. 4-5 tomatoes and tomato sauce daily for 3 years) [R, R, R].

Other factors that may influence lycopene levels include:

- Alcohol intake: Excessive alcohol consumption might impair the absorption of lycopene and other antioxidants.
- Smoking: Smokers tend to have lower blood concentrations of lycopene.
- Environmental factors: Exposure to pollutants and certain chemicals can increase oxidative stress, potentially using up more lycopene in the antioxidant defense process.
- Health conditions: Certain diseases, particularly those affecting digestion and nutrient absorption, can impact lycopene levels. Chronic conditions such as diabetes and heart diseases may alter the metabolism and requirement of lycopene.



LOWER LEVELS

Predisposed to lower lycopene levels based on 5 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
FOLR3	rs341075	AA
SPC25	rs2232315	GG
JAG1	rs6108801	CC
SPRED1	rs4635297	CC
RAB33B	rs7680948	AA

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

- Medications: Some medications such as cholesterol-lowering drugs and some antibiotics may affect lycopene levels.
- Genetics: Certain gene variants may affect the intestinal absorption, metabolism, and bioavailability of lycopene.

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	Dietary Lycopene	2	Lycopene10 mg
3	Watermelon	4	Tomato Extract15 mg
5	Tomato		

1



Dietary Lycopene

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

Incorporate foods rich in lycopene into your daily diet. This includes consuming at least one serving per day of tomatoes, watermelon, grapefruit, or papaya. Considering lycopene is better absorbed when cooked and with a small amount of healthy fats, include dishes like cooked tomato sauce with olive oil in your meals several times a week.

Description

Lycopene is a powerful antioxidant found in tomatoes and other red or pink fruits and vegetables. Consuming lycopene-rich foods may help reduce the risk of chronic diseases and support heart and prostate health.

[Lycopene](#) is a bright red substance that gives color to a number of fruits such as [R](#), [R](#):

- Tomato
- Watermelon
- Papaya
- Apricot

Lycopene has antioxidant properties. It may help support [R](#), [R](#), [R](#):

- Heart health
- Prostate health
- Cognition

How it helps

Increasing your dietary intake of lycopene by eating lycopene-rich foods such as tomatoes or watermelon may raise your blood lycopene levels. Dietary lycopene may be more effective in people with low baseline levels [R](#).

2



Lycopene

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

Take a lycopene supplement of 10 to 30 mg per day. It can be consumed with a fat-containing meal to enhance absorption. This supplementation can be ongoing daily to support overall health benefits such as heart health and antioxidant protection.

TYPICAL STARTING DOSE

10 mg

Description

Lycopene is a powerful antioxidant found in tomatoes and other red or pink fruits and vegetables. Consuming lycopene-rich foods may help reduce the risk of chronic diseases and support heart and prostate health.

[Lycopene](#) is a bright red substance that gives color to a number of fruits such as [\[R\]](#), [\[R\]](#):

- Tomato
- Watermelon
- Papaya
- Apricot

Lycopene has antioxidant properties. It may help support [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart health
- Prostate health
- Cognition

How it helps

Supplementation with lycopene (typically, 10-30 mg/day for 21-84 days) may raise blood lycopene levels. People with low baseline levels may benefit more from supplementation [\[R\]](#).

3



Watermelon

IMPACT2 / 5

EVIDENCE1 / 5

How to implement

Incorporate fresh watermelon into your diet, aiming to consume about 1-2 cups of cubed watermelon daily, either as a snack or part of your meals. It is best consumed fresh to maximize its hydrating effects and nutritional benefits.

Description

Watermelon is a refreshing fruit known for its high water content and being a good source of vitamins A and C. It is used to help stay hydrated and may support skin health due to its antioxidant properties.

How it helps

In a study involving 16 postmenopausal women, participants consumed watermelon juice or a placebo for 4 weeks. While serum lycopene levels increased significantly, there were no significant changes in cognitive function, oxidative stress, or inflammation [\[R\]](#).

In a trial involving 21 healthy postmenopausal women, watermelon juice or a placebo was consumed for four weeks each, with a two-week washout period in between. Circulating lycopene levels increased significantly, but there were no significant changes in arginine, citrulline, or vascular measures [\[R\]](#).

In another study with postmenopausal women, daily consumption of 100% watermelon juice for 4 weeks, providing lycopene, showed significant effects on serum lycopene levels. However, it did not lead to significant improvements in serum lipids or antioxidant capacity [\[R\]](#).

In a 19-week study, lycopene bioavailability from fresh-frozen watermelon juice was tested. Plasma lycopene levels were similar in W-20 (20.1 mg/d lycopene) and W-40 (40.2 mg/d lycopene) treatments, showing bioavailability from both juices. Beta-carotene levels were higher in watermelon treatments than in the controlled diet (C-0) [\[R\]](#).



PERSONALIZED TO YOUR GENES

Drinking watermelon juice may raise blood lycopene levels more in people with your **BCO1** gene variant [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
C16ORF46	rs6564851	TT	

4



Tomato Extract

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a tomato extract supplement in the form of capsules or tablets, usually available in dosages ranging from 15 to 30 mg of lycopene (the active component in tomatoes), once daily with a meal. It's recommended to follow the dosage advice on the supplement's packaging or as directed by a healthcare provider. Continue this regimen daily for at least several weeks to months to potentially see benefits.

TYPICAL STARTING DOSE

15 mg

Description

Tomato extract is derived from tomatoes and is rich in lycopene, a powerful antioxidant. It offers potential health benefits such as reducing the risk of chronic diseases, including heart disease and certain cancers, due to its ability to combat oxidative stress.

How it helps

Tomato extract is rich in lycopene, a powerful antioxidant. Studies have shown that lycopene from tomato extract can help protect cells from damage, reduce inflammation, and support heart health.

5



Tomato

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate fresh or cooked tomatoes into your daily diet. This can be achieved by adding them to salads, sandwiches, pastas, and sauces or simply eating them on their own. Aim for at least one serving (approximately 1 medium-sized tomato or 1/2 cup of chopped or cooked tomatoes) per day.

Description

Tomatoes are a fruit grown widely in numerous varieties, and are rich in vitamins C and K, as well as the antioxidant lycopene, which may contribute to heart health and protect against certain chronic diseases when incorporated into a balanced diet.

Tomato (*Solanum lycopersicum*) is a fruit originally from the Andes in South America. It is usually consumed as a vegetable in juices, sauces, or fresh. Tomato is an important source of [\[R\]](#):

- [Vitamin C](#)
- Potassium
- Antioxidants (e.g., [lycopene](#))
- Vitamin B9 ([folate](#))

Tomato is traditionally used for [\[R\]](#), [\[R\]](#):

- High cholesterol
- High blood pressure

How it helps

Tomatoes are rich in lycopene, a powerful antioxidant that helps protect cells from damage and supports heart health.