

SIRT1 (Longevity)

Gene Report

REPORT CATEGORY —



LONGEVITY

Sample Client

Report date: 15 January 2026

Powered by

 omicsege

Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

09 Your recommendations

15 Next Steps

- 15 Your Lab Results

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

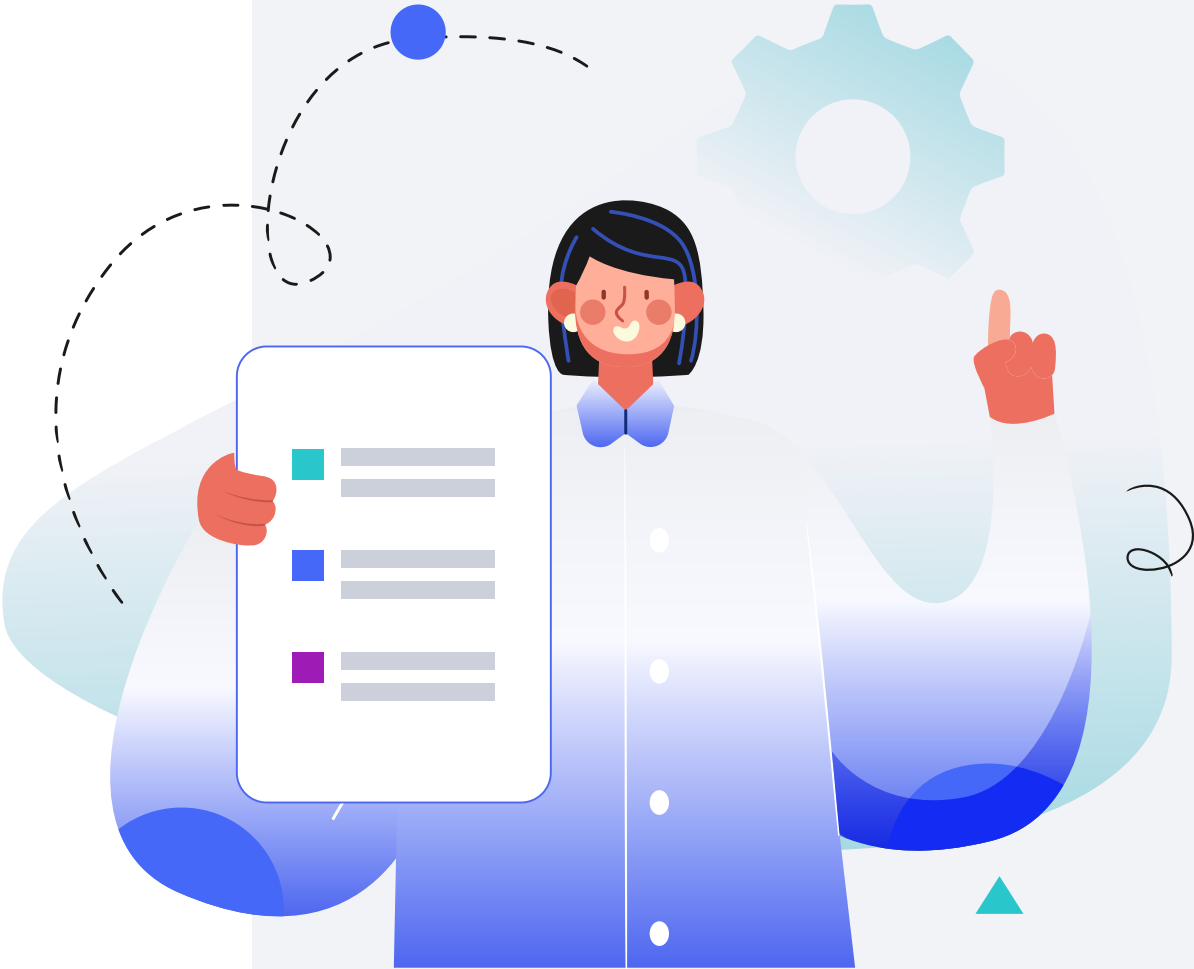
Male

HEIGHT

5ft 5" 165cm

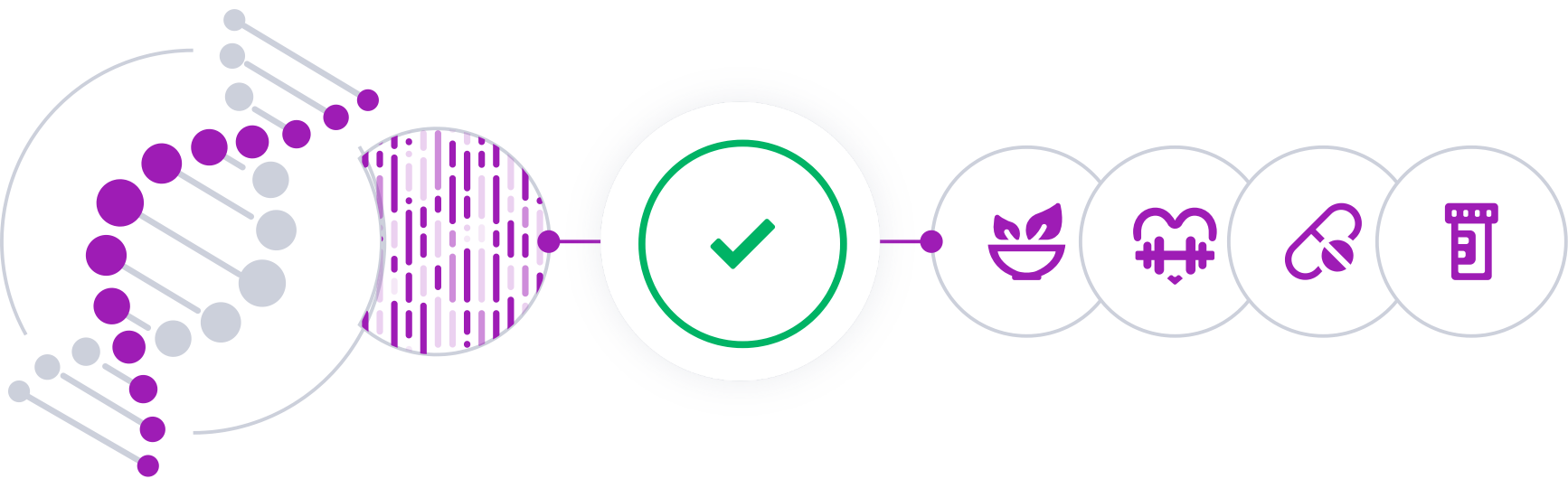
WEIGHT

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.

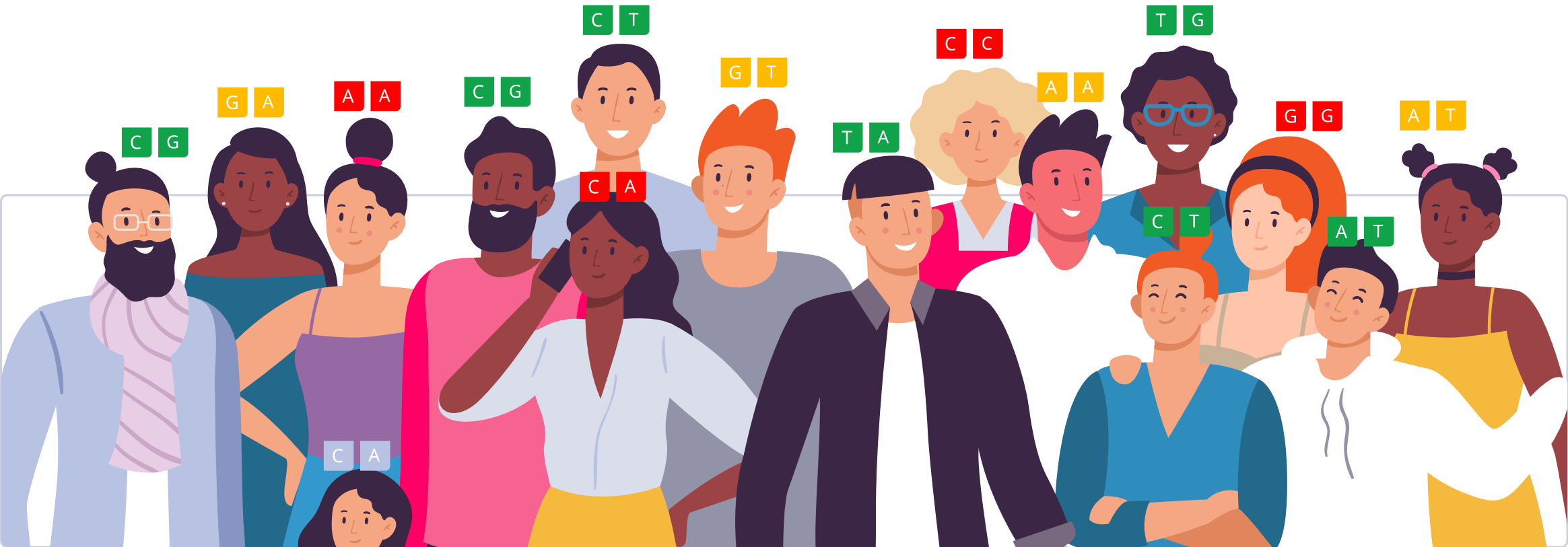


Similarly, our Trait Reports look at how your DNA influences your traits.



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

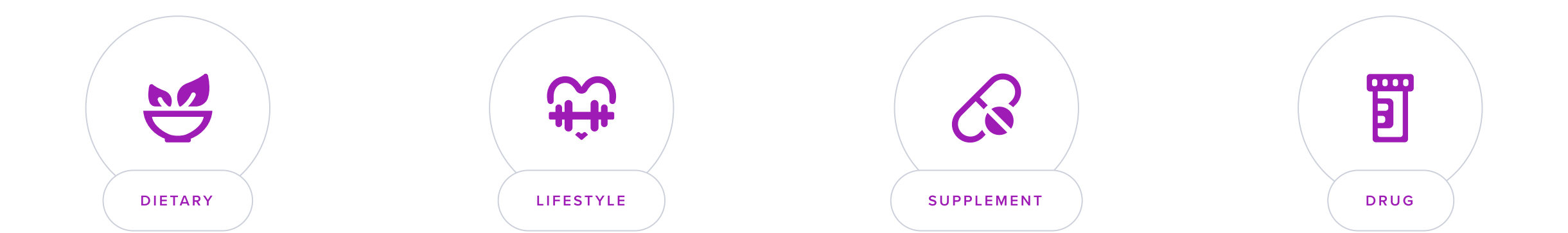
You have 2 risk alleles

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

The [SIRT1](#) gene encodes a sirtuin protein. [Sirtuins](#) are a group of enzymes heavily implicated in aging, cell death, inflammation, mental and physical [stress](#) resistance, and energy metabolism. They regulate and “turn off” other genes, especially those involved in the process of aging [\[R, R, R, R\]](#).

When your cells experience stress, acetyl groups are added to proteins as a response to changes induced by inflammation and oxidation. Sirtuins (like SIRT1) remove these acetyl groups to keep the protein in service longer than usual [\[R, R\]](#).

Many age-related and degenerative diseases are characterized by low sirtuin activity, including [\[R, R\]](#):

- Cancer
- Alzheimer’s disease
- Parkinson’s disease
- Huntington’s disease
- Amyotrophic lateral sclerosis (ALS)
- Kennedy’s disease

Sirtuin activity is also unusually low in chronic inflammation. Some researchers believe that activating the sirtuins—and especially SIRT1—may help manage obesity, atherosclerosis, diabetes, and other inflammatory diseases [\[R\]](#).

Given all of this, it’s not surprising that SIRT1 has been touted as a [longevity gene](#).

The exact mechanism by which SIRT1 affects aging is still under intense investigation. However, we do know a few things [\[R, R\]](#):

- SIRT1 activity (especially in the liver and cardiovascular system) decreases as we age
- [NAD+](#), which is required for SIRT1 function, decreases as we age
- Decreases in NAD+ and SIRT1 coincide with DNA damage and age-related diseases
- When SIRT1 activity is low, the activity of genes associated with aging increases
- SIRT1 activity is closely linked with antioxidant status in the elderly

Together, this paints a picture wherein high SIRT1 activity could prevent age-related DNA damage and disease.

In addition, SIRT1 interacts with some of the best-known longevity genes.

SIRT1 and [FOXO1](#) are both required to activate the antioxidant enzyme [MnSOD](#). On the other hand, FOXO1 can bind to and turn off SIRT1, which is one of the reasons [why FOXO1 should be kept in balance by AMPK](#) [\[R\]](#).

SIRT1 also directly activates [FOXO3](#), perhaps the best-studied human longevity gene. FOXO3 suppresses tumors, promotes [insulin sensitivity](#), repairs DNA, and improves immune function [\[R\]](#).

SIRT1’s relationship with [PON1](#) is more complex. Some researchers believe that SIRT1 and PON1 have similar or overlapping functions, and that the activity of one can compensate for the activity of the other [\[R\]](#).

SIRT1 Genetics

A handful of studies have shown that people with certain *SIRT1* variants are more likely to live very long lives. One of the variations with the strongest effect so far is [rs12778366](#): even one copy of the ‘C’ allele may reduce all-cause mortality risk by as much as 30%. This variant also increases glucose tolerance and is believed to increase SIRT1 levels [\[R\]](#), [\[R\]](#).

Another SNP with a large potential impact on lifespan is [rs7895833](#): the ‘G’ allele here is almost twice as common in older people as it is in the average adult. Carriers of the ‘AA’ genotype have lower levels of this protein [\[R\]](#), [\[R\]](#).

The ‘T’ allele of [rs3758391](#) variant has been associated with reduced cardiovascular mortality and decreased cognitive decline during aging. This variant increases SIRT1 levels [\[R\]](#), [\[R\]](#), [\[R\]](#).

The ‘A’ allele of [rs7896005](#) is more common among longer-lived populations. This variant has been associated with major cardiovascular outcomes such as myocardial infarction, coronary heart disease, heart failure, or peripheral artery disease in people with type 2 diabetes. This variant may have increased affinity for some of its target proteins [\[R\]](#), [\[R\]](#), [\[R\]](#).

Finally, the ‘T’ allele of [rs2273773](#) has been associated with higher blood pressure, blood sugar, and risk of obesity and heart disease. However, carriers of the ‘C’ allele may have higher odds of artery calcification and two studies found no association between this variant and longevity [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).



Likely typical SIRT1 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SIRT1	rs7895833	AA
SIRT1	rs12778366	TC
SIRT1	rs3758391	CT
SIRT1	rs7896005	GA

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	Exercise At Least One Hour a Day	1 hour	
2	Omega-3 (Fish Oil)	2000 mg	
3	Dietary Omega-3 Fatty Acids		
4	Zinc	15 mg	
5	Resveratrol	150 mg	

1



Exercise At Least One Hour a Day

IMPACT

5 / 5

EVIDENCE

5 / 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

Regular [exercise](#) is among the best ways to activate SIRT1 and feel younger for longer. In both rats and humans, exercise directly increases SIRT1 in the liver, muscles, and heart—and both young and elderly people can benefit [\[R\]](#), [\[R\]](#).

A sedentary lifestyle is linked to reduced longevity. For example, spending hours watching TV every day may be harmful [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, **getting more exercise may increase lifespan.** The more people exercise, the more longevity tends to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Both cardio and resistance exercises may help. Some studies suggest that higher intensity exercise may be more beneficial [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, elite athletes tend to live longer [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fortunately, you don't have to be an athlete to benefit from physical activity. Moving more as part of daily living is linked to increased lifespan. Activities that may help include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cycling to work
- Playing recreational sports
- Gardening and yard work
- Walking or hiking

Exercise may help by improving and maintaining physical, heart, and lung performance [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

2



Omega-3 (Fish Oil)

IMPACT

3 / 5

EVIDENCE

3 / 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

The [omega-3](#) fatty acid DHA is one of the best dietary activators of SIRT1. DHA is abundant in oily fish like salmon and anchovies, so include these in your diet if you can [\[R\]](#).

In line with this, supplementation with omega-3 fatty acids (850 - 4,000 g/day for 1-3.5 years) may reduce the risk of death from all-cause death, heart disease, and sudden cardiac death [\[R\]](#), [\[R\]](#).

Please note: *Omega-3s can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking omega-3s* [\[R\]](#).

3



Dietary Omega-3 Fatty Acids

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

[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. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, 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

The [omega-3](#) fatty acid DHA is one of the best dietary activators of SIRT1 [\[R\]](#).

An analysis of 17 studies and over 40,000 people found a 15-18% lower risk of death from all causes in those with the highest blood levels of omega-3 fatty acids (EPA, DHA, and DPA). Other health conditions, such as cancer and heart disease, had similar associations [\[R\]](#).

4



Zinc

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

15 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

[Zinc](#) is an essential mineral. Your body needs it to [\[R\]](#), [\[R\]](#):

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [\[R\]](#).

Adults should get **8-11 mg of zinc** per day [\[R\]](#).

How it helps

[Zinc](#) is required for SIRT1 to function correctly, so it’s important to avoid zinc deficiency [\[R\]](#), [\[R\]](#).

A study following over 143,000 adults aged 40 and older showed that lower dietary zinc intake was linked to a 13% higher risk of dying from any cause and a 42% higher risk of heart disease-related death (for those consuming ≤5.12 mg/day compared to >7.28 mg/day) [\[R\]](#).

5



Resveratrol

IMPACT2 / 5

EVIDENCE1 / 5

How to implement

Take 150-500 mg of resveratrol as a supplement daily, preferably with meals to enhance absorption. This dosage range is based on studies for various health benefits, and it's advised to not exceed 500 mg per day without medical supervision.

TYPICAL STARTING DOSE

150 mg

Description

Resveratrol is a natural compound found in red grapes, red wine, and some berries. It is known for its potential antioxidant properties and its role in promoting heart health.

[Resveratrol](#) is an antioxidant found mainly in [\[R\]](#):

- Berries
- Red grapes
- Red wine
- Peanuts

It’s purported to have anti-inflammatory and antioxidant effects [\[R, R, R\]](#).

How it helps

Resveratrol may improve antioxidant defense and activate [SIRT1](#) [\[R, R\]](#).

Note, however, that resveratrol is a controversial longevity supplement with insufficient evidence of directly increasing lifespan. Talk to your doctor before adding new supplements to your daily routine.

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.