

# OBFC1 (Longevity)

## Gene Report

REPORT CATEGORY —



LONGEVITY

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

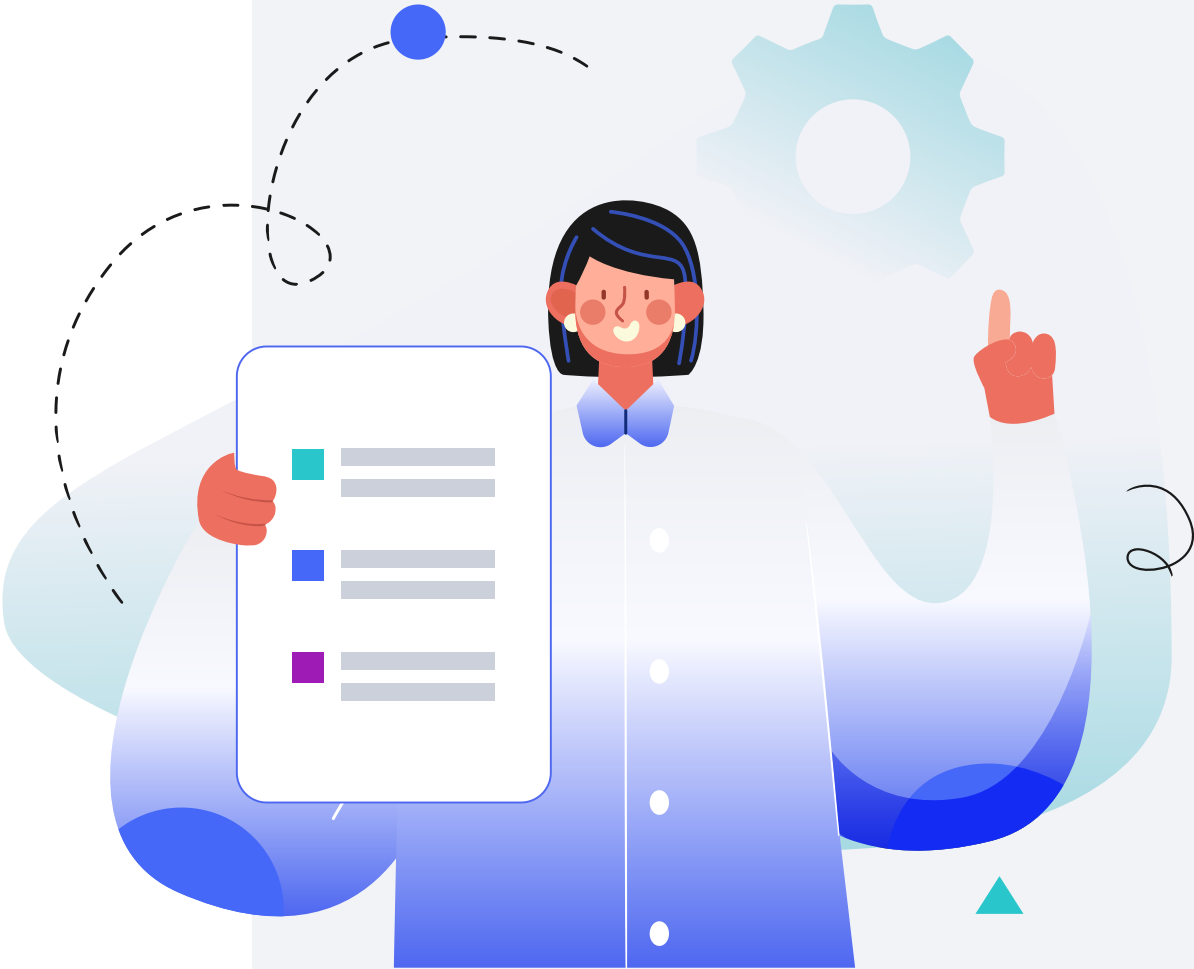
Male

HEIGHT

5ft 5" 165cm

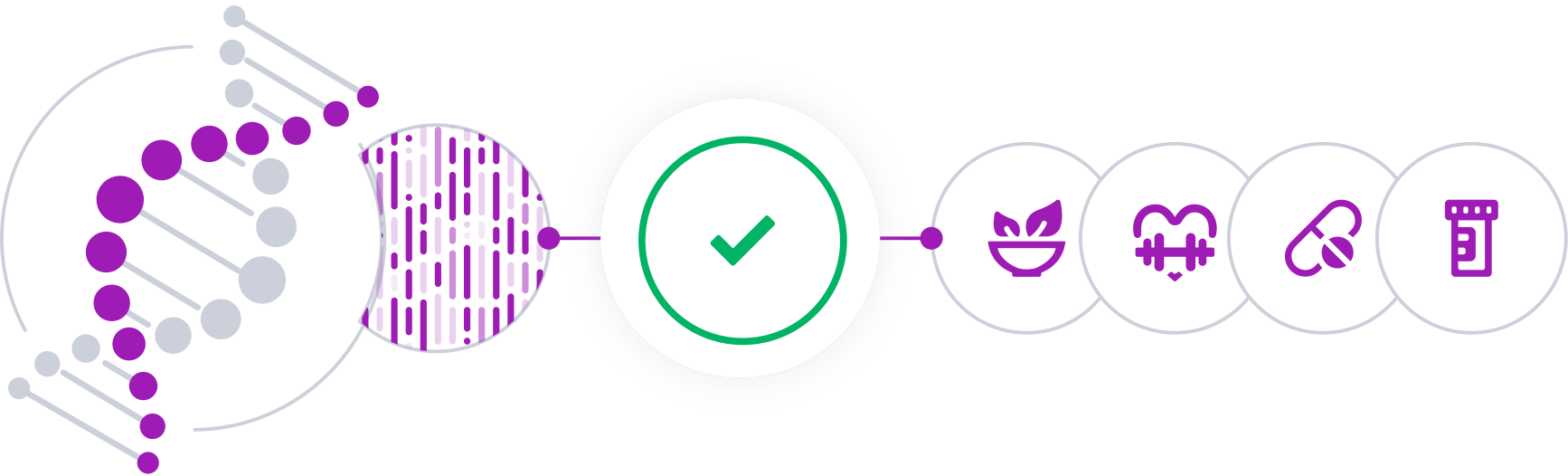
WEIGHT

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.

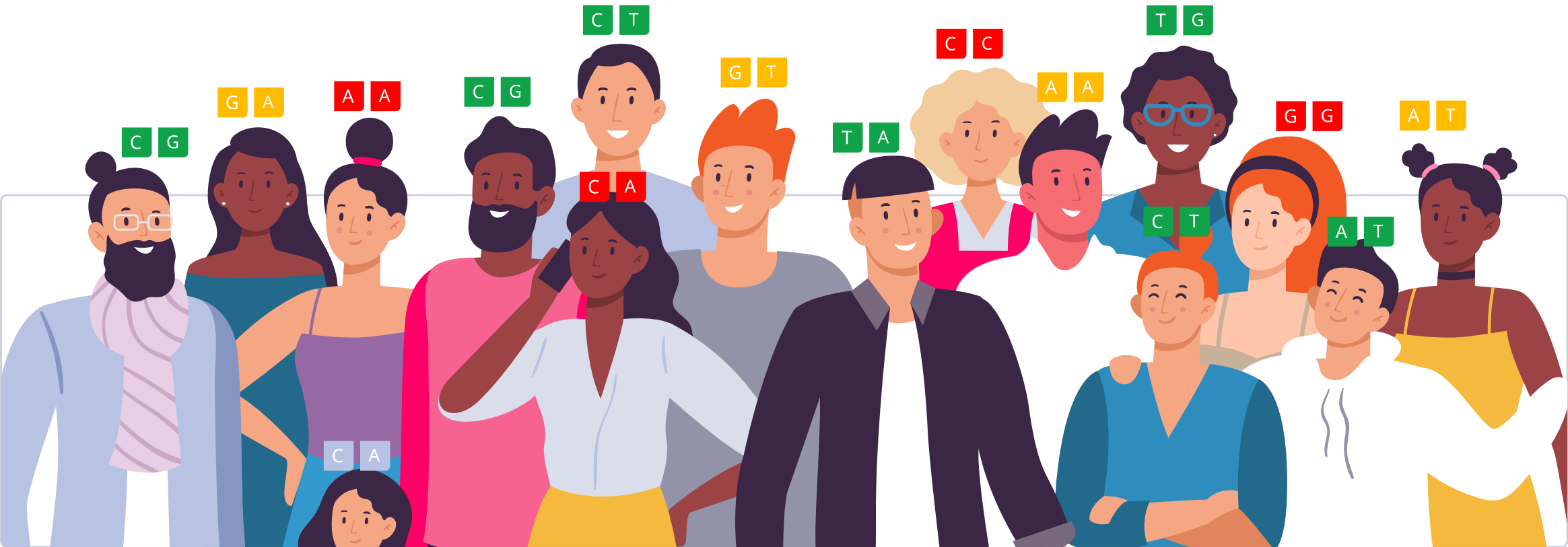


Similarly, our Trait Reports look at how your DNA influences your traits.



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

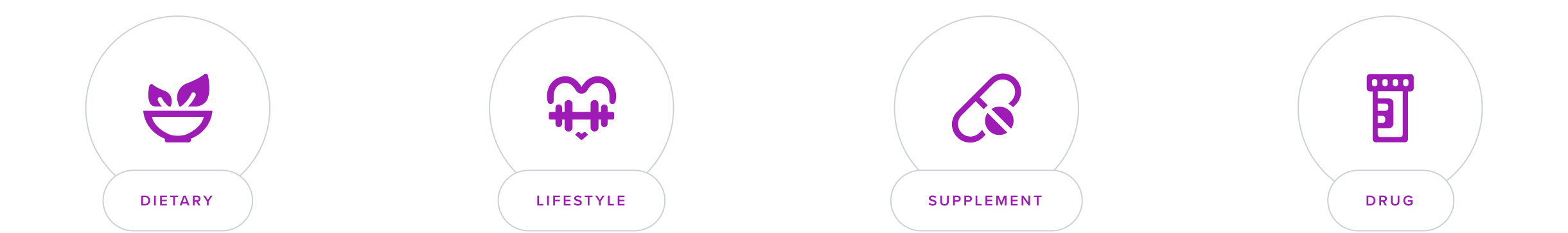
You have 2 risk alleles

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

The *OBFC1* (‘Oligonucleotide/Oligosaccharide-Binding Fold Containing 1’) gene, also known as [STN1](#), codes for one of the proteins that make up the *CST complex*, a structure that helps protect your chromosomes from damage.

The CST complex binds to the ends of telomeres, non-coding segments of DNA that prevent damage during cell reproduction. For a primer on how telomeres work, [check out this post](#) [R].

In summary, each one of your chromosomes has a cap made of non-coding DNA called a telomere. Telomeres are physical barriers between your genes and enzymes that could damage them during cell division. As we age, our telomeres gradually shorten; some researchers have used this fact to imply that people with longer telomeres may live longer lives [R].

The CST complex appears to have two major functions:

- Physically protecting telomeres (and the rest of the chromosome) from damage [R]
- Regulating the telomerase enzyme by both supporting its function & putting a limit on how often it can bind to DNA [R, R]

If this complex isn’t working correctly, the telomeres could shorten too quickly. Some researchers believe that shortened telomeres may contribute to premature aging [R, R, R].

In multiple studies, abnormally short telomeres have been associated with age-related diseases, including [R, R]:

- Coronary heart disease
- Atherosclerosis
- Heart failure
- Heart attack (up to 3 times more common in people with shortened telomeres!) [R]
- Diabetes
- Many cancers
- Osteoporosis



# OBFC1 Genetics and Longevity

The following alleles have been associated with longer telomeres and are more commonly found in very elderly people [\[R\]](#):

- ‘G’ of [rs10786775](#)
- ‘G’ of [rs11191865](#)
- ‘A’ of [rs4387287](#)
- ‘T’ of [rs9419958](#)
- ‘C’ of [rs9420907](#)

Population frequencies of these SNPs vary a lot between ethnic groups. Generally speaking, the long-telomere-associated alleles are much more common in African descendants than in any other group on the planet.

For example, though only 22% of all people have at least one ‘G’ (long telomere) allele at rs10786775, almost 60% of people of African descent do. Likewise, at rs4387287, 16% of all people have the long-telomere-associated ‘AA’ genotype, while 51% of African descendants do!

The reverse is true for European descendants, who tend to have fewer of the long-telomere-associated alleles: at rs4387287, only 2.4% of Europeans have the ‘AA’ genotype.



TYPICAL ACTIVITY

## Likely typical OBFC1 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

| GENE  | SNP        | GENOTYPE |
|-------|------------|----------|
| STN1  | rs10786775 | CC       |
| GSTO1 | rs4387287  | CC       |
| SLK   | rs9419958  | CC       |
| GSTO1 | rs9420907  | AA       |
| STN1  | rs11191865 | AG       |

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      | Aerobic Exercise (Cardio) | 1 hour     | 2 | Exercise At Least One Hour a Day  | 1 hour |
| 3      | Mindfulness Meditation    | 30 minutes | 4 | Mediterranean Diet                |        |
| 5      | Relaxation Techniques     | 30 minutes | 6 | Avoid Exposure To Toxic Chemicals |        |
| 7      | Meditation                | 30 minutes | 8 | Avoid Air Pollution               |        |

1



Aerobic Exercise (Cardio)

IMPACT

4 / 5

EVIDENCE

4 / 5

## How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

## Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.

**Interval training** is a type of cardio that combines periods of high-intensity training with brief rest periods.

## How it helps

**Being physically active is associated with having longer telomeres.** In line with this, elite athletes may have longer telomeres than sedentary people [\[R, R, R, R, R, R\]](#).

Exercise training may help increase telomere length. **Cardio practiced for at least 6 months may be especially effective.** In contrast, strength training may not help increase telomere length [\[R, R, R, R\]](#).

2



Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

4 / 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

**Being physically active is associated with having longer telomeres.** In line with this, elite athletes may have longer telomeres than sedentary people [\[R, R, R, R, R, R\]](#).

Exercise training may help increase telomere length. **Cardio practiced for at least 6 months may be especially effective.** In contrast, strength training may not help increase telomere length [\[R, R, R, R\]](#).

3



Mindfulness Meditation

IMPACT

4 / 5

EVIDENCE

3 / 5

## How to implement

Practice mindfulness meditation for 10-20 minutes daily. Find a quiet, comfortable place to sit or lie down, then focus on your breath, observing thoughts and sensations without judgment. Consistency is key, so try to incorporate it into your daily routine, perhaps in the morning or before bed.

TYPICAL STARTING DOSE

30 minutes

## Description

Mindfulness meditation involves focused attention on the breath or a specific point of focus to cultivate mindfulness and reduce stress. Regular meditation practice is associated with improved mental clarity, emotional regulation, and overall well-being.

## How it helps

Meditation may help increase telomere length [\[R, R\]](#).

**Mindfulness meditation** may be especially effective [\[R, R\]](#).



4



Mediterranean Diet

IMPACT

3 / 5

EVIDENCE

4 / 5

## How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

## Description

The [Mediterranean diet](#) is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats ([olive oil](#)).

The [Mediterranean diet](#) focuses on traditional cuisine from the Mediterranean regions. It’s rich in [\[R\]](#):

- [Olive oil](#)
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [\[R, R, R, R\]](#).

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [\[R\]](#).

## How it helps

**Following the Mediterranean diet is linked to having longer telomeres** [\[R, R, R, R, R\]](#).

In contrast, pro-inflammatory diets high in processed foods and arachidonic acid may shorten telomeres [\[R\]](#).

5



Relaxation Techniques

IMPACT

3 / 5

EVIDENCE

4 / 5

## How to implement

Incorporate relaxation techniques such as deep breathing exercises, meditation, or yoga into your daily routine. Spend at least 15-30 minutes each day practicing one of these techniques, preferably in a quiet, comfortable space without interruptions.

TYPICAL STARTING DOSE

30 minutes

## Description

Relaxation techniques encompass various methods like deep breathing, yoga, meditation, and progressive muscle relaxation, aimed at reducing stress and promoting mental and physical relaxation. Practicing these techniques regularly can help manage stress, improve mental clarity, and enhance overall emotional well-being.

We all get stressed from time to time.

[Stress](#) can help you deal with a challenge or avoid danger. However, **it’s not healthy to be stressed for a long time** [\[R\]](#), [\[R\]](#).

**Relaxation techniques such as [yoga](#) and [meditation](#) can relieve stress in different ways.** Most of them focus on breathing and help you get rid of negative thoughts and emotions [\[R\]](#).

People use relaxation techniques to improve conditions like [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Anxiety
- Depression
- Chronic pain

**Progressive muscle relaxation is another relaxation technique.** In this technique, you focus on tensing and relaxing different parts of your body. It is common to start with the toes and slowly work your way up to the neck and head [\[R\]](#), [\[R\]](#).

**Autogenic training is a relaxation technique** that a person may carry out on their own. It uses exercises that take the mind’s attention to bodily sensations such as warmth and heaviness [\[R\]](#), [\[R\]](#).

## How it helps

**High levels of perceived stress are associated with shorter telomeres** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Stress during childhood may shorten the telomeres even faster [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

**Meditation, especially mindfulness, may increase telomere length** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

6



Avoid Exposure To Toxic Chemicals

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

To implement this recommendation, avoid using plastic containers for heating food in microwaves, choose personal care products that are free from parabens and phthalates, and use natural cleaning products whenever possible. When handling or being near chemicals such as pesticides or heavy-duty cleaners, wear protective gear such as gloves and masks. Try to reduce the use of products with strong chemical scents or aerosols. Aim to make these changes as a permanent part of your lifestyle to minimize toxic chemical exposure.

## Description

Avoiding exposure to toxic chemicals, whether in household products or environmental contaminants, is crucial to prevent potential health issues, including respiratory problems, neurological effects, and long-term health risks.

Toxic chemicals are found everywhere. Short- and long-term exposure to them can be harmful to your health [\[R\]](#), [\[R\]](#), [\[R\]](#).

Short-term exposure may cause [\[R\]](#):

- Skin irritation
- Breathing problems
- Allergic reactions

Long-term exposure may contribute to [\[R\]](#), [\[R\]](#):

- Liver problems
- Reproductive issues
- Hearing loss
- Cancer

Examples of common toxic chemicals include [\[R\]](#), [\[R\]](#):

- Building materials (asbestos, formaldehyde)
- Heavy metals (lead, mercury, cadmium)
- Pesticides and herbicides (organochlorines)
- Industrial chemicals (nitriles, solvents, cleaners)

## How it helps

Exposure to the following chemicals may shorten telomeres [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Pesticides
- BPA
- Heavy metals



7



Meditation

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Set aside 10-20 minutes each day in a quiet space without distractions to practice meditation. Focus on your breath or perform guided meditation using an app or audio track.

TYPICAL STARTING DOSE

30 minutes

## Description

Meditation is a mindfulness practice that can reduce stress, improve mental clarity, and promote relaxation. Regular meditation is associated with numerous mental and emotional health benefits, including reduced anxiety and enhanced emotional well-being.

**Meditation** is a relaxation technique that trains your mind to focus and redirect your thoughts. Some of the main types of meditation are [\[R\]](#):

- Mindfulness
- Focused
- Transcendental
- Mantra
- Moving

People use meditation to improve [\[R\]](#), [\[R\]](#):

- Stress and anxiety
- Mood
- Sleep disturbances
- Pain

## How it helps

Meditation may help increase telomere length [\[R\]](#), [\[R\]](#).

**Mindfulness meditation** may be especially effective [\[R\]](#), [\[R\]](#).

8



Avoid Air Pollution

IMPACT3 / 5

EVIDENCE3 / 5

## How to implement

**Stay indoors** on days when air quality indexes (AQI) indicate high pollution levels, which are often reported by weather services or government environmental agencies. **Install air purifiers** in your home, especially in bedrooms, to reduce indoor pollutants. Limit outdoor exercise when air pollution warnings are issued, opting for indoor activities instead.

## Description

Avoiding air pollution by reducing exposure to pollutants in the environment is essential for respiratory and overall health. It can help lower the risk of respiratory diseases, cardiovascular conditions, and other health issues associated with poor air quality.

**While city life is convenient in a lot of ways, it comes with some health hazards.** Cars, factories, and other sources increase air [pollution](#) <sup>[R]</sup>.

Air pollution plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lung disease
- Heart disease
- Diabetes
- Asthma
- Skin conditions

## How it helps

**Exposure to air pollution may shorten the telomeres.** Air pollutants associated with shorter telomeres include [\[R\]](#), [\[R\]](#):

- PM2.5
- Polychlorinated biphenyls (PCBs)

Babies born to women exposed to high levels of these pollutants may also have shorter telomeres [\[R\]](#).

Tips for lowering exposure to air pollution include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Monitoring air pollution levels regularly
- Using an appropriate face mask when pollution levels are high
- Avoiding outdoor exercise when pollution levels are high
- Cleaning and maintaining air filtration systems
- Not burning wood or trash
- Using protective respiratory equipment at work, if needed

# 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.