SelfDecode™

Longevity

DNA Health Report

REPORT CATEGORY

LONGEVITY

Sample Client

Report date: 15 January 2026

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Personal information

NAME

Sample Client

SEX AT BIRTH

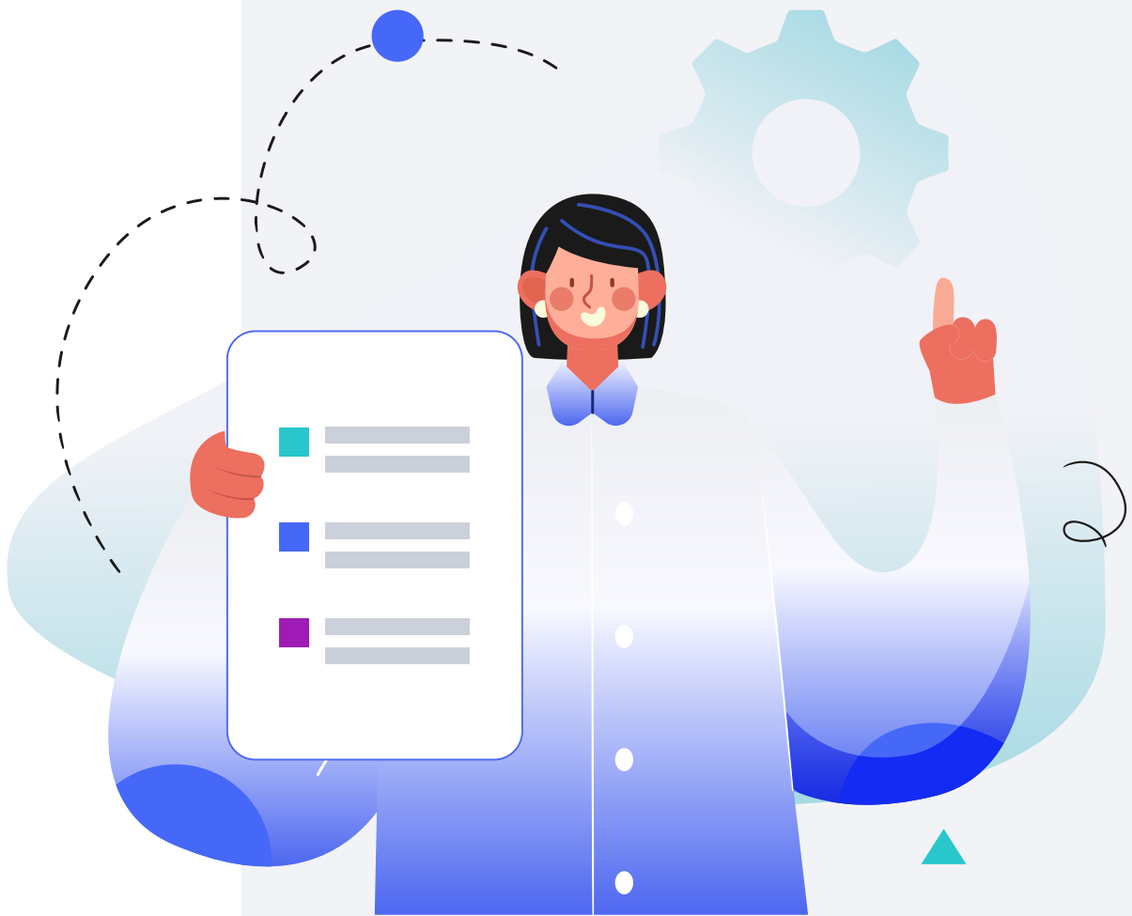
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

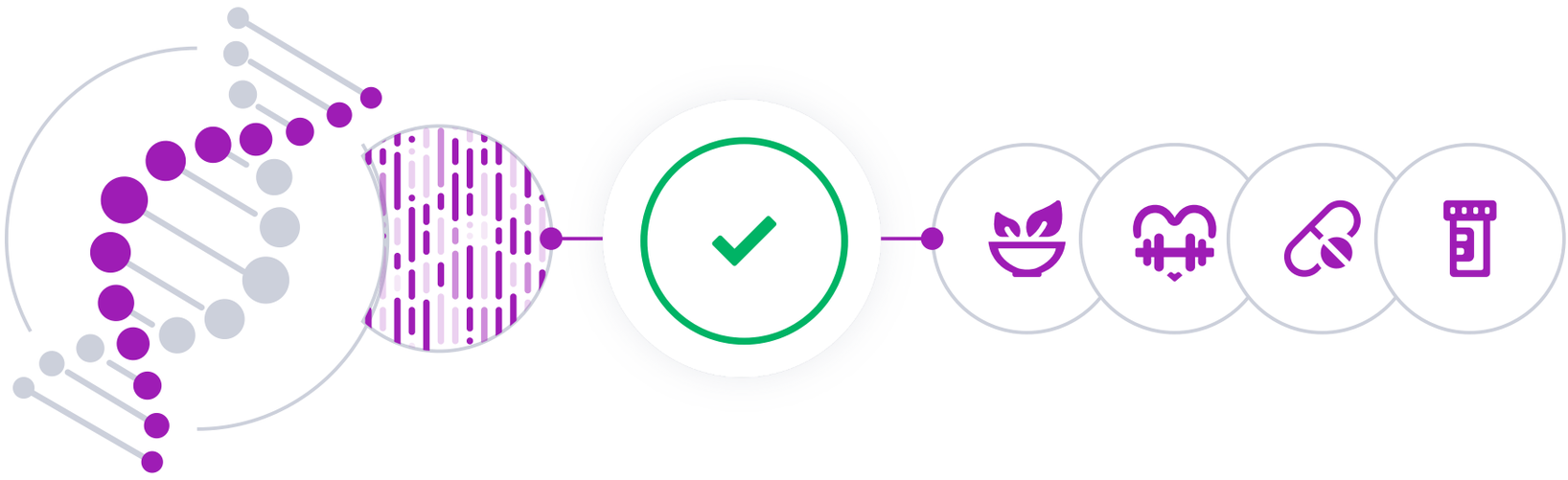


DISCLAIMER

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.

How this works

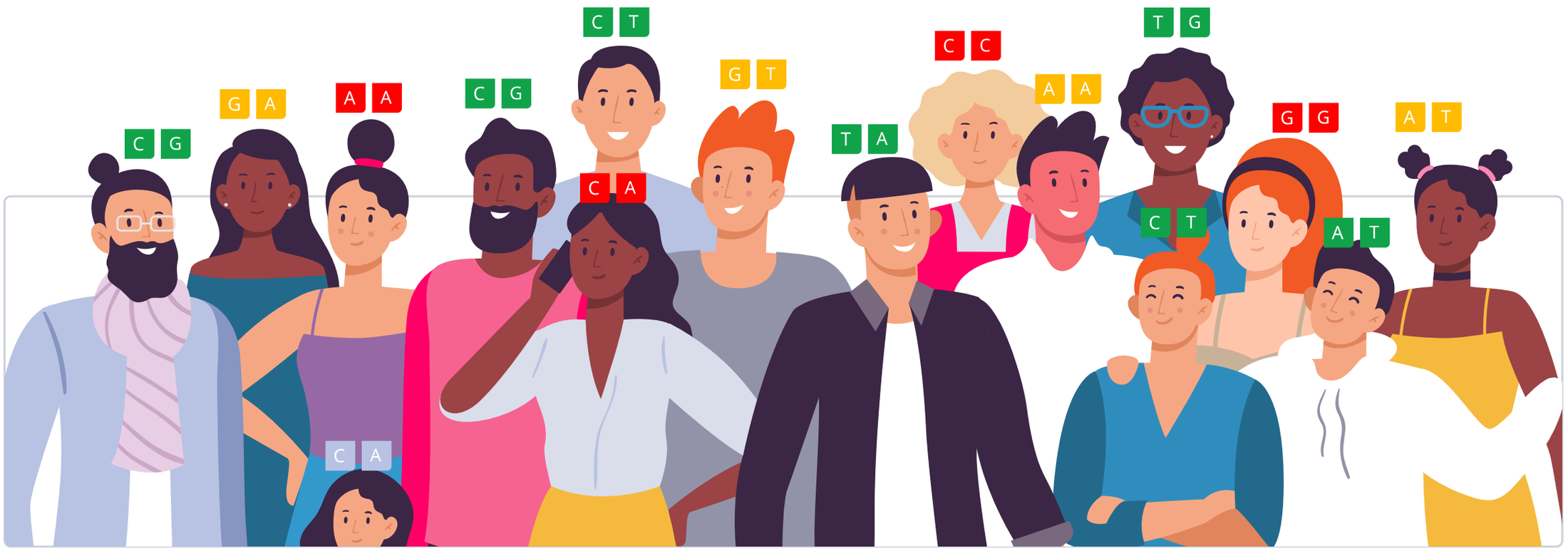
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

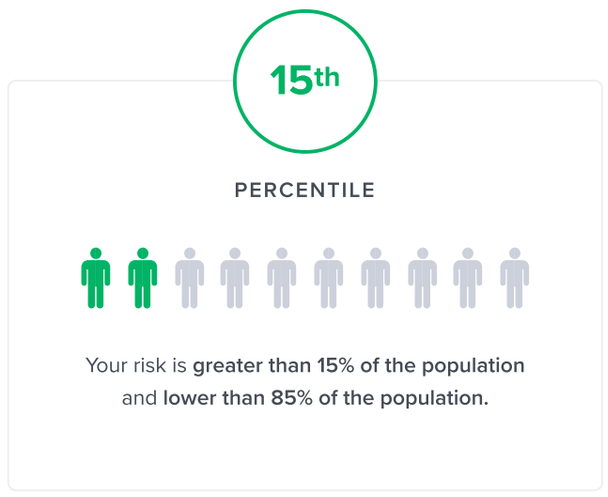
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

In total, we analyze up to 83 million genetic variants.



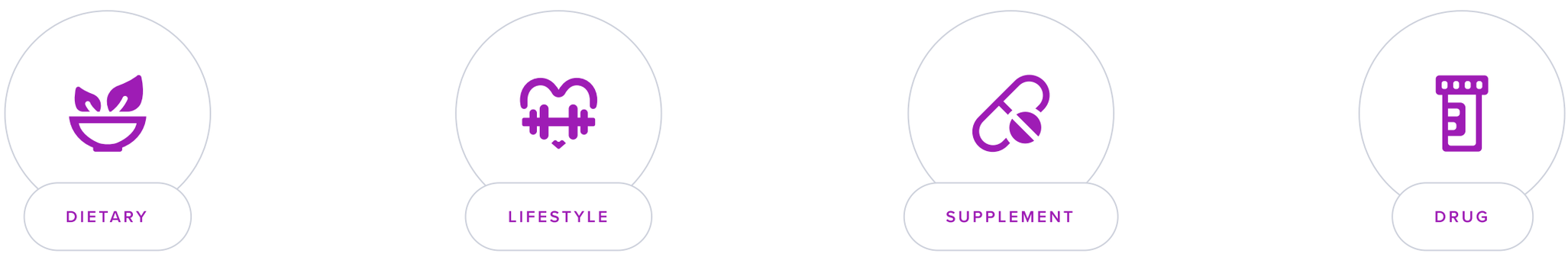
Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

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, afew 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

Have you heard of the “blue zones” where people have been claimed to live exceptionally long and healthy lives? Or watched a documentary that takes you around the world to explore things like cold water exposure and the Mediterranean diet? [R]

Longevity is increasingly talked about and focused on, both in science and our everyday lives. We now have phrases such as “50 is the new 30” or “80 is the new 60.” This reflects a global shift in focus towards **well-being and healthy aging** [R].

Many previously debilitating diseases are now easily treatable or a thing of the past. This frees up scientists and doctors to focus on [R, R, R]:

- **preventing disease** instead of treating them
- **preserving physical and cognitive function** as we age
- **slowing down the aging process**

There is definitely a genetic component at play when it comes to our lifespans. However, the good news is that our lifestyle choices (e.g. diet and exercise) significantly contribute to our odds to “live long and prosper” [R, R].

About Longevity

PERSONALIZED TO GENES

Based on the variants we looked at, you are predisposed to typical longevity. However, lifestyle choices including diet, exercise, stress management, social connections, healthcare access, and avoiding harmful habits have substantial impacts on lifespan.

Researchers have spent a lot of time trying to figure out why some people live exceptionally long lives. One of the answers is genetics.

Our **genes are responsible for anywhere around 25-50% differences in our lifespans**. These genes influence a variety of processes within our bodies including [R, R, R, R, R]:

- Heart and blood vessel function
- Brain function
- Glucose and fat metabolism
- Oxidative stress

For example, the *APOE* gene has a well-known link to longevity. It affects cholesterol transport and plays an important role in brain and heart health. The e4 variant of this gene has been linked to a greater risk of heart disease and dementia and an overall shorter lifespan. However, diet and exercise can mitigate the effect of this allele in carriers [R, R].

There are many things we can do to improve our odds of living longer and healthier lives:

- **Eat a healthy diet:** Most experts agree that a plant-based diet rich in vegetables, fruits, and healthy fats (such as omega-3s) is the way to go. Eating healthy may add up to a decade to your life [R, R, R, R].
- **Be physically active:** Exercising, often referred to as the “longevity drug”, can keep your weight under control, improves your physical and mental health, and can add years to your life [R, R, R, R].
- **Get enough sleep:** Sleep is when our bodies recover and regenerate [R, R, R, R].
- **Stay hydrated:** Drink plenty of water throughout the day. Research suggests that staying hydrated may

TYPICAL

Predisposed to typical longevity based on 7,283,077 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SIRT1	rs7895833	AA
STN1	rs10786775	CC
TERT	rs4449583	CC
ZGPAT	rs755017	AA
TERT	rs2736100	AC
SIRT1	rs12778366	TC
SIRT1	rs7896005	GA
GSTO1	rs9420907	AA
TERT	rs7705526	CA
PCSK7	rs5128	CC
TERT	rs2853677	AG
SIRT1	rs3758391	CT
FOXO3	rs4946936	CC
FOXO3	rs9398171	TT
FOXO3	rs12212067	TT
FOXO3	rs12202234	CC
FOXO3	rs17069665	AA
FOXO3	rs3800230	TT
ARMC2	rs6911407	AA
IGF1R	rs34516635	GG
FOXO3	rs2764264	TT
CETP	rs5882	AG
PON1	rs662	TT
CETP	rs708272	AA
STN1	rs11191865	AG
SIDT2	rs2854116	CT
TAS2R16	rs860170	TT
SOD2	rs4880	GG
TP53	rs1042522	CC
SOD3	rs2536512	AA
FOXO3	rs9400239	CC
FOXO3	rs479744	GG

slow down the aging process [R].

- **Minimize smoking and alcohol consumption:** Both smoking and alcohol increase the risk of certain diseases. If you are a smoker, quitting can add years to our life [R, R, R].
- **Build strong relationships:** Social connections with friends and family can improve your overall health and longevity [R, R, R, R].
- **Manage stress:** Stress has a negative impact on health, accelerates aging and shortens lifespan [R, R, R].
- **Find Purpose:** Engage in hobbies and activities that bring you a sense of purpose and joy [R, R, R].
- **Look on the bright side:** A positive attitude is linked to a longer and healthier life [R, R].

GENE	SNP	GENOTYPE
SIDT2	rs2542052	AC
GHR	rs6873545	CT
SDHAF3	rs799605	GG
TAS2R16	rs978739	TC
TAS2R16	rs6466849	CT
IL1B	rs16944	AG
SLC12A1	rs9920281	GA
IL1A	rs1143623	GC
PARP1	rs1805415	CT
PARP1	rs3219090	TT
SOD3	rs1799895	CC
SOD3	rs13306703	CC
NICN1	rs3448	CT
/	rs9528753	AA
SPATA2L	rs445537	GG
IL1A	rs1143627	GA
/	rs923994	GA
TSPYL6	rs11125529	CC

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
1	Exercise At Least One Hour a Day	1 hour
2	Aerobic Exercise (Cardio)	1 hour
3	Walking	30 minutes
4	Strength Training	1 hour
5	Rapamycin	
6	Avoid Secondhand Smoke	
7	Avoid Exposure To Toxic Chemicals	
8	Cycling	
9	Spend Time in Nature	2 hours
10	Sleep for 7+ Hours	
11	Avoid Pollution	
12	Eat Fiber-Rich Foods	
13	Choose Healthy Fats	
14	Mediterranean Diet	
15	Fish	
16	Avoid PCBs	
17	Avoid Exposure to Solvents	
18	Avoid Sugary Foods & Drinks	
19	Avoid Dioxin	
20	Omega-3 (Fish Oil)	500 mg
21	Dietary Antioxidants	
22	Tea	
23	Extra Virgin Olive Oil (EVOO)	
24	Regular Sleep Schedule	
25	Dietary Calcium	
26	Green Tea	400 mg
27	Avoid Cadmium Exposure	
28	Social Activity	1 hour
29	Avoid Mercury Exposure	
30	Avoid Vitamin E Supplements	
31	Avoid Pesticide Exposure	
32	Avoid Endocrine Disruptors	

33 Avoid Asbestos

34 Fermented Soy Products

35 Fermented Vegetables

36 Avoid Vitamin A Supplements

37 Tai Chi 1 hour

38 Berries

39 Soy

40 Avoid Organochlorine Pesticide Exposure

41 Taurine 500 mg

42 Avoid Air Pollution

43 Dietary Beta-Carotene

44 Selenium Supplements 50 mcg

45 Glucosamine 1500 mg

46 Lycopene 10 mg

47 Drink at Least 8 Glasses of Water a Day

48 Coenzyme Q10 (CoQ10) 100 mg

49 Soy Isoflavones 40 mg

50 Cruciferous Vegetables

51 Leafy Green Vegetables

52 Oats

53 Laughter Therapy 30 minutes

54 Dietary Zinc

55 Limit Calorie Intake

56 Vegetables

57 Fruits

58 Maintain Optimal Vitamin D Levels 1000 iu

59 Pears

60 Mindfulness 30 minutes

61 Avoid Beta-Carotene Supplements

62 Dietary Tryptophan

63 Avoid Arsenic Exposure

64 Avoid Exposure to Heavy Metals

65 Carrots

66 Histidine 500 mg

67 Apples

68 Avoid Lead Exposure

69 Dietary Vitamin E

70 Decaffeinated Coffee

71 Glycine 3 g

72 Avoid Exposure to Parabens

73	Meditation	30 minutes
74	Transcendental Meditation	20 minutes
75	Coenzyme Q10 and Selenium	
76	Ergothioneine	5 mg
77	Avoid PAHs Exposure	
78	Yoga	30 minutes
79	Mushrooms	
80	Dietary Vitamin C	
81	Alpha-Linolenic Acid (ALA)	
82	Avoid Phthalate Exposure	
83	Plasmalogens	
84	SAM-e	400 mg
85	Acarbose	
86	Dietary Valine	
87	L-Threonine	500 mg
88	Relaxation Techniques	30 minutes
89	Canagiflozin	
90	Astaxanthin	12 mg
91	Avoid Iron Supplements (Unless Deficient)	
92	L-Asparagine	
93	Dietary Leucine	
94	Cordyceps	500 mg
95	L-Lysine	1000 mg
96	Meclizine	
97	Dietary Vitamin A	

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

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].

PERSONALIZED TO YOUR GENES

The link between exercise and longevity may be stronger in people with your *FOXO1* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
MRPS31	**rs2755209**	AA	

2

Aerobic Exercise (Cardio)

IMPACT 5 / 5

EVIDENCE 5 / 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

Getting more exercise may increase lifespan. The more people exercise, the more longevity tends to improve. Different aerobic activities are associated with a lower risk of death, including [R, R, R, R, R]:

- Running
- Long-distance cycling
- Walking
- Cycling for commutes

In line with this, athletes, especially endurance athletes, tend to live longer [R, R, R].

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

3

Walking

IMPACT 5 / 5

EVIDENCE 5 / 5

How to implement

Incorporate at least 30 minutes of brisk walking into your daily routine, aiming for a minimum of five days a week. This can be done in one continuous session or broken into shorter periods, such as three 10-minute walks throughout the day.

TYPICAL STARTING DOSE

30 minutes

Description

Walking is a low-impact form of exercise that can contribute to cardiovascular fitness, weight management, and improved overall health. It is used to support physical activity goals, enhance mood, and promote better cardiovascular health.

How it helps

Walking even for a short time may reduce the risk of death from [R, R, R, R].

- Any cause
- Heart disease
- Lung disease
- Cancer

Elderly people with the following conditions may also benefit from walking (at least 1-2 hours/day) [R]:

- Heart disease
- Brain disease
- Cancer

Increasing the amount of walking may increase its benefits. For example, people reaching 12,000 steps/day may get up to 65% reduction in their death risk from any cause [R, R, R, R].

Walking regardless of pace reduces death risk. However, one study showed that brisk walking is better than slow walking [R, R].

4

Strength Training

IMPACT 5 / 5

EVIDENCE 5 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Research involving over 2 million people found that strength training, independent of cardio activities, is associated with a 10–17% lower risk of death from [R, R]:

- Heart disease
- Cancer (e.g., lung cancer)
- Diabetes
- Any cause

Strength training for 30–60 minutes/week may offer the greatest benefits. However, the combination with cardio exercises may further reduce the risk of mortality from all causes, heart disease, and cancer [R].

For example, resistance training alone was linked to a up to 21% lower risk of death from all causes. When combined with cardio activities, it led to a 40% reduction [R].

Exercise may help by increasing the heart power to pump blood [R].

5

Rapamycin

IMPACT 5 / 5

EVIDENCE 0 / 5

How to implement

Rapamycin is typically administered orally in tablet form, though exact dosing and schedules depend on the purpose and individual health factors. For immunosuppressive therapy (such as after organ transplants), rapamycin doses are generally prescribed and closely monitored by a physician to maintain therapeutic levels and minimize side effects. When used off-label for other purposes, such as exploring potential anti-aging benefits, some individuals follow an intermittent dosing schedule (e.g., once weekly) to reduce side effects; however, these uses are experimental and not yet clinically validated.

Description

Rapamycin, also known as sirolimus, is a macrolide compound originally discovered as an antifungal agent and now commonly used to prevent organ transplant rejection. Rapamycin inhibits mTOR (mechanistic target of rapamycin), a protein that regulates cell growth, proliferation, and survival [R].

Beyond immunosuppression, rapamycin has gained attention for its potential to extend lifespan and combat age-related diseases. Some research is exploring its role in treating conditions like cancer, neurodegeneration, and cardiovascular diseases [R].

How it helps

Rapamycin extended lifespan and slowed age-related changes in the heart, liver, adrenal glands, endometrium, and tendons in a study in mice [R].

6

Avoid Secondhand Smoke

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Implementing a smoke-free lifestyle involves communicating your needs to family, friends, and coworkers, requesting they respect your choice by smoking away from you. At home, establish strict no-smoking policies indoors. When out, choose smoke-free venues and accommodations. Advocate for smoke-free environments in your community and support legislation that promotes public health by reducing exposure to secondhand smoke. Utilize air purifiers at home to reduce any residual particles.

Description

Avoiding secondhand smoke is crucial for maintaining good health. Exposure to secondhand smoke can lead to respiratory problems, cardiovascular disease, and an increased risk of lung cancer, even in non-smokers. Protecting oneself from secondhand smoke involves staying away from smoking areas, ensuring smoke-free environments at home and work, and advocating for smoke-free policies in public spaces.

How it helps

Tobacco contributes to chronic health conditions that are linked to reduced longevity. These include lung disease, heart disease, and several types of cancer. In line with this, **smokers may be at a much higher risk of a reduced lifespan**. On average, lifespan may decrease by about **6 years** in people who smoke [R, R, R, R].

Smokeless tobacco products and **exposure to secondhand cigarette smoke** may also reduce longevity [R, R, R].

Quitting smoking at any age may help. Longevity tends to increase gradually as more years pass after quitting [R, R].

7

Avoid Exposure To Toxic Chemicals

IMPACT 4 / 5

EVIDENCE 4 / 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

Abundant research highlights the health risks associated with exposure to toxic substances and chemicals.

In Australia, for instance, hazardous substances in the workplace are believed to result in approximately 2,290 deaths each year, mainly affecting men [R]

In the U.S., contaminated water sources near hazardous waste sites have been tied to a rise in cancer deaths, such as lung, bladder, and gastrointestinal cancers [R].

Exposure to **pesticides**, which could happen in farming areas, may shorten lifespan by about 2.2 to 12 months [R].

Certain **endocrine-disrupting chemicals** are associated with higher rates of death from diseases including heart disease and cancer [R].

People exposed to **asbestos** may face higher cancer mortality risks [R]:

Dioxin exposure has been linked to an increase in mortality from several causes, including soft tissue cancer and heart disease, though not all studies confirm these associations [R, R, R].

Mercury exposure is associated with an increased risk of heart disease and mortality from various causes, including stroke [R].

8

Cycling

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Begin cycling with moderate rides to build up your stamina, targeting 2 to 4 times a week for 30 to 60 minutes per session. Ensure your bicycle is the right size and properly adjusted for your comfort. Safety gear, including helmets, is essential. Mix up your routes for interest and challenge, and consider joining a cycling group for social and motivational benefits. Maintenance of your bicycle will ensure a smooth ride and prolong its life.

Description

Cycling is a low-impact, environmentally friendly exercise that offers significant cardiovascular benefits, muscle strengthening, and flexibility improvement. It's suitable for all fitness levels and can be enjoyed both recreationally and competitively. Cycling promotes weight loss, decreases stress levels, and improves joint mobility. It's also a convenient mode of transportation that encourages outdoor exploration and reduces air pollution.

How it helps

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].

9

Spend Time in Nature

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

Aim to spend at least 120 minutes per week in natural environments, such as parks, forests, or beaches. This can be divided into short durations throughout the week, for example, 17 minutes per day or longer sessions on weekends.

TYPICAL STARTING DOSE

2 hours

Description

Spending time in nature, also known as ecotherapy or forest bathing, is a wellness practice that involves immersing oneself in natural environments. It offers mental and physical health benefits, including reduced stress, improved mood and eye health, healthier weight, and blood sugar control.

Spending over 2 hours in nature every week is linked to better health and well-being [R].

Spending more time in nature or in urban green areas may help support [R, R, R, R, R]:

- Healthy weight
- Blood sugar control
- Heart health
- Mental health
- Eye health

To get in touch with nature, you can [R, R]:

- Go on a walk
- Go biking or camping
- Garden
- Visit a park

How it helps

Spending more time in green spaces is linked to increased longevity [R, R, R, R, R, R].

Spending time in nature may help by [R, R, R, R, R]:

- Encouraging physical activity
- Decreasing exposure to air pollution
- Supporting mental health
- Boosting vitamin D, which supports heart health and immunity

PERSONALIZED TO YOUR GENES

Your *FOXO3* gene variant may be linked to increased longevity. Spending time in green spaces may be more beneficial for longevity in people with this variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
FOXO3	**rs2802292**	GG	

10

Sleep for 7+ Hours

IMPACT 3 / 5

EVIDENCE 5 / 5

How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

Sleep supports your body and mind [R, R]. More precisely, sleep helps:

- Support brain health [R, R]
- Maintain a healthy weight and appetite [R, R, R]
- Regulate blood pressure [R, R]
- Balance blood sugar [R, R]

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that's cool, dark, and quiet

How it helps

Poor sleep is linked to a reduced lifespan. The following may affect longevity:

- **Short sleep duration** (less than 7 hours) [R, R, R, R, R]
- **Night shift work** [R]
- **Long sleep duration** (9 or more hours), including long daytime napping (more than 30-60 minutes a day) [R, R, R, R, R, R, R, R, R]

Having trouble falling or staying asleep (***insomnia***) is also associated with a higher risk. However, one review didn't find a link between insomnia and a reduced lifespan [R, R].

Short sleep duration may reduce lifespan by [R]:

- Increasing appetite and the risk of obesity
- Increasing inflammation
- Impairing blood sugar control

When it comes to long sleep duration, there are no clear mechanisms. Scientists are unsure if long sleep reduces lifespan directly, or if it's just a result of underlying health issues [R, R].

11

Avoid Pollution

IMPACT 3 / 5

EVIDENCE 5 / 5

How to implement

Minimize your exposure to pollution by staying indoors on days when air quality is poor, using air purifiers at home, and avoiding heavy traffic areas whenever possible. Aim to check the air quality index (AQI) daily, especially if you live in urban or industrial areas, and adjust your outdoor activities accordingly.

Description

Urban environments come with some health hazards**.** Cars, factories, and other sources increase air **pollution.** This can play a role in lung and heart disease, diabetes, and allergies. Other forms of pollution like environmental pollutants and noise pollution may also contribue to health problems.

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

Air pollution plays a role in [R, R, R, R, R]:

- Lung disease
- Heart disease
- Diabetes
- Allergies

Other forms of pollution can cause a number of health issues as well. Environmental pollutants, such as mercury and PCBs (polychlorinated biphenyls), may reduce lifespan [R, R].

How it helps

Exposure to air pollution is linked to a reduced lifespan, especially due to heart or lung disease. Breathing polluted air for even a few hours or days may also be harmful [R, R, R, R, R, R, R, R, R, R, R].

Monitoring your local air quality may help reduce your exposure. Levels of air pollutants, such as ozone, tend to be highest in the early afternoon. It may be best to avoid outdoor activities when pollutants are high [R, R].

Environmental pollutants, such as mercury and PCBs, are also linked to a reduced lifespan. They may contribute to heart disease [R, R, R].

Some larger fish—like shark, swordfish, and white tuna—may be higher in these pollutants. When preparing large fish, it may be best to [R, R]:

- Limit portion sizes to 4 oz.
- Trim away fatty areas
- Remove skin before cooking to allow fat to drain off
- Avoid deep frying fish

12

Eat Fiber-Rich Foods

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Incorporate foods high in fiber, such as fruits, vegetables, whole grains, and legumes, into your daily meals. Aim for a total dietary fiber intake of 25 to 30 grams per day, spread out over all meals.

Description

Fiber is a type of carb that your body can't digest which supports digestion, heart health, and blood sugar control. You can get fiber by eating things like whole grains, fruits, nuts, seeds, and leafy greens.

Fiber is a type of carb that your body can't digest. It supports digestion, heart health, blood sugar control, and more [R, R].

Adults should get 28 g of fiber every day. Most people in the US don't get enough fiber [R, R].

You can get more fiber by eating [R, R]:

- Whole grains
- Fruits
- Leafy greens
- Nuts and seeds
- Beans
- Broccoli

Fiber supplements, such as psyllium husk, are available for people who don't get enough fiber from their diets [R, R].

How it helps

Eating more foods rich in fiber is linked to increased longevity. Increasing intake by **10 g/day** may help [R, R, R].

Whole grains are one example of a fiber-rich source that may support longevity. Adding **1-3 servings (30-90 g) per day** may be beneficial [R, R, R, R, R, R].

Fiber may help by [R, R, R]:

- Supporting a healthy weight
- Reducing inflammation
- Improving blood sugar

PERSONALIZED TO YOUR GENES

The CRP gene codes for C-reactive protein, which is produced in response to injury, inflammation, and infection [R, R, R].

Lower CRP levels have been associated with increased longevity. Your genotype has been associated with relatively higher levels of CRP and inflammation [R].

To reduce CRP and inflammation, try eating a diet rich in fiber [R, R].

To learn more about rs1205 and other noteworthy CRP variants that may affect longevity, check out this post on SelfDecode's personalized genetics blog.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
CRP	**rs1205**	CC	●●

13

Choose Healthy Fats

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Incorporate sources of unsaturated fats such as olive oil, avocados, nuts, seeds, and fatty fish into your daily diet. Aim for at least two servings of fatty fish per week and use olive oil for cooking and salad dressings. Replace saturated fats found in red meat, butter, and processed foods with these healthier options whenever possible.

Description

Choosing healthy fats, such as those found in avocados, nuts, and fatty fish, can support cardiovascular health, reduce inflammation, and promote overall well-being. A diet balanced in healthy fats can help manage cholesterol levels and reduce the risk of heart disease.

Based on their structure, the fats in our diet can be broadly divided into *saturated* and *unsaturated* fat. Trans fat is a type of unsaturated fat [R, R, R].

In large amounts, trans fat and saturated fat may have a negative impact on your heart and reproductive health. Processed foods and animal products like red meat and dairy are rich in these fats [R, R, R, R, R].

Some types of unsaturated fat can protect your heart and support fertility. **Experts say you should add more unsaturated fats to your diet**. Some good sources include [R, R, R]:

- Nuts
- Seeds
- Fish

Unsaturated fats include polyunsaturated fats or PUFAs (omega-3 and omega-6) and monounsaturated fats or MUFAs [R, R].

How it helps

Eating a lot of saturated and trans fat is linked to a reduced lifespan. **Try replacing these fats with MUFAs and PUFAs (such as omega-3s)** [R, R, R].

Higher blood levels of omega-3s are linked to increased longevity. Eating more fatty fish may have similar effects. Fatty fish may help by supporting heart health. Fish with high amounts of omega-3s include [R, R, R, R, R, R, R]:

- Salmon
- Cod
- Sardines
- Canned light tuna

Increased intake of fish oil or olive oil may also be beneficial [R, R, R].

14

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 increased longevity [R, R, R].

The Mediterranean diet may help:

- Prevent chronic health problems [R, R]
- Lower inflammation [R]
- Slow cell aging [R, R]

15

Fish

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Incorporate two servings of fish into your diet each week, focusing on oily fish like salmon, mackerel, or sardines for their high omega-3 fatty acid content. Each serving should be about 3.5 ounces cooked, or about ¾ cup of flaked fish.

Description

Fish, particularly fatty fish like salmon and mackerel, is an excellent source of omega-3 fatty acids, which support cardiovascular health, brain function, and inflammation management. Regular consumption of fish can promote heart health and overall well-being.

Fish is a great source of omega-3s, protein, and other essential nutrients. Omega-3s from fish (EPA and DHA) are some of the healthiest fats we can eat. They help reduce inflammation and **protect the heart, brain, and eyes** [R, 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

Research of over 40,000 people revealed that higher levels of omega-3 fatty acids in the blood are linked to a reduced risk of death from all causes, including cancer and heart disease, by as much as 15-26% [R].

In line with this, a higher intake of omega-3s and regular consumption of fish are associated with decreased mortality risks. Specifically, increasing fish intake by 20 g/day may reduce all-cause mortality by 2% and heart disease-related mortality by 4%, while consuming 60 g/day may reduce all-cause mortality by 13.6% [R, R, R, R, R, R].

16

Avoid PCBs

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

To avoid PCBs (Polychlorinated Biphenyls), do not use old electrical equipment manufactured before 1977, avoid consuming fish from contaminated waters, especially larger species such as shark and swordfish which are higher in the food chain, and check for and properly dispose of any old fluorescent lighting fixtures that may contain PCBs. Pay attention to local advisories regarding the safety of locally caught fish and wildlife.

Description

PCBs are toxic chemicals that can cause cancer, reproductive problems, and developmental problems. Avoiding exposure to PCBs is important for protecting your health.

Polychlorinated biphenyls (PCBs) are man-made chemicals. They were used in the industry until their **ban in 1979**. PCBs are considered **persistent organic pollutants** (POPS) due to their slow degradation in the environment. They may also **accumulate** in the food chain and the human body [R, R].

We may be exposed to PCBs through contaminated [R, R]:

- **Food** (e.g., fish, meat, rice)
- Soil
- Air

PCBs may have toxic effects on [R, R]:

- Immunity
- Nervous system
- Reproductive system
- Hormone levels

They may also increase the risk of cancer and reduce lifespan [R, R].

How it helps

Avoiding PCBs, which are toxic industrial chemicals, contributes to longevity by reducing your risk of severe health conditions like cancer and harm to the immune, reproductive, nervous, and endocrine system. Limiting exposure can improve overall health and lifespan.

A meta-analysis of 8 studies and 72,852 participants found **moderate evidence** that exposure to PCBs **increases cardiovascular-specific mortality by 38%** [R].

Another meta-analysis (2 studies and 1803 participants) associated high exposure to PCBs with **increased all-cause, all-cancer, lung cancer, heart disease, and hepatic disease mortality**, as well as with **increased liver cancer mortality only in women** [R].

A study of 633 elders associated PCB exposure with **reduced mortality, but only in those with high fat mass** [R].

Interestingly, a study of 1259 participants found that a **high-quality diet attenuates the harmful effects of PCBs on longevity** [R].

17

Avoid Exposure to Solvents

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Wear protective gloves and masks when using solvent-based products such as paint thinners, degreasers, or nail polish removers. Ensure adequate ventilation by working outdoors or in well-ventilated areas whenever possible. Seek solvent-free or low-VOC (Volatile Organic Compounds) alternatives for household and professional use.

Description

Avoiding exposure to organic solvents, often found in cleaning products and industrial settings, can reduce the risk of potential health issues such as respiratory problems and skin irritation. Implementing safety measures and proper ventilation helps minimize contact with these chemicals.

How it helps

Research of over 13,000 people has shown that workers in industries where they're exposed to solvents may a higher risk of [R, R, R]:

- Blood cancer
- Cervical cancer
- Heart disease
- Mental health issues
- Insomnia
- Neurological issues (e.g., lack of coordination, trembling, painful tingling, unsteadiness, dizziness)

They may also be more likely to commit suicide. Higher solvent concentrations and longer exposure times may increase the risks [R, R].

Studied solvents include [R, R].

- Carbon tetrachloride
- Carbon disulfide
- N-butanol
- Trichlorethylene
- White spirit
- Naphtha
- Organic solvents (e.g., xylene, toluene, trimethylbenzene, and cumene)

People working in the rubber and chemical industry, painters, printers, and mechanics are at special risk [R, R, R].

18

Avoid Sugary Foods & Drinks

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

To avoid sugary foods, eliminate or significantly reduce consumption of foods and beverages high in added sugars such as sodas, candies, baked goods, and sugary cereals from your diet. Instead, opt for natural sugar sources like fruits. Aim to do this daily for ongoing health benefits.

Description

High-sugar foods like baked goods, sweets, and sugary drinks, can spike your blood sugar levels. Consuming a lot of these types of foods can contribute to to health issues like diabetes, obesity, insomnia, and heart disease.

High-sugar foods and refined carbs have a high glycemic index (GI). This means they tend to spike your blood sugar levels. They include [R, R, R]:

- Sugary drinks
- Baked goods
- Sweets
- White bread
- White rice
- Pasta

Eating a lot of sugary foods can contribute to:

- Diabetes [R, R, R]
- Weight gain and obesity [R, R]
- Insomnia [R]
- Heart disease [R]

You may also want to avoid processed sugars and sugary drinks. They may have a role in increasing IL-1B [R, R].

How it helps

People who consume sweetened drinks may have a reduced lifespan. The more drinks consumed, the stronger the impact on longevity. This is true for both sugar-sweetened and artificially sweetened drinks, including [R, R, R]:

- Sodas
- Energy drinks
- Fruit-flavored sports drinks

In line with this, eating a lot of sugary foods has been linked to a reduced lifespan but only in women [R].

Sweetened beverages are linked to reduced longevity due to heart problems. Insulin resistance and increased levels of fat in the blood may be contributing factors [R, R, R, R].

19

Avoid Dioxin

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Reduce consumption of animal fats, since dioxins accumulate in fat tissue. Choose lean cuts of meat, and opt for organic or pasture-raised when possible to minimize exposure. Additionally, avoid burning trash that contains plastic, treated wood, or chlorinated chemicals to prevent dioxin release into the environment.

Description

Avoiding exposure to dioxin, a highly toxic environmental pollutant, can help protect against serious health risks, including cancer and hormonal disruptions. Reducing contact with dioxin-contaminated sources such as certain foods and industrial emissions is essential for long-term health.

How it helps

Dioxin exposure may increase the risk of death from [R, R, R, R, R]:

- Any cause
- Soft tissue cancer

Dioxin exposure may also increase the risk of death from [R]:

- Heart disease
- Stomach ulcers
- Blood cancer
- Lung cancer

However, the evidence is limited and not all studies found these associations [R, R].

Implicated dioxins include [R]:

- Dibenzo-p-dioxins
- Dibenzofurans
- Polychlorinated biphenyls

20

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

500 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

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].

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].

21

Dietary Antioxidants

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Incorporate foods rich in antioxidants, such as fruits (berries, oranges, plums), vegetables (spinach, kale, bell peppers), nuts (walnuts, almonds), and seeds (flaxseeds, chia seeds) into your daily meals. Aim for at least 5 servings of fruits and vegetables per day, ensuring a variety of colors to cover different antioxidants.

Description

Dietary antioxidants are compounds found in foods that help neutralize harmful molecules called free radicals, potentially reducing the risk of oxidative stress-related diseases and supporting overall health. Examples include vitamins C and E, beta-carotene, and polyphenols.

Our cells sometimes produce molecules called **reactive oxygen species (ROS)** [R].

High levels of ROS can cause oxidative stress and damage our cells. Oxidative stress plays a role in many health conditions, including [R]:

- High blood sugar
- Type 2 diabetes
- Heart disease

Antioxidants are substances that help combat ROS [R].

Antioxidants are found in many plants. Good sources include [R, R, R]:

- Fruits like tomatoes, berries, and pomegranates
- Vegetables like onions, spinach, and celery
- Chocolate
- Olive oil
- Wine

How it helps

Higher blood levels of antioxidants are linked to increased longevity [R, R, R, R, R].

In line with this, a higher intake of antioxidants may support a longer life. Antioxidants that may help include **carotenoids**, **vitamin C**, and **flavonoids** [R, R, R, R].

Adding a variety of plant-based foods to your diet is an excellent way to get more antioxidants. High-antioxidant foods include [R, R]:

- Berries
- Sweet potato
- Peppers
- Leafy greens (e.g., kale, spinach)
- Nuts
- Dark chocolate

Antioxidants may help by reducing oxidative stress [R, R].

22

Tea

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Drink 1-3 cups of tea daily, choosing from green, black, or herbal varieties according to preference. It's beneficial to consume tea throughout the day, either hot or cold, for ongoing hydration and health benefits.

Description

Tea is a beverage made by steeping the leaves of the Camellia sinensis plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to polyphenols and other bioactive compounds.

Green and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [R, R].

Tea contains many active compounds. These include antioxidants like EGCG and amino acids like L-theanine. Active components of tea help support [R, R, R, R, R, R]:

- Heart health
- Cognition
- Immunity
- Relaxation

How it helps

People who drink green or black tea may have a longer lifespan. Green tea may have stronger effects. Increasing tea intake by even one cup per day may help [R, R, R].

Tea may help by [R, R]:

- Supporting blood vessel and heart function
- Reducing oxidative stress and inflammation

23

Extra Virgin Olive Oil (EVOO)

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Incorporate 1-2 tablespoons of extra virgin olive oil into your daily diet. Use it as a dressing for salads, vegetables, or incorporate it into cooking, but avoid using it at high temperatures to preserve its health benefits.

Description

Extra virgin olive oil is a high-quality olive oil obtained from the first pressing of olives. It is rich in monounsaturated fats and antioxidants, like polyphenols, and is associated with various health benefits, including heart health and anti-inflammatory properties.

Olive oil is fat from the olive, a traditional tree of the Mediterranean Basin [R].

Olive oil has anti-inflammatory and antioxidant properties. It may also reduce the risk of [R, R]:

- Heart disease
- Diabetes
- Cancer

Olive oil is also the primary fat source in the Mediterranean diet, which may improve brain and heart health [R].

How it helps

A meta-analysis of 32 studies and 841,211 subjects associated the intake of olive oil with 12% reduced all-cause mortality and 13.6% reduced cardiovascular mortality. Olive oil may help by reducing DNA oxidation, as suggested by a 3-week trial of 182 healthy men [R, R].

24

Regular Sleep Schedule

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Go to bed and wake up at the same time every day, even on weekends and holidays. This helps regulate your body's internal clock, leading to better sleep quality. Aim for 7-9 hours of sleep per night.

Description

Maintaining a regular sleep schedule involves going to bed and waking up at consistent times each day. This practice helps regulate the body's internal clock and promotes better sleep quality, mood, and cognitive function.

How it helps

Going late to bed and having an irregular sleep schedule are linked to a more sedentary lifestyle and poorer health outcomes, such as [R]:

- Sleep disturbances
- Insulin resistance
- Low mood

Working night shifts may increase the risk of dying from any cause by 25.3% and from heart disease by about 3% [R].

Establishing a regular sleep routine could mitigate the risks associated with short sleep and the need for naps. Moreover, napping for more than 30-60 minutes daily is linked to a [R, R, R, R, R, R]:

- 15-27% increased risk of dying from any cause
- 19-34% increased risk of dying from heart disease-related issues

25

Dietary Calcium

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Consume 1,000-1,200 mg of calcium daily through dietary sources such as dairy products (milk, yogurt, cheese), green leafy vegetables (kale, broccoli), and fortified foods (orange juice, plant-based milks). Adults under 50 need 1,000 mg per day, while those over 50 should aim for 1,200 mg per day.

Description

Dietary calcium is a mineral found in dairy products, leafy greens, and fortified foods. It is essential for bone health, muscle function, and nerve transmission.

Calcium is the most abundant mineral in the human body. It is vital for the bones, heart, muscles, and nervous system [R].

Your body gets calcium from food and needs vitamin D to help absorb it. Calcium can be found in a variety of foods, including [R]:

- Dairy products
- Green, leafy vegetables
- Fish with edible soft bones (e.g., sardines)
- Calcium-fortified foods and beverages

How it helps

High blood calcium levels may be linked to an increased risk of death and conditions like [R]:

- Heart disease
- Stroke
- Artery hardening

Both too little and too much dietary calcium may increase the risk of dying from heart disease. An intake of around 600-1,250 mg/day, especially around 800 mg/day, may be linked to the lowest risk of death from heart disease. Around 900 mg/day may be linked to the lowest death risk from any cause [R, R, R, R].

26

Green Tea

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

Consume 400 mg of green tea extract daily. This can be taken in the form of capsules or tablets available that specify the amount of green tea extract. Ensure the supplement is taken according to the product's specific instructions, usually once a day with water.

TYPICAL STARTING DOSE

400 mg

Description

Tea is a beverage made by steeping the leaves of the Camellia sinensis plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to antioxidants and other bioactive compounds.

Green and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [R, R].

Tea contains antioxidants called **flavonoids**, which may help prevent [R, R, R, R]:

- Heart disease
- Cancer
- Diabetes

How it helps

Regular consumption of green tea may lower the risk of death from [R, R]:

- All-cause by 25%
- Heart disease by about 50%
- Cancer by 26%

Moreover, each additional cup of green tea consumed daily (about 250 mL, containing 280 mg of flavonoids) may further reduce the risk of dying from these causes by 1.5-5% [R].

These benefits of green tea may be due to its ability to relax and widen blood vessels, improving blood flow [R].

Please note: *polyphenols from green tea may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using green tea* [R].

PERSONALIZED TO YOUR GENES

The CRP gene codes for C-reactive protein, which is produced in response to injury, inflammation, and infection [R, R, R].

Lower CRP levels have been associated with increased longevity. Your genotype has been associated with relatively higher levels of CRP and inflammation [R].

To reduce CRP and inflammation, try consuming coffee or green tea [R, R, R, R, R, R, R, R].

To learn more about rs1205 and other noteworthy CRP variants that may affect longevity, check out this post on SelfDecode's personalized genetics blog.
The TP53 gene codes for p53, a protein that marks damaged DNA to help it get repaired [R].

Your genotype has been associated with somewhat reduced effectiveness of the DNA repair machinery, and therefore potentially decreased longevity [R, R].

To prevent genetic damage and promote DNA repair via p53, consider increasing your intake of epigallocatechin gallate (EGCG), a polyphenol naturally abundant in green tea [R, R, R].

To read more about the influence that the TP53 gene can have on health and longevity, check out this SelfDecode Blog post.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
CRP	**rs1205**	CC	

GENE	SNP	GENOTYPE	EVIDENCE
TP53	**rs1042522**	CC	

27

Avoid Cadmium Exposure

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

To avoid cadmium exposure, refrain from smoking or exposure to secondhand smoke, reduce consumption of foods high in cadmium like shellfish, liver, kidney meats, and certain leafy vegetables, and use ceramic or glass containers instead of plastic when microwaving food. Limit intake of cadmium-contaminated workplace air by using protective gear if you work in battery manufacturing, welding, or metal refining industries.

Description

Avoiding cadmium exposure is essential to prevent potential health risks associated with this heavy metal, such as kidney damage and increased cancer risk. Reducing exposure to cadmium-containing products and contaminated foods is crucial.

Heavy metals are elements naturally found in the environment. They are also used for agricultural, industrial, and medicinal purposes. Some can even be found in small amounts in your body [R, R].

Long-term exposure to high amounts of heavy metals can be harmful to your health [R, R].

Heavy metals that are most often linked to health problems include [R, R]:

- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury

How it helps

A study following 47,279 people for 7.7 years found that cadmium exposure was associated with higher death risk from [R]:

- Any cause
- Cancer

Elevated urinary and blood cadmium levels may be linked to increased heart disease mortality Similar associations were observed in non-smokers. High cadmium exposure correlated with elevated total cholesterol and LDL-C levels and decreased HDL-C levels [R].

In a meta-analysis of 42 studies, cadmium exposure correlated with all-cause, heart disease, and cancer mortality [R].

A study of 26,056 participants associated high blood levels of heavy metals, including cadmium, with 38% higher all-cause mortality, 43% higher heart disease-related mortality, and 41% higher cancer mortality, while high urinary levels were associated with a 48% higher risk of all-cause mortality and 60% higher risk of cancer mortality [R].

28

Social Activity

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

Participate in group activities or gatherings with friends, family, or community members at least twice a week. This could include joining clubs, attending local events, or scheduling regular outings with friends. Aim for these social engagements to last at least an hour each time to foster meaningful connections and conversations.

TYPICAL STARTING DOSE

1 hour

Description

Engaging in social activities, such as spending time with friends and family or participating in group events, can have numerous mental and emotional health benefits. It helps reduce feelings of loneliness, enhances mood, and promotes a sense of belonging and well-being.

Social activities involve physical and mental activities with others that you enjoy and find meaningful. There are plenty of ways to stay socially active and maintain social well-being as you age.

Research has shown that a socially active lifestyle [R]:

- Makes you less likely to develop certain chronic conditions.
- May promote a longer lifespan.
- Can improve mood and mental health.
- Can improve memory and other aspects of cognition.

How it helps

People with infrequent social interactions may have up to 13% higher risk of dying compared to those with more regular contact [R].

A small social network is also associated with a 13-45% shorter survival in elderly people. Contact with at least family members improves survival, while loneliness increases the risk of death by 26% in women and 44% in men [R, R].

29

Avoid Mercury Exposure

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

Limit consumption of large fish such as shark, swordfish, king mackerel, and tilefish, which are known to have higher mercury levels. Opt for smaller fish like salmon, shrimp, pollock, and catfish, and limit seafood intake to 8-12 ounces (two to three servings) per week. Check and follow local advisories regarding the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas.

Description

Avoiding exposure to mercury, a toxic heavy metal found in certain seafood and environmental sources, is essential to prevent adverse health effects, including neurological damage and developmental issues.

Mercury and other heavy metals are found in the soil, water, food, and some commonly-used household products. They adversely affect the environment and living organisms. According to some studies, mercury is considered **the most toxic heavy metal** in the environment [R, R].

A major source of mercury exposure is seafood, especially large fish such as [R]:

- Tuna
- Shark
- Swordfish

How it helps

A systematic review and meta-analysis of 14 studies involving over 34,000 people from 17 countries suggests that mercury exposure is associated with a higher risk of heart disease and death from [R]:

- Any cause
- Heart disease
- Stroke

30

Avoid Vitamin E Supplements

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

Do not purchase or consume vitamin E in supplement form. If you are currently taking vitamin E supplements, consider discontinuing their use.

Description

While vitamin E is an essential nutrient found naturally in various foods like nuts and seeds, supplements should possibly be avoided unless recommended by a healthcare professional, as excessive vitamin E intake can lead to potential adverse effects.

How it helps

The analysis of over 320,000 people revealed that those with the highest levels of alpha-tocopherol (a form of vitamin E) had an 18% lower risk of heart disease-related mortality compared to those with low levels [R].

A meta-analysis of 78 trials with 296,707 people found that antioxidant supplements, including vitamin E, may increase mortality [R].

However, the analysis of 53 randomized trials involving 241,883 people aged 18 to 103 years found that vitamin E intake above the recommended daily allowance (RDA) of 15 mg/day increased the risk of death by 3%. However, not all studies found this association [R, R].

This indicates a need for caution with supplement doses exceeding the Recommended Dietary Allowance (RDA), highlighting the importance of obtaining essential nutrients through a balanced diet instead.

31

Avoid Pesticide Exposure

IMPACT 3 / 5

EVIDENCE 1 / 5

How to implement

Purchase organic produce when possible, wash fruits and vegetables thoroughly under running water, and peel them if not organic. Use natural pest control methods instead of chemical pesticides at home and garden. Limit the use of non-organic lawn and garden chemicals.

Description

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. Reducing pesticide exposure involves choosing organic or pesticide-free foods and using natural pest control methods to limit contact with potentially harmful chemical residues. It supports overall health by reducing the risk of pesticide-related health issues.

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. They are widely used in agriculture to improve crop yields. Common groups of pesticides include:

- Organophosphates (glyphosate, parathion, malathion, chlorpyrifos, diazinon, phosmet)
- Neonicotinoids (imidacloprid, acetamiprid, thiacloprid, clothianidin)
- Pyrethroids (permethrin, alpha-cypermethrin)

Chronic exposure to pesticides has been linked to:

- Fertility problems [R]
- Cognitive problems [R]
- Alzheimer’s and Parkinson’s disease [R, R]
- Thyroid problems [R]
- Obesity [R]
- DNA damage and cancer [R, R, R]

How it helps

Research using U.S death records from 1975-2005 and data from the 1940 census found that men born in areas with high tree crop farming and exposed to pesticides early in life or during their lifetime lived about 2.2-12 months less than others [R].

32

Avoid Endocrine Disruptors

IMPACT 3 / 5

EVIDENCE 1 / 5

How to implement

Minimize exposure to endocrine disruptors by opting for organic foods to reduce pesticide intake, using glass or stainless steel instead of plastic containers for food and beverages, avoiding cosmetics and personal care products with parabens or phthalates, and regularly vacuuming and dusting your home to reduce contact with flame retardants found in household dust.

Description

Avoiding exposure to endocrine disruptors, such as certain chemicals found in plastics and pesticides, is crucial for maintaining hormonal balance and reducing the risk of hormone-related health problems.

Endocrine disruptors are chemicals that interfere with the body's hormone (endocrine) system by [R, R]:

- Blocking the function or activity of hormones
- Mimicking the function of hormones

Based on limited studies, long-term exposure to these chemicals can have negative effects on health [R, R].

Endocrine disruptors can be found in cosmetics, food products, pesticides, and other common household items [R].

How it helps

A study following 47,279 people for 7.7 years found that exposure to endocrine-disrupting chemicals (EDCs) was associated with higher all-cause mortality. Studied EDCs include [R]:

- 1-hydroxynaphthalene
- 2-hydroxynaphthalene
- Cadmium
- Antimony
- Cobalt
- Monobenzyl phthalate

Hydroxynaphthalenes and 2-hydroxyfluorene exposure was also tied to heart disease-related mortality and cadmium exposure to death from cancer [R].

33

Avoid Asbestos

IMPACT 3 / 5

EVIDENCE 1 / 5

How to implement

Check for the presence of asbestos in materials in old buildings, especially those built before the 1980s, before doing any renovations or demolitions. Avoid disturbing materials that might contain asbestos, such as insulation, tiles, and roofing. If asbestos needs to be removed, hire professionals who specialize in asbestos abatement.

Description

Avoiding asbestos exposure is critical to prevent the development of asbestos-related diseases such as mesothelioma and lung cancer. Asbestos is a known carcinogen found in some construction materials and should be handled with extreme care or avoided altogether.

How it helps

A study followed workers of a non-ferrous metal smelter in France for 34.8 years and found that asbestos exposure was linked to higher cancer mortality and specific risks for [R]:

- Lip-oral cavity-pharynx cancer
- Lung cancers

34

Fermented Soy Products

IMPACT 3 / 5

EVIDENCE 1 / 5

Description

Fermented soy products are traditional foods made through fermenting soybeans, a process that involves the action of microorganisms like bacteria and yeast. This fermentation transforms the soybeans into various forms with distinctive flavors, textures, and nutritional profiles, including [R]:

- Tempeh
- Miso
- Natto
- Tofu
- Douchi
- Sufu

Fermentation not only enhances the shelf life of these products but also alters their nutritional components, making them more digestible and increasing the bioavailability of their nutrients.
Fermented soy products may help [R, R]:

- Improved digestive health
- Reduce inflammation
- Lower blood sugar and cholesterol
- Provide vitamins, minerals, and phytoestrogens

How it helps

In a Japanese study following 92,915 adults aged 45 to 74 for almost 15 years, those who consumed fermented soy products (like natto and miso) had a 10-11% lower risk of death. Natto consumption may also reduce heart disease-related mortality [R].

35

Fermented Vegetables

IMPACT 3 / 5

EVIDENCE 1 / 5

Description

Fermented vegetables are produced through the process of lacto-fermentation, where natural bacteria feed on the sugar and starch in the food, creating lactic acid. This process not only preserves the vegetables, enhancing their shelf life, but also creates beneficial [R, R]:

- Enzymes
- B vitamins
- Omega-3 fatty acids
- Probiotics

The transformation of the vegetables results in a product that is tangy, slightly sour in taste, and often has a crunchy texture.

Consuming fermented vegetables may [R]:

- Improved digestive health
- Boosted immunity
- Increased nutrient absorption

How it helps

A study exploring the link between diet and COVID-19 mortality in Europe found that an increase in fermented vegetable consumption (1g/day) was associated with a 35.4% lower COVID-19 mortality [R].

36

Avoid Vitamin A Supplements

IMPACT 3 / 5

EVIDENCE 1 / 5

Description

Vitamin A is a fat-soluble vitamin essential for various bodily functions, including vision, immune system support, and skin health. It is found in foods like carrots, sweet potatoes, and spinach and is important for maintaining overall health.

Vitamin A is a nutrient important for [R, R]:

- Vision
- Immunity
- Gut health
- Skin health

Foods rich in vitamin A include [R]:

- Beef liver
- Sweet potato
- Spinach
- Carrots
- Cheese

Vitamin A is also available in supplement form.

Women should be getting 700 micrograms of vitamin A per day, while men should be getting 900 micrograms [R].

How it helps

The analysis of 53 randomized trials involving 241,883 people aged 18 to 103 years found that vitamin A was associated with increased mortality [R].

This indicates a need for caution with supplement doses exceeding the Recommended Dietary Allowance (RDA), highlighting the importance of obtaining essential nutrients through a balanced diet instead.

37

Tai Chi

IMPACT 2 / 5

EVIDENCE 3 / 5

How to implement

Practice Tai Chi for 30 to 60 minutes at least twice a week. Choose a quiet, spacious area and follow along with a qualified instructor, either in person at a class or through an online video tutorial, to ensure proper technique and maximum benefit.

TYPICAL STARTING DOSE

1 hour

Description

Tai Chi is a traditional Chinese mind-body practice involving slow, flowing movements and deep breathing. It is known for its potential to reduce stress, improve balance, and enhance overall physical and mental well-being.

Tai chi involves gentle movements and breathing to strengthen and relax the mind and body. Practicing tai chi may help [R, R, R]:

- Manage pain
- Improve fitness
- Increase well-being
- Improve sleep and mood

How it helps

A study followed over 60,000 Chinese men for more than 5 years and found that regular Tai Chi practice was associated with a 20% lower risk of death from [R]:

- Any cause
- Heart disease
- Cancer

Tai Chi may offer slightly smaller benefits than regular walking (23%) and jogging (27%) [R].

Tai Chi (at least once a week) practice may also help improve physical and cognitive functions in the elderly, such as [R]:

- Blood pressure
- Weight
- Heart and lung function

This may reduce the risks of [R]:

- Poor physical quality of life by 30%
- Becoming prefrail or frail by 60%
- Experiencing a decline in mental quality of life by 30%

Tai Chi may also benefit elderly people with obesity [R].

38

Berries

IMPACT 2 / 5

EVIDENCE 3 / 5

How to implement

Incorporate a variety of berries such as strawberries, blueberries, raspberries, and blackberries into your daily diet. Aim for at least one cup of fresh or frozen berries every day, either as a snack, part of your breakfast (such as in oatmeal or yogurt), or as a dessert.

Description

Berries, such as strawberries, blueberries, and raspberries, are packed with antioxidants, vitamins, and fiber. Regular consumption of berries may support heart health, improve cognitive function, and contribute to overall well-being.

How it helps

According to a study of 37,232 people, eating berries, rich in flavonoids, is linked to a 14-31% lower mortality risk. Studied berries include [R]:

- Strawberries
- Blueberries
- Cranberries

Cranberry consumption may offer the greatest benefit. Eating berries may also lower the risk of death from heart and lung disease [R].

39

Soy

IMPACT 2 / 5

EVIDENCE 3 / 5

How to implement

Incorporate soy-based products such as tofu, soy milk, and edamame into your daily diet. Aim for at least one serving per day, equivalent to about a cup of soy milk, a half-cup of cooked soybeans, or a 3-ounce piece of tofu.

Description

Soy is a legume native to East Asia, and its health benefits include being a source of plant-based protein, fiber, and various vitamins and minerals. It is known for its potential to support heart health, reduce cholesterol levels, and provide essential nutrients in vegetarian and vegan diets.

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]:

- Soy beverages
- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

A comprehensive analysis of 23 studies involving over 330,000 people revealed that soy consumption is linked to a lower risk of death from cancers and heart disease. Specifically, diets high in soy isoflavones were associated with a 10% reduction in all-cause mortality risk. Moreover, each 10-mg/day increase in soy isoflavones intake correlated with a reduced risk of cancer mortality Soy protein intake lowered the risk of dying from breast cancer [R].

40

Avoid Organochlorine Pesticide Exposure

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Minimize exposure by choosing organic fruits and vegetables, thoroughly washing produce before consumption, and avoiding areas where organochlorine pesticides are applied. Consider using air purifiers in homes close to agricultural areas to reduce indoor pesticide levels.

Description

Reducing organochlorine pesticide exposure involves minimizing contact with pesticides like DDT, which can accumulate in the body and potentially lead to adverse health effects, including disruption of hormonal functions and carcinogenicity.

How it helps

Reducing organochlorine pesticide exposure can help boost longevity by lessening potential toxic impacts on your body's cells and overall health. These pesticides can cause cellular damage, contribute to diseases such as cancer, and overall hasten the aging process.

A study of 1428 participants associated **beta-hexachlorocyclohexane exposure with higher risk of all-cause mortality**, while **oxychlordane, p,p'-DDE, trans-nonachlor, and beta-hexachlorocyclohexane were associated with increased risk of other-cause mortality** [R].

A study of 633 elders associated organochlorine exposure with **increased total and cardiovascular mortality, but only in those with low-fat mass** [R].

41

Taurine

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 1-4 g of taurine supplement daily, divided into two or three doses with meals for optimal absorption. It can be taken continuously, with periodic evaluations of its effects and benefits.

TYPICAL STARTING DOSE

500 mg

Description

Taurine is an amino acid found in various foods and often used in energy drinks and supplements. It plays a role in neurological and cardiovascular health and can help support energy metabolism.

Taurine is the most abundant free amino acid in humans. It's not essential, which means we can produce it. We can also get it from protein-rich foods, such as [R]:

- Seafood
- Meat
- Dairy

Taurine is a popular additive in energy drinks and can also be taken as a supplement [R].

Taurine plays an important role in [R, R]:

- Bile production
- Calcium metabolism

It is also well-known for its antioxidant and anti-inflammatory properties [R].

How it helps

Taurine deficiency has been associated with many age-related diseases. Studies in animals have found beneficial effects of this amino acid on cellular and metabolic function [R, R].

In line with this, a study of 61 populations in 25 countries found an inverse association between taurine levels and mortality from ischemic heart disease [R].

The aging population presents a significant global health challenge, with conditions like frailty and chronic diseases such as diabetes and heart disease becoming increasingly prevalent. Accelerated biological aging, where an individual's biological age surpasses their chronological age, exacerbates these issues. Mechanisms such as increased DNA methylation, somatic mutations, mitochondrial dysfunction, and endoplasmic reticulum stress contribute to this phenomenon. Taurine, recognized for its potential to improve metabolic and cellular health in animal studies, holds promise as a "longevity amino acid." However, adequately powered randomized controlled trials are needed to confirm its efficacy in improving metabolic health and biological age in humans [R].

42

Avoid Air Pollution

IMPACT 2 / 5

EVIDENCE 2 / 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** [R].

Air pollution plays a role in [R, R, R, R, R]:

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

How it helps

Airborne particles pose a significant mortality risk (6% higher risk for every additional 100 µg/m^3). Seasonal patterns and climate don't explain it [R].

In Switzerland, 14,000 YLL (years of life lost) were due to air pollution, and 6,000 YLL from chronic noise in 2010. Air pollution was linked to 8,700 hospital days, while noise accounted for 22,500 [R].

A systematic review and meta-analysis of 19 studies indicated that increases in PM2.5, PM10, SO2 and NO2 were associated with 1.99-5.84 years increase in YLL from non-accidental diseases. The increase in YLL to cardiovascular disease was associated with PM10 and NO2, and the increase in YLL to respiratory diseases was associated with PM10 [R].

A Japanese study found that the cardiovascular mortality risk linked to pollution declined linearly over time while non-accidental and respiratory mortality risk has recently increased [R].

A meta-analysis linked air pollution and mortality. PM10, CO, NO2, O3, and SO2 showed varying excess mortality risks. PM10 and SO2 remained significant after adjustment. Ozone was associated with mortality, especially cardiovascular and respiratory [R, R].

43

Dietary Beta-Carotene

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Incorporate foods rich in beta-carotene into your diet daily. These include carrots, sweet potatoes, spinach, kale, and cantaloupe. Aim for at least one serving of these vegetables or fruits at each meal to ensure an adequate intake of beta-carotene.

Description

Beta-carotene is a type of dietary antioxidant and a precursor to vitamin A. It supports healthy vision, skin, and immune function, and may reduce the risk of certain diseases.

Beta-carotene is a plant-derived golden-yellow carotenoid pigment. In addition to its antioxidant activity, **beta-carotene is converted to vitamin A in the body**. Beta-carotene **contributes about 30-35% of the dietary intake of this vitamin** in western countries. In developing countries, it represents the most abundant, and sometimes the sole source of vitamin A [R, R, R]

Good sources of beta-carotene include [R, R, R]:

- Fruits (apricots, peaches, persimmons, melons, citrus, tomatoes, etc.)
- Green vegetables (spinach, broccoli, parsley, collard greens)
- Orange tuber vegetables (carrots, sweet potatoes)

How it helps

An analysis of almost 500,000 people revealed that those with the highest levels of beta-carotene had a 32% lower risk of heart disease-related mortality and a 31% lower risk of death from any cause compared to those with low levels [R, R].

In line with this, research on 174,067 people showed that people who ate the most beta-carotene had a 17% lower risk of dying from any reason compared to those who ate the least [R].

Please note: *While dietary beta-carotene is generally considered safe, beta-carotene supplements have been linked to heart disease and cancer, especially lung cancer. These links may be stronger in smokers. Make sure to consult your doctor before taking beta-carotene supplements* [R, R, R, R, R, R].

44

Selenium Supplements

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 50 mcg of selenium supplements once daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

50 mcg

Description

Selenium is a trace mineral found in Brazil nuts and many other foods as well as supplements. It is an essential nutrient that plays a crucial role in maintaining the body's antioxidant defenses and supporting thyroid function.

Selenium supports [R]:

- Reproduction
- Thyroid function
- DNA production
- Immune response

Adults should be getting **55 micrograms** of selenium per day. Selenium supplements are available for people who can't meet their needs with a balanced diet [R].

How it helps

Research of over 25,000 people associated low selenium levels with up to 36% higher risk of death from all-cause and heart disease [R].

In line with this, adding selenium (up to 50 mcg/day) to antioxidant supplements may reduce all-cause mortality by 11% and heart disease-related mortality by 30% [R].

Interestingly, a study of Swedish elderly with low selenium levels found that 42 months of selenium and coenzyme Q10 supplementation prevented telomere shortening [R].

45

Glucosamine

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take glucosamine as a dietary supplement, commonly available in capsules or liquid form. The standard dose is 1500 mg per day, which can be taken all at once or divided into multiple doses throughout the day. It's often recommended to continue taking glucosamine for at least 3 to 4 months to evaluate its effectiveness in relieving joint pain or osteoarthritis symptoms.

TYPICAL STARTING DOSE

1500 mg

Description

Glucosamine is a supplement commonly used to support joint health and may help alleviate symptoms of osteoarthritis. It's believed to promote cartilage health and reduce joint discomfort, but individual responses can vary.

Glucosamine is a compound naturally made by the body. It helps keep the connective tissues, such as the cartilage in the joints, strong and elastic [R].

Many people use glucosamine supplements to support joint health [R, R, R].

How it helps

Higher blood levels of glucosamine are associated with a lower risk of early death [R].

People who take glucosamine supplements (at least 4x/week for at least 3 years) may live longer [R, R].

Please note: *Glucosamine may interact with blood thinners like warfarin. If you are taking blood thinners, avoid this supplement* [R].

46

Lycopene

IMPACT 2 / 5

EVIDENCE 2 / 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

In a review of 17 articles, dietary lycopene intake or serum lycopene was inversely associated with all-cause mortality, prostate cancer, stroke, cardiovascular disease, metabolic syndrome, and male infertility [R].

Another meta-analysis of 5 studies found that high lycopene intake or serum levels were associated with reduced stroke, cardiovascular disease, and mortality risk, but not with myocardial infarction [R].

Circulating lycopene, but not dietary lycopene, was associated with a statistically significant decrease in stroke risk in another study [R].

Lycopene is a potent antioxidant that can help reduce cellular damage associated with aging. That translates to potential improvements in health and lifespan, contributing to better longevity.

47

Drink at Least 8 Glasses of Water a Day

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Consume a total of at least 64 ounces (or approximately 1.9 liters) of water over the course of the day. This can be divided into 8 glasses, each containing 8 ounces of water. Aim to drink evenly throughout the day to avoid dehydration.

Description

Water is an essential nutrient for nearly every process in your body, helping to mainting brain and gut function, maintain a health weight, as well as energy and performance levels, among others.

Water is essential for life. It supports nearly every process in your body [R].

Water helps maintain [R]:

- Energy and performance levels
- Brain function
- Gut function
- Healthy weight

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. You might need more or less than this, depending on how active you are, where you live, or what your overall health is like [R].

How it helps

A meta-analysis of 7 studies associated high water consumption with decreased cardiovascular mortality (by ~16%) but not all-cause mortality. A dose-response analysis showed each additional cup/day decreased cardiovascular mortality by 3% and all-cause mortality by 2% [R].

Drinking plenty of water helps maintain the balance of bodily fluids, thus aiding digestion, absorption, circulation, transportation of nutrients, and temperature regulation. Furthermore, it helps maintain healthy skin, kidneys, and bowel function, all important for enhancing lifespan.

48

Coenzyme Q10 (CoQ10)

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a 100 mg Coenzyme Q10 (CoQ10) supplement once daily with a meal that contains fat for better absorption.

TYPICAL STARTING DOSE

100 mg

Description

Coenzyme Q10 (CoQ10) is a naturally occurring antioxidant that plays a crucial role in cellular energy production. It is often taken as a supplement to support heart health, improve energy levels, and provide antioxidant protection, especially for individuals with certain medical conditions or as they age.

Coenzyme Q10 (CoQ10) is a compound that helps enzymes work better. By doing so, CoQ10 helps improve [R, R, R, R]:

- Energy levels
- Antioxidant protection
- Heart health
- Muscle strength
- Blood sugar control

The amount of CoQ10 made by your body decreases as you get older. Luckily, you can also get it from food or supplements. Good sources of CoQ10 include [R, R]:

- Organ meats
- Fatty fish
- Whole grains

How it helps

In people with heart diseases, lower levels of CoQ10 have been linked to an increased risk of death [R, R, R].

In line with this, a study of people with chronic heart failure found that CoQ10 (100 mg, 3x/day for 2 years) led to a 50% reduction in heart disease complications. Those getting supplementation also had fewer hospital stays and a lower risk of death from all-cause and heart disease [R].

CoQ10 supplementation may also be beneficial for managing diabetes, chronic kidney disease, and fatty liver by improving [R]:

- Blood sugar control
- Kidney function
- Inflammation

Interestingly, a study of Swedish elderly with low selenium levels, 42 months of selenium and coenzyme Q10 supplementation prevented telomere shortening [R].

49

Soy Isoflavones

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a soy isoflavone supplement containing 40 to 80 milligrams daily, ideally with food to improve absorption. This dosage can be continued on a daily basis for several months, but it's recommended to reevaluate its effectiveness and any potential side effects with a healthcare provider periodically.

TYPICAL STARTING DOSE

40 mg

Description

Soy isoflavones are natural compounds found in soybeans and soy products. They are phytoestrogens, which means they can mimic the effects of estrogen in the body and are associated with potential health benefits like menopausal symptom relief and improved heart health.

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

A study found that participants in the highest category of dietary soy isoflavones intake had a 10% lower risk of all-cause mortality compared with those in the lowest category. The study also found that a 10-mg/day increase in intake of soy isoflavones was associated with a 7% and 9% decreased risk of mortality from all cancers and breast cancer, respectively [R].

Soy isoflavones may help by acting as antioxidants, which protects cells from oxidative damage that contributes to aging. They also mimic the hormone estrogen, which can support body functions as natural estrogen levels decrease with age.

50

Cruciferous Vegetables

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Incorporate a serving of cruciferous vegetables, such as broccoli, cauliflower, Brussels sprouts, kale, or cabbage, into at least one meal each day. A serving size is about a half cup cooked or one cup raw. Try to maintain this habit consistently over time for the best health outcomes.

Description

Cruciferous vegetables like broccoli, cauliflower, and kale are rich in vitamins, fiber, and antioxidants. Including them in your diet can promote overall health and may offer cancer-protective properties.

Cruciferous vegetables are a group of vegetables that belong to the Brassicaceae family. They are rich in fiber, vitamins, minerals, and other nutrients.

Some common cruciferous vegetables include broccoli, cauliflower, cabbage, kale, and brussels sprouts.

How it helps

Cruciferous vegetables like broccoli, cauliflower, and kale are rich in antioxidants and fiber that can help reduce the risk of age-related diseases and boost overall health. These nutrients can enhance longevity by impeding cellular damage and improving digestion, thus promoting a longer, healthier lifespan.

Consuming fruits and vegetables is linked to lower risk of cardiovascular diseases, including coronary heart disease and stroke, as well as reduced mortality from these conditions. Certain fruits and vegetables offer greater benefits [R].

PERSONALIZED TO YOUR GENES

The TAS2R16 gene codes for a bitter taste receptor that can make you more or less sensitive to bitter foods [R, R].

Your genotype is associated with increased sensitivity to bitter tastes, which may be reducing your intake of healthy bitter foods [R, R].

To increase your potential lifespan, consider eating more vegetables — even if they taste bad to you [R, R].

For more about rs6466849 and other TAS2R16 variants that may affect longevity, check out this post on SelfDecode's personalized genetics blog.
The TP53 gene codes for p53, a protein that marks damaged DNA to help it get repaired [R].

Your genotype has been associated with somewhat reduced effectiveness of the DNA repair machinery, and therefore potentially decreased longevity [R, R].

To prevent genetic damage and promote DNA repair via p53, consider eating a diet rich in cruciferous vegetables [R, R].

To read more about the influence that the TP53 gene can have on health and longevity, check out this SelfDecode Blog post.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TAS2R16	**rs6466849**	CT	

GENE	SNP	GENOTYPE	EVIDENCE
TP53	**rs1042522**	CC	

51

Leafy Green Vegetables

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Incorporate at least one serving of leafy green vegetables, such as spinach, kale, or Swiss chard, into your diet daily. This can be done by adding them to salads, smoothies, or as a side dish to your meals.

Description

Leafy green vegetables like spinach and kale are packed with vitamins, minerals, and antioxidants. Incorporating them into your diet can promote overall health by providing essential nutrients, supporting digestion, and reducing the risk of chronic diseases like heart disease and certain cancers.

Leafy green vegetables, also called leafy greens, or greens, are edible plant leaves, which can include stalks and shoots as well. Common examples include: lettuce, spinach, kale, chard, endive, and fennel.

Leafy greens contain a host of vitamins and minerals, as well as fiber. Most of them are a particularly good source of vitamin K.

How it helps

Leafy green vegetables are rich in antioxidants and fiber, which help slow aging by reducing inflammation and oxidative stress. They also support heart health and improve brain function, promoting overall long-term health and longevity.

Consuming fruits and vegetables is linked to lower risk of cardiovascular diseases, including coronary heart disease and stroke, as well as reduced mortality from these conditions. Certain fruits and vegetables offer greater benefits [R].

PERSONALIZED TO YOUR GENES

The TAS2R16 gene codes for a bitter taste receptor that can make you more or less sensitive to bitter foods [R, R].

Your genotype is associated with increased sensitivity to bitter tastes, which may be reducing your intake of healthy bitter foods [R, R].

To increase your potential lifespan, consider eating more vegetables — even if they taste bad to you [R, R].

For more about rs6466849 and other TAS2R16 variants that may affect longevity, check out this post on SelfDecode's personalized genetics blog.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TAS2R16	**rs6466849**	CT	

52

Oats

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Incorporate oats into your diet daily by having them for breakfast as oatmeal, or adding them to smoothies, baking recipes, or overnight oats. Aim for at least a half-cup (40 grams) of dry oats to reap the health benefits.

Description

Oats are a whole grain known for their high fiber content and nutritional value, like zinc, iron, and manganese. Including oats in one's diet can promote heart health, stabilize blood sugar levels, and provide sustained energy.

Oats are a good source for manganese, zinc, iron, magnesium, and vitamins B1 and B5. A ½ cup serving provides 0.7 mg of manganese or 30%DV.

How it helps

Eating oats as part of a balanced diet can contribute to longevity due to their high fiber content which aids in heart health and good digestion. Also, their high antioxidant levels help fight off diseases and inflammation.

A meta-analysis of 8 studies and 471,157 participants associated high intake of oats with ~30% reduced all-cause mortality [R].

53

Laughter Therapy

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Dedicate at least 15-30 minutes a day to watch, listen to, or participate in activities that make you laugh, such as watching a comedy show, attending a stand-up comedy event, or engaging in laughter yoga sessions. Consistently incorporate these laughter-inducing activities into your daily routine for an ongoing period to harness the health benefits of laughter.

TYPICAL STARTING DOSE

30 minutes

Description

Laughter therapy has been shown to improve cardiovascular health, reduce stress, and boost the immune system. It can also help to improve mood, relieve pain, and increase social bonding.

How it helps

A study that tracked over 17,000 people aged 40 and older found that those who laughed less frequently (less than once a month) were 1.16 to 3.09 times more likely to die and experience heart problems compared to those who laughed more often (at least once a week). Even those who laughed more than once a month but less than weekly had a 62% higher risk of heart-related complications than those laughing weekly [R].

54

Dietary Zinc

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Incorporate foods high in zinc, such as beef, poultry, seafood (especially oysters), beans, nuts, and whole grains, into your daily diet. Aim for the recommended dietary allowance of zinc, which is 11 mg per day for adult men and 8 mg per day for adult women.

Description

Dietary zinc is essential for the body. It helps our immune system fight off bacteria and viruses, plays a role in healing wounds, and is essential for our sense of taste and smell. Without enough zinc, these systems may not work as effectively as they should.

How it helps

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].

55

Limit Calorie Intake

IMPACT 2 / 5

EVIDENCE 0 / 5

How to implement

Consume fewer calories than your body needs for maintenance. Calculate your daily caloric needs using an online calculator based on your sex, age, weight, height, and activity level, then reduce that number by 500-1000 calories per day to safely lose 1-2 pounds per week. Adjust the caloric intake as needed based on your progress.

Description

People often limit their calorie intake to help them lose weight [R, R].
However, moderate calorie restriction may also help you stay healthier and age better [R, R, R, R, R].

There are different ways to take in fewer calories. You can:

- **Eat low-calorie foods**, such as those rich in proteins, fiber, and water. Avoid fatty and sugary foods, which tend to be high in calories [R].
- **Try intermittent fasting**, which involves changing how often you eat [R].

If you are restricting your calories, make sure your diet remains healthy and balanced. Experts also recommend being physically active, to prevent the loss of muscle and bone mass.

How it helps

Limiting calorie intake may support a healthy weight and healthy aging. It may also reduce cholesterol levels and inflammation [R, R].

In line with this, multiple studies on yeast, worms, flies, and small mammals note that calorie restriction might increase lifespan. **However, similar studies have not been conducted in humans** [R, R].

In one study on humans, reducing calorie intake by 11% reduced some measures of aging in participants' DNA. However, it didn't reduce estimated biological age [R, R].

Please note: *There is no clinical evidence to support this recommendation. Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Talk to your doctor before making any drastic changes to your calorie intake* [R].

56

Vegetables

IMPACT 1 / 5

EVIDENCE 3 / 5

How to implement

Incorporate at least 2-3 cups of various vegetables into your daily diet, ensuring a mix of colors like greens, reds, and yellows to maximize nutrient intake. Aim to include vegetables in most meals, either as a side, part of the main dish, or snacks.

Description

Vegetables are edible parts of plants that offer various health benefits due to their rich nutrient content, including vitamins, minerals, fiber, and antioxidants. They are essential components of a balanced diet and contribute to overall health, supporting various bodily functions.

How it helps

Eating vegetables can improve longevity as they are rich in antioxidants and fibers which can protect against aging-related diseases such as heart disease or cancer. Additionally, their low calorie content helps maintain a healthy weight, also contributing to a longer life.

Consuming fruits and vegetables is linked to lower risk of cardiovascular diseases, including coronary heart disease and stroke, as well as reduced mortality from these conditions. Certain fruits and vegetables offer greater benefits [R].

57

Fruits

IMPACT 1 / 5

EVIDENCE 3 / 5

How to implement

Incorporate at least two servings of fresh, frozen, or canned fruits into your daily diet, aiming for a variety of colors and types to ensure a broad intake of vitamins, minerals, and antioxidants. One serving is equivalent to one medium-sized fruit, such as an apple or banana, or one-half cup of chopped fruit.

Description

Fruits are rich in vitamins, minerals, fiber, and antioxidants, making them essential for a balanced diet. Regular fruit consumption is associated with various health benefits, including better heart health, improved digestion, and reduced risk of chronic diseases.

Fruits are tasty and healthy foods high in vitamins, minerals, and antioxidants. They help reduce inflammation and support health in different ways.

Common examples include:

- Apples
- Oranges
- Bananas
- Grapes
- Watermelons

How it helps

Consuming fruits provides numerous antioxidants and fiber, which can help reduce the risk of chronic diseases, promote healthy aging, and extend life expectancy. It is also high in nutrients and low in calorie, which supports overall well-being.

Consuming fruits and vegetables is linked to lower risk of cardiovascular diseases, including coronary heart disease and stroke, as well as reduced mortality from these conditions. Certain fruits and vegetables offer greater benefits [R].

58

Maintain Optimal Vitamin D Levels

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs vitamin D for strong bones. Vitamin D also plays a role in [R]:

- Mood
- Immunity
- Heart health
- Blood sugar control

Sunlight is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [R, R].

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [R].

How it helps

Genetically predicted higher and lower vitamin D levels may be associated with reduced and increased mortality risk, respectively. Numerous studies have concluded that low vitamin D levels are associated with an increased mortality risk, while higher levels may reduce that risk [R, R, R, R, R, R, R].

Low blood levels of vitamin D are linked to a reduced lifespan. However, scientists are unsure of the strength of this connection. It may be that vitamin D plays a direct role in lifespan. However, it is also likely that those with shorter lifespans have an underlying health condition that also lowers vitamin D levels [R, R, R, R, R, R, R].

Some studies suggest **supplementing with vitamin D (200-800 IU/day)** may help increase lifespan. According to these studies, vitamin D may work best for older people and those who have low vitamin D levels. It may need to be taken for a prolonged period (more than 3 years) to provide benefits [R, R, R].

However, other studies didn't find a link between vitamin D supplementation and a longer life [R, R].

Vitamin D may help by [R, R, R]:

- Supporting immune function
- Reducing inflammation
- Slowing cell aging

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [R].

PERSONALIZED TO YOUR GENES

The VDR gene codes for the vitamin D receptor, and is essential for the proper functioning of vitamin D throughout the body [R, R, R, R].

Your genotype has been associated with reduced longevity. It may impair vitamin D function [R].

To restore vitamin D status and increase longevity, consider getting more sun exposure, and increasing your intake of vitamin D [R, R, R].

To read more about the VDR gene and its potential role in health and longevity, check out this SelfDecode Blog post.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
VDR	**rs2228570**	GA	

59

Pears

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Incorporate one medium-sized pear into your daily diet, either as a snack or part of a meal. You can eat it raw, add it to salads, or use it in recipes. Continue this practice daily for ongoing health benefits.

Description

Pears are a fruit that originates from the Pyrus tree, and have been eaten for centuries in various parts of the world. they are a good source of dietary fiber, vitamin C and K, and various antioxidants, which may be beneficial for gut health, help fight inflammation, and aid in weight loss.

How it helps

Pears are rich in antioxidants and dietary fiber, which can contribute to longevity by reducing the risk of chronic diseases and aiding digestion. They also contain numerous vitamins and minerals that are vital for overall health.

A meta-analysis of 95 studies (142 publications) revealed that higher fruit and vegetable consumption is associated with reduced risk of heart disease, stroke, cancer, and all-cause mortality. Maximum benefit observed at 800 g/day for most outcomes, except cancer (600 g/day). Certain items like apples, citrus fruits, and leafy greens showed strong links to lower risk of cardiovascular disease and all-cause mortality [R].

In 20 prospective cohort studies, higher consumption of total fruits and vegetables was associated with a 21% reduced risk of stroke. Specifically, fruit consumption reduced risk by 23%, while vegetable consumption lowered it by 14%. For every 200 g/day increase in fruits, stroke risk decreased by 32%, and for vegetables, it decreased by 11%. Citrus fruits, apples/pears, and leafy vegetables seemed to have protective effects against stroke [R].

In observational studies, apple or pear intake significantly decreased the risk of cerebrovascular disease, cardiovascular death, type 2 diabetes mellitus, and all-cause mortality [R].

60

Mindfulness

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Set aside 5-10 minutes each day to practice mindfulness meditation. Find a quiet place, assume a comfortable seated position, close your eyes, focus on your breathing, and observe your thoughts and sensations without judgment.

TYPICAL STARTING DOSE

30 minutes

Description

Mindfulness involves paying focused and non-judgmental attention to the present moment. It can reduce stress, improve emotional regulation, and enhance overall mental clarity and well-being.

Mindfulness is the practice of being aware of the present moment. When practicing mindfulness, a person acknowledges their thoughts, feelings, and sensations without any judgment [R].

Mindfulness and other types of meditation may improve [R]:

- Weight and anxiety
- Low mood
- Sleep disturbances
- Pain
- High blood pressure

How it helps

Having a mindful disposition has been linked to [R]:

- Lower mortality, disability
- Less negative feelings
- Better quality of life

A positive attitude towards one's own aging may offer similar benefits among those aged 80 and older [R].

Mindfulness-based interventions, both in-person and online, may also help cancer patients and survivors by reducing symptoms like [R, R]:

- Anxiety
- Depression
- Fatigue
- Stress

Studied mindfulness-based therapies included [R, R]:

- Mindfulness-based art therapy
- Mindfulness-based stress reduction

61

Avoid Beta-Carotene Supplements

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Do not purchase or consume supplements that list beta-carotene as an ingredient. This includes checking the labels of multivitamins and other health supplements to ensure they are free of beta-carotene.

Description

Avoiding high-dose beta-carotene supplements is advisable, as excessive intake may increase the risk of certain health issues, including lung cancer in smokers. Getting beta-carotene from dietary sources like fruits and vegetables is a safer way to support overall health.

How it helps

Supplementation with doses above 9.6 mg/day of beta-carotene may slightly increase mortality. In contrast, high doses of vitamin A supplements may not have this effect [R].

62

Dietary Tryptophan

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Increase your intake of tryptophan-rich foods in your daily diet. Examples include turkey, chicken, milk, cheese, yogurt, eggs, bananas, tofu, salmon, and nuts such as almonds and peanuts. Aim to incorporate these foods into at least one meal per day to meet the dietary recommendation for tryptophan.

Description

Tryptophan is an essential amino acid that plays a crucial role in serotonin production, contributing to mood regulation and sleep quality. Adequate tryptophan intake through diet supports emotional well-being and overall mental health.

Tryptophan is an amino acid, or a protein building block. **Humans can't make tryptophan, so we need to get it from protein-rich foods** [R, R].

Your body uses tryptophan to make serotonin and melatonin. **These brain chemicals are important for mood and sleep** [R, R].

An average adult needs at least **250-425 mg** of tryptophan per day, which is the amount you can get from [R]:

- A pound of turkey or chicken
- Two cups of milk
- An ounce of canned tuna
- Two cups of oatmeal

Other foods high in tryptophan include **cheddar cheese, peanuts, pumpkin seeds, and seafood**. Most people get enough tryptophan from their diets, but supplements are also available [R].

How it helps

Dietary tryptophan may promote longevity by serving as a precursor to serotonin, a neurotransmitter that regulates mood, sleep, and appetite, contributing to mental well-being and stress management. It also aids in the production of melatonin, enhancing sleep quality, which is crucial for recovery and longevity.

Additionally, tryptophan plays a role in the immune system's function, potentially reducing the risk of age-related diseases. Its ability to improve metabolic health and resilience against stressors further supports longevity.

A large study of nearly 17K participants found that people who consume more tryptophan tend to live longer [R].

Several studies have found a link between higher tryptophan levels and lower mortality from heart disease [R, R, R, R].

63

Avoid Arsenic Exposure

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Use a water filter certified to remove arsenic if you rely on well water, opt for arsenic-tested rice or rice products, and avoid using contaminated pesticides or herbicides in gardening or farming. Test your home for arsenic if you live in an area known for high levels of arsenic in soil or water. Limit consumption of foods known to accumulate arsenic such as rice and rice-based products, especially if you are pregnant, nursing, or preparing meals for young children.

Description

Avoiding arsenic exposure is essential for preventing potential health risks associated with arsenic contamination in drinking water and foods. Chronic exposure to arsenic has been linked to various health issues, including cancer and cardiovascular problems.

Arsenic is a heavy metal naturally found in the environment. It is used for mining, fracking, and industrial applications, such as the production of pesticides and wood preservatives, and the use of fossil fuels [R].

The main sources of exposure to arsenic are contaminated [R, R, R]:

- **Drinking water**
- **Rice** and fish
- Air

Long-term exposure to high amounts of arsenic may be linked to health problems, including [R, R, R, R, R]:

- Skin disorders
- Heart disease
- High blood pressure
- Stroke
- Diabetes
- Cancer

Please note: *Soaking, washing until clear, and cooking rice with a high (1:6) water-to-rice ratio may help reduce rice's arsenic content* [R, R, R].

How it helps

Avoiding arsenic exposure prolongs your lifespan by reducing the risk of numerous health problems like cancer, liver disease, and heart disease. Arsenic adversely affects almost all organ systems and can considerably shorten your life.

In a study with 4990 participants followed for 75 months, higher urinary total arsenic and DMA levels showed potential associations with increased heart disease mortality, particularly at low exposure levels (<4.5 µg/L). Additionally, doubling water iAs was associated with a 16% higher relative risk of coronary heart disease mortality [R].

A meta-analysis of 42 studies found that cadmium and lead exposure were linked to increased mortality from all causes, CVD, and cancer. Arsenic had a moderate association with mortality, while mercury and other heavy metals' effects were inconclusive. The joint impact of heavy metal exposure on mortality remained uncertain [R].

64

Avoid Exposure to Heavy Metals

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

To avoid exposure to heavy metals, ensure you're not using cosmetic products with heavy metals, opt for organic foods to minimize pesticide exposure, and use filters for drinking water to remove possible contaminants. Check for lead-based paints in older homes and avoid cooking or storing food in uncoated metal containers. When possible, choose glass or BPA-free plastics instead.

Description

Heavy metals are elements naturally found in the environment. They are also used for agricultural, industrial, and medicinal purposes. Some can even be found in small amounts in your body [R, R].

Long-term exposure to high amounts of heavy metals can be harmful to your health [R, R].

Heavy metals that are most often linked to health problems include [R, R]:

- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury

How it helps

A study of 26,056 participants associated high blood levels of heavy metals with 38% higher all-cause mortality, 43% higher cardiovascular mortality, and 41% higher cancer mortality, while high urinary levels were associated with a 48% higher risk of all-cause mortality and 60% higher risk of cancer mortality. Among all the metals, cadmium had the strongest effects [R].

Heavy metals can damage vital organs over time.

65

Carrots

IMPACT 1 / 5

EVIDENCE 2 / 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 packed with antioxidants and beta-carotene, which can reduce oxidative stress and inflammation, key factors in aging. They also support eye health and boost the immune system, promoting overall longevity.

Consuming fruits and vegetables is linked to lower risk of cardiovascular diseases, including coronary heart disease and stroke, as well as reduced mortality from these conditions. Certain fruits and vegetables offer greater benefits [R].

66

Histidine

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Take 500-1000 mg of histidine supplement per day, ideally with a meal. It is best to start with a lower dose, such as 500 mg, to assess tolerance and then adjust as needed up to 1000 mg. Consistent daily intake for at least 4 to 8 weeks may be necessary to notice benefits.

TYPICAL STARTING DOSE

500 mg

Description

Histidine is an essential amino acid that plays a role in protein synthesis and the formation of histamine. It is important for overall health and is found in various protein-rich foods.

A histidine supplement of up to 14 mg/kg/d can be taken to meet the needs not achieved through diet.

You can also increase your dietary histidine intake. Histidine is found in protein-rich foods such as meat, chicken, fish, beans, oats, and wheat. It's especially high in the Japanese food ingredient dashi or dried bonito, often used for soup stock [R].

How it helps

Research of over 4,000 people found that higher levels of histidine were linked to a reduced risk of death [R, R].

A study on 50 patients with locally advanced head and neck squamous cell carcinoma found lower levels of histidine, leucine, and phenylalanine and poorer body composition and nutritional status compared to the healthy people.[R].

In a study involving 325 patients with chronic kidney disease, low levels of histidine were linked to [R]:

- Poor nutrition
- Heart disease
- Inflammation
- Oxidative stress

Those with lower histidine levels also had worse health and a higher risk of death within 60 months [R].

A metabolomics study of 647 human subjects linked high histidine levels (and two other amino acids) with longevity as defined by attaining at least 80 years [R].

However, in a study involving intensive care unit patients with sepsis, high histidine levels were associated with 30-day survival. High levels of histidine may indicate poor blood vessel health [R].

67

Apples

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Incorporate at least one whole apple into your daily diet, either as a snack or part of your meals, ensuring to eat them consistently every day for an ongoing period to derive potential health benefits.

Description

Apples are a nutritious fruit known for their fiber content and antioxidant-rich skin. They support overall health by aiding digestion, reducing the risk of chronic diseases, and promoting heart health.

Apples (*Malus domestica Borkh.*) are one of the most widely consumed fruits in the world. They have a high nutritional value and content of antioxidants [R, R].

Eating apples is associated with a lower risk of [R, R]:

- Heart disease
- Asthma
- Diabetes

How it helps

Apples are rich in essential nutrients and antioxidants that can help maintain your overall health. They also support heart health and immune system, hence potentially contributing to increased longevity.

68

Avoid Lead Exposure

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Prevent lead exposure by using cold water for drinking and cooking, regularly cleaning dust from windowsills and floors, and ensuring that your home's paint is not chipping if it was built before 1978. For occupations involving potential lead exposure, use protective gear and follow safety protocols. Test your home for lead if it's old or you're concerned about contamination.

Description

Lead is a heavy metal. It is naturally found in the environment in small amounts [R, R].

Exposure to lead can cause it to build up in the body. A buildup of lead can contribute to oxidative stress and cell damage. This is called **lead poisoning** [R, R].

Lead is no longer used in the manufacturing of some products like gasoline and paint. However, it can still be found in some pipes, batteries, and the wall paint of older homes [R, R, R].

How it helps

A meta-analysis of 42 studies found that cadmium and lead exposure were linked to higher mortality from all causes, heart disease, and cancer in the general population [R].

Lead is toxic and can cause damage to vital organs like the brain, kidneys, and bones.

69

Dietary Vitamin E

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Incorporate foods high in Vitamin E into your daily diet. This includes almonds, hazelnuts, sunflower seeds, and green leafy vegetables such as spinach and broccoli. Aim for a daily intake of 15mg of Vitamin E from your diet, which is roughly a handful of almonds (about 23 almonds) or 2 tablespoons of sunflower seeds.

Description

Dietary vitamin E is a fat-soluble antioxidant vitamin found in nuts, seeds, and vegetable oils. It helps protect cells from oxidative damage and supports immune function.

Vitamin E is an antioxidant important for the immune system and for heart health [R].

Plant-based foods have the most vitamin E. These include [R]:

- Wheat germ
- Sunflower seeds
- Almonds
- Plant oils

Adults need about **15 mg** of vitamin E per day [R].

How it helps

Dietary Vitamin E is a powerful antioxidant that helps protect your cells from damage, contributing to longer cell life and potentially leading to increased overall longevity. It also supports immune function and prevents blood clots, both crucial for healthy aging.

In CVD mortality risk, the highest vs. lowest antioxidant intakes had these relative risks: vitamin C 0.79, vitamin E 0.91, β-carotene 0.89. For circulating concentrations, it was: vitamin C 0.60, α-tocopherol 0.82, β-carotene 0.68. Biomarkers were more strongly linked to CVD mortality risk than dietary intakes [R].

Please note: *While dietary vitamin E is generally considered safe, vitamin E supplements have been linked to prostate cancer. They may also not be the best option for pregnant people. Those who have heart disease, bleeding disorders, or other conditions may also need to avoid them. Consult your doctor before taking vitamin E supplements* [R].

70

Decaffeinated Coffee

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Replace your regular coffee intake with decaffeinated coffee. Aim to consume it in the same quantities and at the same times you would normally drink caffeinated coffee. This adjustment can be made indefinitely to reduce caffeine intake without altering your routine significantly.

Description

Decaffeinated coffee allows individuals to enjoy the flavor and aroma of coffee without the stimulating effects of caffeine, making it a suitable choice for those who are sensitive to caffeine or want to reduce their intake. It can still provide antioxidants and potential benefits like improved alertness.

How it helps

In a study with 21 cohorts and over 10 million participants, a nonlinear link between coffee intake and all-cause mortality was observed. Consuming 3 cups daily reduced mortality risk by 13%. Both caffeinated and decaffeinated coffee showed similar beneficial effects [R].

Please note: *polyphenols and tannins from coffee may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using coffee or coffee supplements.*

71

Glycine

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 3 to 5 grams of glycine supplement per day with water, preferably before bedtime for sleep improvement or spread throughout the day for general health benefits. Continue indefinitely as needed, but consult a healthcare provider for long-term use beyond three months.

TYPICAL STARTING DOSE

3 g

Description

Glycine is an amino acid that may have calming and anti-inflammatory effects, potentially benefiting sleep quality and joint health.

If you can't get enough glycine from food sources, glycine supplements are available. Daily doses of up to **6 g** have been safely used for up to **4 weeks**. Consult your doctor before supplementing.

How it helps

Research spanning various global populations and involving over 400,000 people suggests that higher levels of glycine may reduce the risk of coronary artery disease and high blood pressure [R, R, R, R].

In line with this, a study of 200 people who suffered a stroke showed that taking glycine early on (1-2 g/day for 5 days) could lower the risk of death within 30 days and support recovery, especially in those with mild or no disability [R].

However, a 16-year study in Japan involving 29,079 people found that men who consumed higher amounts of glycine, especially those without pre-existing high blood pressure, faced up to an 88% increased risk of dying from a stroke [R].

Moreover, a study of 663 individuals with acute shortness of breath discovered that people with the highest levels of glycine, phenylalanine, and valine were over 9 times more likely to die compared to those with the lowest levels [R].

Glycine supplementation has also been studied for its potential effects on longevity **in animals**. Here's a summary of key findings:

- Dietary glycine supplementation was found to **extend the lifespan** of both male and female mice. The study reported a small but statistically significant increase in lifespan, as well as an increase in maximum lifespan, in mice supplemented with glycine. This suggests that dietary glycine may have beneficial effects on aging and longevity [R].
- Glycine supplementation was shown to **mimic the lifespan extension effects observed with dietary methionine restriction** in rats. The study suggested that the benefits of glycine might be related to improved metabolic and endocrine changes, similar to those induced by methionine restriction, potentially contributing to extended lifespan [R].
- The beneficial effects of glycine supplementation on longevity were found to be **dependent on the methionine cycle**. Mutations in components of this cycle were shown to abrogate the lifespan extension induced by glycine, indicating the importance of the methionine cycle in mediating glycine's effects on longevity [R].

72

Avoid Exposure to Parabens

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Check the labels of personal care products such as lotions, shampoos, and cosmetics. If they list methylparaben, propylparaben, butylparaben, or ethylparaben among the ingredients, choose alternative products that are paraben-free. Aim to do this consistently for all personal care purchases.

Description

Avoiding exposure to parabens involves avoiding personal care and cosmetic products that contain these synthetic preservatives. This is done to minimize the potential risk of skin irritation and to reduce the likelihood of exposure to compounds that may disrupt hormone regulation.

How it helps

In a study of 2939 individuals, women had significantly higher exposure to parabens than men, with methylparaben being the highest. Women showed higher mortality risk associated with ethyl, methyl, butyl, and total parabens exposure, while men exhibited higher risk with ethyl paraben only [R].

Parabens may impact hormone function and possibly accelerate aging.

73

Meditation

IMPACT 1 / 5

EVIDENCE 1 / 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

In a small study, elderly people practicing transcendental meditation survived over 3 years, compared to 87.5% of non-meditators. Simulations suggest that transcendental meditation may prevent nearly 200,000 stroke cases and 50,000 related deaths in 15 years [R, R].

Limited evidence suggests that meditation practices like loving-kindness are linked to longer telomeres, indicating potential benefits in cellular aging, especially in women [R, R].

74

Transcendental Meditation

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Practice transcendental meditation for 20 minutes twice a day, once in the morning before breakfast and once in the afternoon or early evening. Sit comfortably in a quiet place, close your eyes, and silently repeat a mantra given to you by a certified transcendental meditation teacher.

TYPICAL STARTING DOSE

20 minutes

Description

Transcendental Meditation is a technique for mindfulness and stress reduction that involves silently repeating a specific mantra to attain a state of deep relaxation and heightened awareness. It is associated with reduced stress, improved focus, and enhanced overall well-being.

How it helps

Transcendental Meditation can help maximize longevity by reducing stress and anxiety, which are known to contribute to age-related diseases. Additionally, it can increase tranquility and wellbeing, ultimately promoting a longer, healthier life.

In a non-placebo-controlled trial of 73 residents of elderly homes, those who performed transcendental meditation had higher survival rates after 3 years (100% vs 87.5% in the control group) [R].

75

Coenzyme Q10 and Selenium

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 100 mg of Coenzyme Q10 and 200 mcg of Selenium daily, preferably with a meal to enhance absorption. It is advisable to continue this supplementation regimen for at least 3 to 6 months to observe potential health benefits.

Description

Coenzyme Q10 and selenium are important micronutrients that play vital roles in cellular function and antioxidant defense. Their combined use may support heart health and overall oxidative stress management.

How it helps

In a study of older Swedish citizens with low selenium levels, 42 months of selenium and coenzyme Q10 supplementation prevented telomere shortening. At baseline, telomere length did not significantly differ between the active treatment and placebo groups. However, after 42 months, the active treatment group showed less telomere shortening compared to the placebo group [R].

After 48 months of taking selenium yeast and coenzyme Q10 supplements, participants of another study had increased free thiols in the serum compared to a placebo group. Low free thiol levels at the start were linked to a 98% higher risk of cardiovascular mortality even after adjusting for other factors during a 10-year follow-up [R].

Coenzyme Q10 and selenium may help by supporting mitochondrial health and antioxidant defenses.

76

Ergothioneine

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take ergothioneine as a dietary supplement in the range of 5-10 mg per day. This is typically done by consuming a capsule or tablet once daily, ideally with a meal to enhance absorption. There is currently no established duration for ergothioneine supplementation, so it may be taken indefinitely or as needed based on personal health goals and under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

5 mg

Description

Ergothioneine is an amino acid-like compound found in certain foods, particularly mushrooms. It is believed to have antioxidant properties and may contribute to overall cellular health and protection against oxidative stress.

How it helps

Ergothioneine exhibits significant antioxidant and anti-inflammatory effects, which are linked to its potential anti-aging properties. It targets damaged cells and tissues, particularly in the mitochondria and nucleus, suggesting a role in cellular protection and longevity [R, R].

In one study, higher ergothioneine levels were responsible for the link between healthy eating patterns and better longevity [R].

The concentration of ergothioneine in human blood varies with age. It peaks during adolescence and then gradually declines, with a slight increase observed in older adults. This pattern suggests a potential role in maintaining health across different life stages [R].

Several animal studies indicate the potential of ergothioneine to improve longevity [R, R, R, R].

77

Avoid PAHs Exposure

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

How it helps

A study of 1409 participants associated 3-phenanthrene with 4.3% higher mortality. In women, 2-napthol, 3-fluorene, and 1-phenanthrene levels increased all-cause mortality by 4.3%, 115.9%, and 25.9%, respectively. In addition, high 3-phenanthrene and 1-phenanthrene levels increased the risk of cardiovascular mortality by 33.3% and 46.3%, respectively. However, there were no significant findings for cancer mortality in both genders [R].

A study of 9739 participants associated high PAH exposure with 15% higher all-cause mortality and 41% higher cause-specific mortality, but no association with cardiovascular mortality [R].

PAHs can cause cellular damage, contributing to age-related diseases.

78

Yoga

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

TYPICAL STARTING DOSE

30 minutes

Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

Yoga combines breathing, stretching, and relaxation techniques. Practicing yoga may help [R, R, R]:

- Reduce stress
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

How it helps

Yoga's impact on mortality may require additional research. While one large study concluded that yoga does not affect overall mortality rates, another one focused on U.S. adults found that yoga practitioners experienced notably better survival outcomes. Specifically, when practiced for health-related reasons, yoga initially suggested a 43% decrease in death risk [R, R].

79

Mushrooms

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Incorporate a variety of mushrooms such as shiitake, button, portobello, and oyster into your diet. Aim for at least 100-150 grams (roughly one cup) of fresh mushrooms or 15-20 grams of dried mushrooms, 2-3 times per week. You can add them to salads, soups, sandwiches, or sauté them as a side dish.

Description

Mushrooms are fungi rich in nutrients like B vitamins and copper, and bioactive compounds. They are used in various cuisines and have been associated with potential health benefits, including immune support and antioxidant properties.

How it helps

Ergothioneine acts as a powerful antioxidant, protecting your cells from damage that contributes to aging and disease. This may support overall health and promote longevity by reducing the risk of chronic diseases.

A large study of 30,378 participants associated high intake of mushrooms (which are a rich source of ergothioneine) with **6% lower risk of all-cause mortality** [R].

80

Dietary Vitamin C

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Incorporate foods rich in Vitamin C into your daily diet, such as oranges, strawberries, red peppers, kale, and broccoli. Aim to consume 5 servings of fruits and vegetables per day to meet the recommended dietary allowance of Vitamin C, which is 90 mg for adult men and 75 mg for adult women.

Description

Vitamin C is an antioxidant that supports the immune system, collagen production, and wound healing. It also enhances iron absorption from plant-based foods and contributes to overall health.

Vitamin C is an essential nutrient. This means that our bodies can't produce it on their own, so we have to get it from food or supplements [R].

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [R, R].

Vitamin C deficiency is called *scurvy.* In the past, many sailors suffered from it [R].

How it helps

An analysis of over 320,000 people revealed that high levels of vitamin C were linked to a 40% lower risk of heart disease-related death compared to low levels. In line with this, those with the highest intake of vitamin C from their diet had a 21% lower risk of heart disease-related death compared to those with the lowest intake [R].

81

Alpha-Linolenic Acid (ALA)

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Incorporate foods high in alpha-linolenic acid (ALA) into your daily diet. This means eating about a tablespoon (14 grams) of flaxseeds or chia seeds, a quarter cup (30 grams) of walnuts, or using one tablespoon of flaxseed oil every day.

Description

Alpha-linolenic acid (ALA) is a type of omega-3 fatty acid found in plant-based sources like flaxseeds, chia seeds, and walnuts. It is essential for maintaining heart and brain health and is considered a healthy dietary fat.

How it helps

Alpha-Linolenic Acid (ALA), a type of Omega-3 fatty acid found in many plant foods, may boost longevity by reducing inflammation and enhancing heart health. Regularly consuming ALA may decrease risk of chronic diseases associated with aging, like heart disease.

A systematic review and meta-analysis found that a high intake of ALA compared to low intake was associated with a lower risk of all-cause mortality, CVD mortality, and coronary heart disease (CHD) mortality, but a slightly higher risk of cancer mortality. Additionally, a 1 g/day increase in ALA intake was linked to a 5% lower risk of all-cause and CVD mortality [R].

High ALA intake was associated with a reduced risk of fatal heart disease in prospective cohort studies (combined relative risk 0.79, 95% CI 0.60-1.04). Three open-label trials also indicated that ALA may protect against heart disease [R].

However, evidence suggests that increased consumption of n-3 fatty acids from fish or fish-oil supplements, **but not of alpha-linolenic acid**, reduces the rates of all-cause mortality, cardiac and sudden death, and possibly stroke [R].

However, a Mendelian randomization study found no significant association between six PUFAs and overall cancer risk or mortality, except for a small effect of arachidonic acid (AA) on cancer risk. Sex-specific analysis suggested a potential reduction in cancer risk in men with α-linolenic acid but was not significant after multiple testing corrections. Colorectal cancer was the only one showing a causal association with higher AA levels [R].

82

Avoid Phthalate Exposure

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

To avoid phthalate exposure, check product labels and choose phthalate-free options for personal care items, plastics (look for recycling codes 3 and 7 or the letters 'V' or 'PVC'), and household products. Additionally, reduce the use of plastic containers for food storage, especially those not marked as 'phthalate-free', and avoid microwaving food in plastic containers. Aim to make these changes consistently in your daily life for long-term health benefits.

Description

Avoiding phthalate exposure involves choosing phthalate-free products, such as personal care items and plastics, to minimize potential endocrine-disrupting effects and protect reproductive and hormonal health.

How it helps

NHANES, 6 rounds: High levels of mono-n-butyl phthalate, monobenzyl phthalate, and 1-naphthol were significantly associated with increased risk of all cause, cardiovascular disease (CVD) and cancer mortality among all participants. WQS index was associated with the risks of all-cause (hazard ratio [HR] = 1.389) and CVD mortality (HR = 1.925) [R].

NHANES: Urinary levels of phthalate metabolites were not associated with increased cardiovascular disease mortality [R].

83

Plasmalogens

IMPACT 0 / 5

EVIDENCE 1 / 5

How to implement

Follow the dosage instructions provided on the product label or as directed by your healthcare provider. Typically, these supplements come in capsule form and are taken once daily with water, ideally with a meal to enhance absorption. Consistency is key, so taking them at the same time each day is recommended. Always consult a healthcare professional before starting plasmalogen supplements, especially if you are pregnant, nursing, or have any medical conditions.

Description

Plasmalogens are a special kind of phospholipids found in cell membranes, particularly in the brain (comprising 20% of its content), heart, lungs, eyes, and kidneys. Plasmalogens help the nervous system work and prevent brain cell death by reducing inflammation and oxidative stress. Their levels decrease with age [R].

Plasmalogen supplements are being researched to improve cognitive function in both healthy subjects and those with mild cognitive impairment or Alzheimer's disease [R, R].

How it helps

A study of 10,339 participants found that those with the highest ethanolamine plasmalogen levels had a decreased prevalence of type 2 diabetes and cardiovascular disease, as well as reduced mortality risk [R].

However, whether supplementation helps reduce the risks remains unknown.

84

SAM-e

IMPACT 0 / 5

EVIDENCE 1 / 5

How to implement

Take 400-1600 mg of SAM-e as a supplement daily, preferably on an empty stomach to enhance absorption. It is often recommended to start with low dosage and observe how your body responds over a few weeks, adjusting as necessary under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

400 mg

Description

SAM-e is a chemical that helps maintain liver and brain health. Your body makes SAM-e from the amino acid *methionine*, but it's also available as a supplement [R].

SAM-e supplementation may help with:

- Joint pain [R]
- Liver disease [R]
- Depression [R]

> **Please note:** *SAM-e may not be safe for people with a bipolar disorder. It may also interact with 5-HTP, St. John's wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor* [R, R, R].

How it helps

A study found that higher serum s-adenosylmethionine (SAM) levels and SAM/SAH ratios were linked to a lower risk of dementia and death, while higher s-adenosylhomocysteine (SAH) levels increased the risk in older Japanese individuals [R].

85

Acarbose

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Acarbose is usually taken orally, with the first bite of each main meal. The typical dose and frequency are determined by a healthcare provider based on your medical condition and response to treatment. Swallow the tablet whole with water, and avoid crushing or chewing it. To maximize its benefits, combine acarbose with a balanced diet and regular physical activity. If you miss a dose, take it with your next meal; do not double the dose.

Description

Acarbose is an oral medication used to manage blood sugar levels in individuals with type 2 diabetes. It belongs to the class of drugs known as *alpha-glucosidase inhibitors*, which work by slowing down the digestion and absorption of carbohydrates in the intestines to prevent sudden spikes in blood sugar levels after meals. It is often used in combination with other antidiabetic medications or lifestyle changes like diet and exercise for optimal results.

In addition to diabetes management, acarbose has been studied for potential benefits in reducing the risk of cardiovascular complications associated with metabolic syndrome and for weight management in specific populations. However, its use may cause gastrointestinal side effects, such as bloating or gas, due to undigested carbohydrates reaching the colon.

How it helps

Supplementation with acarbose increased lifespan and improved health in several studies in mice. In one of them, its combination with rapamycin was more effective than either of these drugs alone [R, R, R].

86

Dietary Valine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Increase your intake of valine by incorporating foods rich in this amino acid, such as cheese, soybeans, beef, lamb, chicken, pork, nuts, seeds, fish, and whole grains into your daily diet. Aim for at least one valine-rich food source in each meal to help meet the daily requirement.

Description

Depending on the cause, you may need to up your intake of valine. Valine is found in all protein-containing foods, with highest amounts in dairy and red meat [R].

How it helps

Dietary valine may support longevity by aiding in muscle maintenance and repair, crucial for preserving physical function as one ages. It helps regulate blood sugar levels and supports the immune system, contributing to overall health. Valine's role in stimulating muscle growth and maintaining metabolic health can indirectly reduce the risk of age-related diseases, supporting a longer, healthier life.

A couple of studies found a link between higher valine levels and longevity [R, R].

However, there is no clinical evidence that dietary valine promotes longevity.

87

L-Threonine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take 500 mg to 3 grams of L-threonine supplement daily, with water, preferably with meals to improve absorption. The exact dosage depends on individual health conditions and goals. Consult with a healthcare provider for personalized advice. This regimen can be followed indefinitely as part of a balanced diet to support overall health.

TYPICAL STARTING DOSE

500 mg

Description

L-threonine is an essential amino acid that is important for the production of proteins and neurotransmitters. It may also help to improve cognitive function, reduce stress, and protect against heart disease.

How it helps

Dietary threonine may promote longevity by supporting protein synthesis and maintenance, enhancing gut health and immune function. Threonine's involvement in fat metabolism may help protect the liver, indirectly supporting overall health and longevity. Its contribution to the production of antibodies also bolsters the immune system, potentially reducing the risk of age-related diseases.

A study has found a link between higher threonine levels and longevity [R].

However, there’s no clinical evidence that dietary threonine promotes longevity.

88

Relaxation Techniques

IMPACT 0 / 5

EVIDENCE 0 / 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

Stress and depression have been linked to shorter life expectancy [R, R].

89

Canagiflozin

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Canagliflozin is taken orally, usually once daily before the first meal of the day. It works best when taken at the same time each day to maintain consistent blood sugar control. Swallow the tablet whole with water, and follow your doctor's prescribed dosage based on your medical condition, kidney function, and response to treatment. It is essential to stay hydrated while on canagliflozin to reduce the risk of dehydration or dizziness. If you miss a dose, take it as soon as you remember, unless it is close to the time for your next dose—never double up. Be sure to combine canagliflozin with a proper diet and exercise plan and report any unusual symptoms, such as increased urination, dizziness, or signs of infection, to your healthcare provider.

Description

Canagliflozin is an oral medication used to manage type 2 diabetes mellitus. It belongs to the class of drugs known as sodium-glucose co-transporter 2 (SGLT2) inhibitors, which function by blocking the reabsorption of glucose in the kidneys, leading to increased glucose excretion through urine.

Beyond its primary role in glycemic control, canagliflozin has demonstrated additional health benefits. It may reduce the risk of major cardiovascular events, such as heart attack and stroke, in individuals with type 2 diabetes who have existing cardiovascular disease. Additionally, canagliflozin may decrease the progression of diabetic nephropathy.

Common side effects include urinary tract infections and increased urination. More serious but less frequent adverse effects can involve ketoacidosis and a higher risk of lower limb amputations.

How it helps

Canagliflozin extended lifespan in male, but not female, mice in a study [R].

90

Astaxanthin

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take an astaxanthin supplement daily, with a typical dosage ranging from 4 to 12 mg. It is best taken with a fat-containing meal to enhance absorption.

TYPICAL STARTING DOSE

12 mg

Description

Astaxanthin is a powerful antioxidant found in certain microalgae and seafood. It is known for its potential benefits in reducing oxidative stress, supporting skin health, and promoting eye health.

Astaxanthin is a naturally-occurring orange-red pigment carotenoid found in algae, shrimp, lobster, crab, and salmon [R].
As an antioxidant, astaxanthin is **10 times stronger than zeaxanthin, lutein and beta-carotene, and 100 times stronger than vitamin E** [R].
People take astaxanthin to:

- Support skin health [R, R]
- Reduce exercise fatigue [R, R]
- Prevent heart disease [R, R, R]

How it helps

Studies on animals and cell lines indicate that ASX acts as a potent antioxidant, reducing oxidative stress and apoptosis, which are critical factors in aging [R, R].

In *Caenorhabditis elegans*, ASX enhances lifespan by modulating the insulin signaling pathway and promoting autophagy. Additionally, ASX has been observed to protect mitochondrial functions and modulate longevity-related genes such as FOXO3 and Sirt1, which are crucial for cellular health and longevity [R, R, R, R].

ASX's neuroprotective properties help delay brain aging by increasing brain-derived neurotrophic factor (BDNF) levels and reducing oxidative damage [R, R].

However, clinical evidence for these potential benefits of astaxanthin is lacking.

91

Avoid Iron Supplements (Unless Deficient)

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Only take iron supplements if a blood test shows you are iron deficient. If not deficient, do not use iron supplements. For those diagnosed with iron deficiency, follow your healthcare provider's instructions on the type and dosage of iron supplement to take.

Description

Iron (Fe) is an essential mineral. It helps make hemoglobin, a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [R, R, R].

Avoiding unnecessary iron supplements, particularly without a confirmed deficiency, can prevent the risk of iron overload, which can lead to health issues like hemochromatosis and oxidative stress.

However, too much iron can be bad for the body. It can deposit into organs, such as the liver, heart and the pancreas. This can cause issues such as liver disease, heart problems and diabetes [R, R].

How it helps

Genetically higher iron levels may be associated with a decreased life expectancy (0.7 years per 1-SD increase) [R].

Please note: *Some people deficient in iron may need to take iron supplements. Your doctor should help you make that decision based on your actual iron levels.*

92

L-Asparagine

IMPACT 0 / 5

EVIDENCE 0 / 5

Description

Asparagine is a non-essential amino acid. Our bodies can make asparagine from aspartate and glutamine [R].

Asparagine can also be found in meat, fish, eggs, dairy, legumes, nuts, seeds, potatoes, and whole grains.

Asparagine has important roles in:

- Building amino acids
- Brain function
- Liver detoxification

For individuals with certain health conditions, moderating asparagine intake could potentially be beneficial. This doesn't mean asparagine-rich foods entirely but rather focusing on a balanced diet that doesn't overly rely on high-asparagine foods.

How it helps

Dietary asparagine may promote longevity by supporting cellular function, aiding in the synthesis of proteins, and playing a critical role in the metabolic control of cells. It contributes to the biosynthesis of glycoproteins and other important molecules, which are vital for maintaining the body’s homeostasis and immune response.

By facilitating the proper functioning of cells and enhancing immune health, asparagine intake can indirectly support longevity through the maintenance of overall health and the prevention of age-related diseases.

A study found a link between higher asparagine levels and longevity [R].

However, there is no clinical evidence that dietary asparagine promotes longevity.

93

Dietary Leucine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate foods high in leucine into your diet daily. Leucine is particularly abundant in dairy products, soy products, beans, and meat. Aiming for a daily intake of about 2 to 3 grams of leucine, evenly distributed across meals, can be beneficial. Include a serving of leucine-rich foods like chicken breast, tofu, or a glass of milk at each meal.

Description

Leucine is an essential amino acid that plays a key role in protein synthesis and muscle repair. It's particularly important for athletes and individuals looking to build and maintain muscle mass.

Good dietary sources of leucine include:

- Cottage Cheese
- Pork
- Soy
- Tuna
- Turkey
- Egg Whites
- Chicken

How it helps

Dietary leucine may promote longevity by stimulating muscle protein synthesis, essential for maintaining muscle mass and function with aging. It activates the mTOR pathway, critical for cell growth and repair, potentially delaying the aging process. Leucine also supports metabolic health, influencing energy homeostasis and reducing the risk of age-related metabolic disorders.

A couple of studies found a link between higher leucine levels and longevity [R, R].

However, there is no clinical evidence that dietary leucine promotes longevity.

94

Cordyceps

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take 500-1000 mg of Cordyceps extract in supplement form once daily, preferably with a meal to enhance absorption. This dosage is commonly recommended for general wellness and should be continued on a long-term basis, as effects accumulate over time.

TYPICAL STARTING DOSE

500 mg

Description

Cordyceps is a type of medicinal mushroom known for its potential to boost endurance and enhance respiratory function. It's used in traditional medicine and dietary supplements to support physical performance and overall vitality.

Cordyceps are a group of fungi (mushrooms) that grow on insects. Some species, like *O. sinensis* and *C. militaris*, are used in supplements [R].

O. sinensis grows on a moth caterpillar. Extracts and teas made from the fungus-caterpillar combination are often used in traditional Chinese medicine. They are thought to boost sex drive, reduce fatigue, and support kidney health [R, R, R].

How it helps

In a study in mice, supplementation with *Cordyceps sinensis* Cs-4 extended lifespan and reversed many age-related changes in gene expression [R].

95

L-Lysine

IMPACT 0 / 5

EVIDENCE 0 / 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

A study analyzed 110 metabolites in 3833 individuals from Malmö Diet and Cancer—Cardiovascular Cohort (MDC-CC). 1574 deaths occurred in an average 22.2-year follow-up. 22 metabolites were linked to mortality; 13 replicated in Malmö Preventive Project re-examination (MPP). Notable associations were found including lysine, suggesting potential biomarkers for mortality prediction [R, R].

96

Meclizine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Meclizine is usually taken orally, with or without food. For motion sickness, take the medication 1 hour before travel to prevent nausea and dizziness. The dose may be repeated as needed, typically every 24 hours, depending on your doctor's advice. For vertigo, meclizine is often taken as a regular daily dose, based on your condition and response to treatment. Swallow the tablet with water, or use the chewable form. Avoid alcohol or other sedatives while taking meclizine, as it may increase drowsiness.

Description

Meclizine is an antihistamine commonly used to treat and prevent nausea, vomiting, and dizziness caused by motion sickness. It is also effective in managing symptoms of vertigo associated with inner ear conditions, such as *benign paroxysmal positional vertigo (BPPV)* or *Meniere's disease*.

Meclizine works by blocking certain signals in the brain that trigger nausea and balance disturbances. Due to its sedative effects, meclizine may also help with anxiety-related dizziness.

Common side effects include drowsiness, dry mouth, and fatigue, so caution is advised when driving or operating machinery.

How it helps

Supplementation with meclizine extended lifespan by 8% in a study in mice [R].

97

Dietary Vitamin A

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Include foods high in vitamin A in your daily diet, such as sweet potatoes, carrots, spinach, and fortified foods like milk. Aim for 700-900 micrograms (mcg) of vitamin A per day for adults, depending on your age and sex, with a slightly higher intake recommended for women who are pregnant or breastfeeding.

Description

Vitamin A is essential for maintaining healthy vision, immune function, and skin integrity. It also plays a role in cell differentiation and growth, supporting various bodily functions.

How it helps

Genetically higher vitamin A metabolite levels (retinol and retinoic acid) may be associated with increased longevity [R].

Please note: *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available*.

Please note: *A high dose of vitamin A or taking high amounts of vitamin A long-term can be harmful, especially in women planning pregnancy or already pregnant. Vitamin A may cause harm to the fetus Vitamin A may also interact with some medications. Talk to your doctor before supplementing with vitamin A* [R, R, R].

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.

TSH	2.76 mcIU/mL	0.4 – 1.5 – 2.5 – 4.5	9 Nov 2025
Apolipoprotein A1	119.5 mg/dL	128 – 190	9 Nov 2025
DHEA Sulfate	303 mcg/dL	70 – 200 – 464 – 650	9 Nov 2025
Zinc	17.12 umol/L	7.65 – 9.18 – 12.24 – 19.89	9 Nov 2025
LDL Cholesterol	103 mg/dL	0 – 100 – 130 – 189	9 Nov 2025
Vitamin D, 25-Hydroxy, Total	58.59 ng/mL	10 – 20 – 30 – 75 – 150	9 Nov 2025
Albumin	4.3 g/dL	3.4 – 4.4 – 5.5	9 Nov 2025
HDL Cholesterol	42 mg/dL	40 – 90	9 Nov 2025
Homocysteine	12.84 umol/L	5 – 9 – 15 – 100	9 Nov 2025

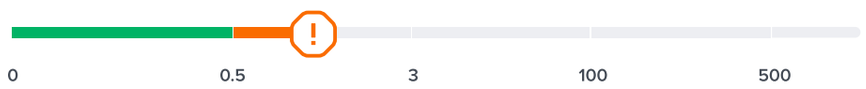
Lipoprotein(a)

85.6 mg/dL

9 Nov 2025

hs-CRP

1.6 mg/L



9 Nov 2025

Testosterone, Total

1500 ng/dL

9 Nov 2025

Testosterone, Free (Direct / Labcorp)

150 pg/mL

9 Nov 2025

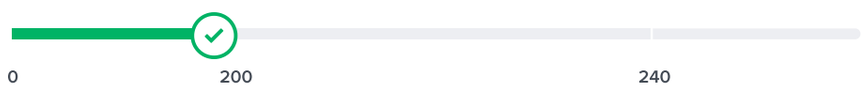
Calcium

9.2 mg/dL

9 Nov 2025

Cholesterol, Total

182 mg/dL



9 Nov 2025

Iron

228 mcg/dL

9 Nov 2025

ApoB

108 mg/dL

9 Nov 2025

Your Lifestyle Assessments

Ever heard of the term Nature vs. Nurture?

The thing is, both DNA and environment play a role in determining your health risks. The following assessments shows how much of an impact your lifestyle, environment and medical history are having on your health risks.

LIFESTYLE

You have a slightly reduced risk of reduced longevity based on the answers you provided.

Factors impacting your risk:

How many cups of coffee do you drink on a typical day?

0

Increasing Risk

In a typical week, how many times do you participate in any physical activities or exercise for 30 minutes at a time? (such as walking, running, bike riding, weight training, yoga, etc.)

*Note: longer exercise equals more sessions (e.g., 1 hour = 2 sessions)

8 or more

Decreasing Risk

Do you smoke tobacco?

No, never

Decreasing Risk

How much sleep do you get in a typical night?

7 hours or more

Decreasing Risk

How often do you eat fish?

1 or more times a week

Decreasing Risk

Do you regularly eat 5 or more servings of fruit or vegetables a day?

Yes

Decreasing Risk

How many times a week do you eat processed meat (e.g., ham, sausage, beef jerky, etc.)?

0-2

Decreasing Risk

How often do you eat meat?

Once a day

Decreasing Risk

Your BMI:

22.77

Decreasing Risk

Have you ever been diagnosed with alcohol use disorder?

No

Decreasing Risk

What is your height?

165 cm

No impact

What is your current weight?

62.0 kg

No impact