

Aerobic Capacity (VO2 Max)

DNA Health Report

REPORT CATEGORY —



Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

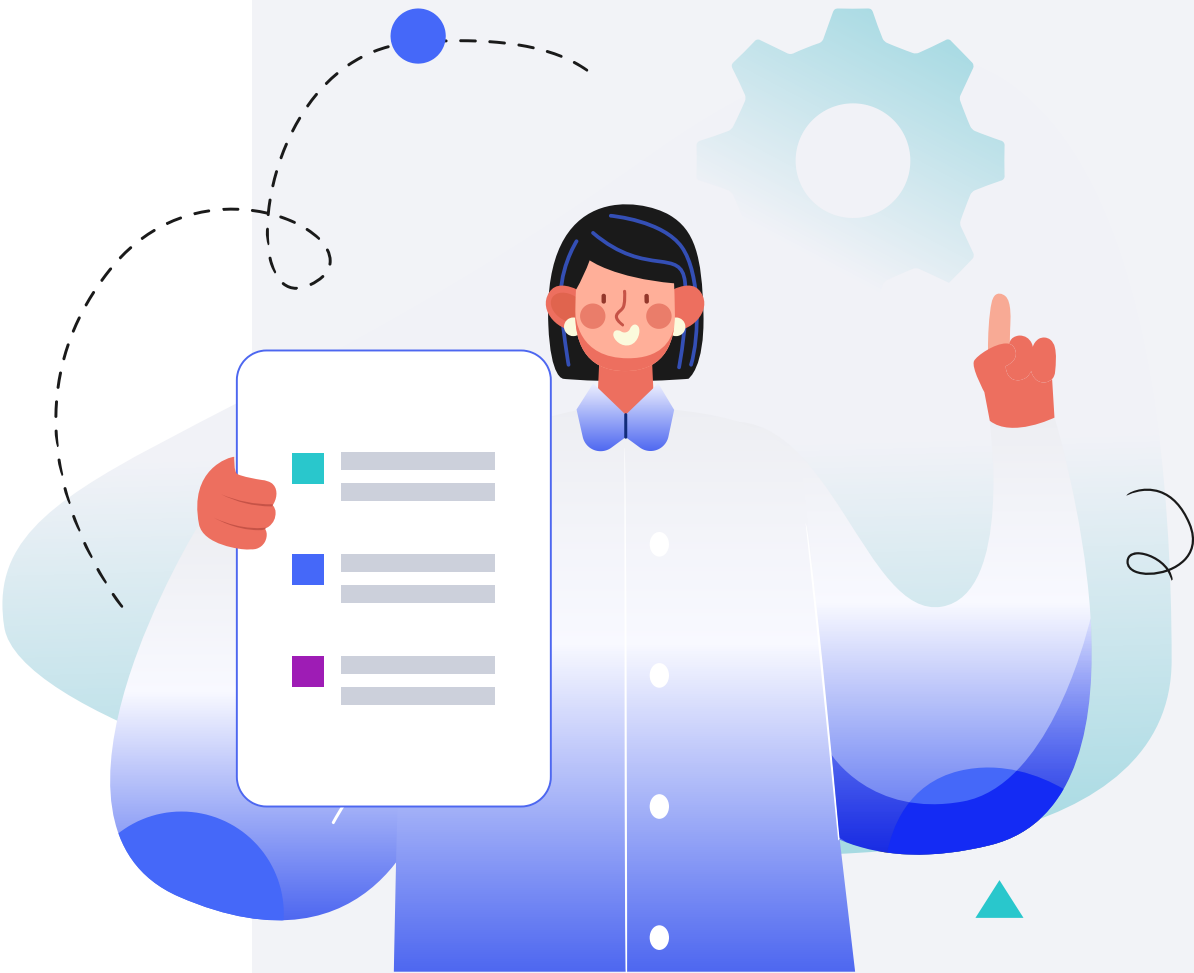
Male

HEIGHT

5ft 5" 165cm

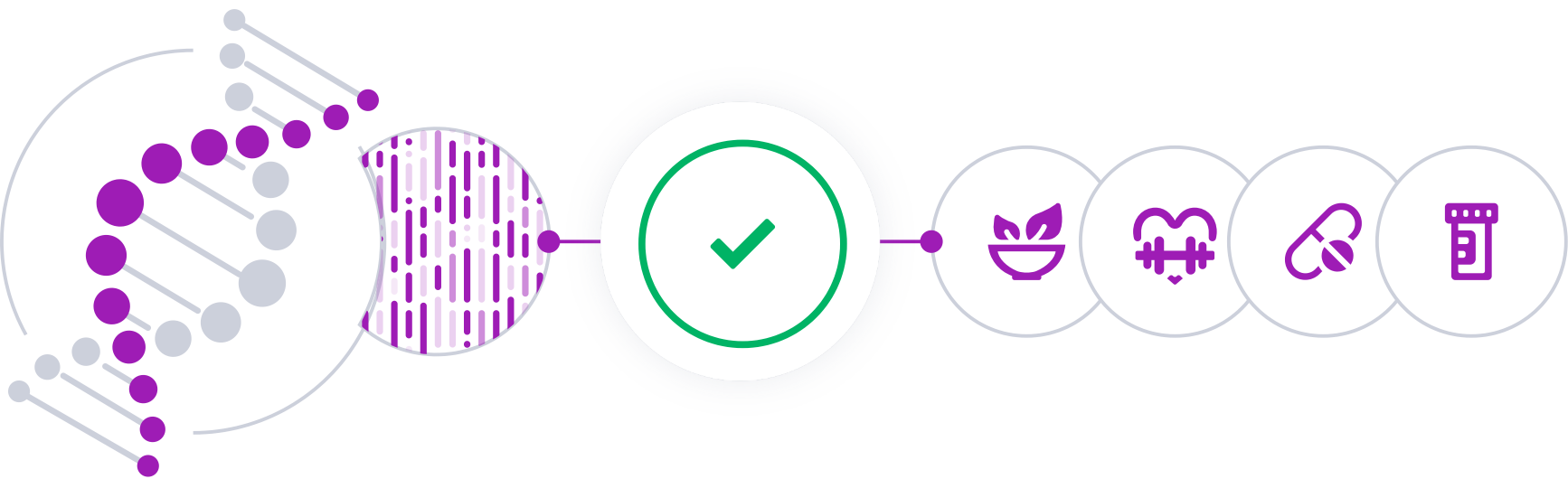
WEIGHT

137lb 62kg



How this works

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

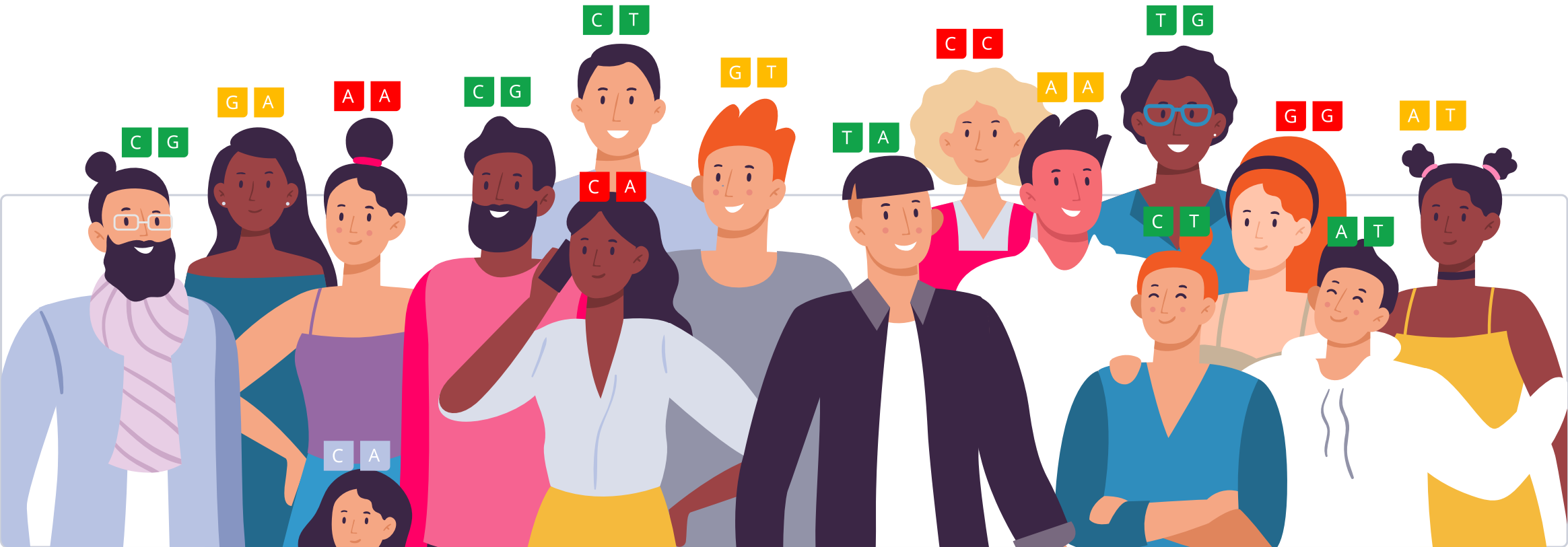


Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

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



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

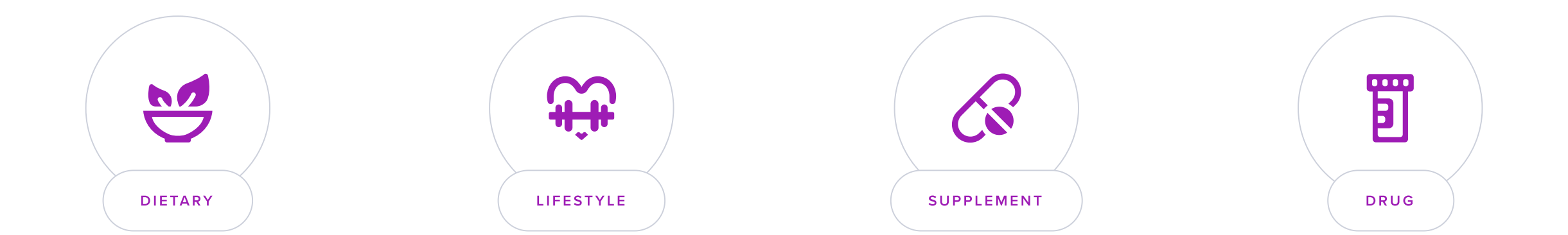
You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
-
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
-
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
-
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
-
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

VO₂ max (maximal oxygen uptake) **measures your body's maximum rate of oxygen consumption during intense exercise**. It is a **key indicator of your fitness** level and your endurance. Usually, it is measured on a treadmill or bike, where your oxygen consumption is monitored as exercise intensity increases [\[R\]](#), [\[R\]](#), [\[R\]](#).

A higher VO₂ max means that your body can deliver and utilize more oxygen to produce energy, which is linked to **higher aerobic fitness and improved athletic performance** [\[R\]](#).

A higher VO₂ max is associated with better:

- Heart health [\[R\]](#)
- Lung health [\[R\]](#)
- Immunity [\[R\]](#), [\[R\]](#)
- Mental health [\[R\]](#)
- Cognitive function [\[R\]](#)

People who have higher VO₂ tend to live longer and healthier lives [\[R\]](#), [\[R\]](#), [\[R\]](#).

Factors Influencing VO2 Max

PERSONALIZED TO GENES

Based on the genetic variants that we looked at, you are predisposed to a typical VO2 max. In other words, you may have typical ability for intense cardio exercise like running or swimming.

However, keep in mind that your fitness level has a major impact on VO2 max. Regular cardio workout will help you increase VO2 max.

VO₂ max (maximal oxygen uptake) **measures how efficiently your body uses oxygen during intense exercise**. It is a **key indicator of your aerobic fitness**. A higher VO₂ is linked to better endurance and improved athletic performance [\[R, R, R\]](#).

Between **45%-70%** of differences in people's VO₂ max may be due to **genetics** [\[R, R\]](#).

Genes linked to VO₂ max play roles in [\[R, R, R\]](#):

- Muscle composition and function
- Energy production
- Glucose and lipid metabolism
- Blood flow and oxygen delivery

Other important factors that influence VO₂ max include [\[R, R, R, R, R, R\]](#):

- **Physical activity:** Exercise may help improve VO₂ max by up to 30%. The difference is especially pronounced in those who are the least fit.
- **Gender:** Men typically have a greater VO₂ max than women.
- **Age:** VO₂ max tends to drop by about 2% per year after age 30
- **Body weight and composition:** Increased body fat can impair oxygen delivery during exercise.



TYPICAL

Predisposed to typical VO2 max based on 7,265,663 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NUP93	rs78291913	TC
/	rs139077859	GG
SCN10A	rs6801957	CC
TGM2	rs4811602	GG
SEC31B	rs11190709	AG
ERBIN	rs251295	GA
KLRK1	rs10743889	TT
RSU1	rs11254160	GG
POLM	rs10232743	CC
MOXD1	rs589756	AC
CCDC141	rs10497529	GG
CCDC141	rs142556838	CC
KCND3	rs269071	AA

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

- **Health status:** Conditions such as heart disease, lung disease and anemia can decrease VO₂ max.

You can improve your VO₂ max by doing cardio. Vigorous physical activity that gets your heart pumping is the best way to increase your aerobic fitness.

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE			
1	Exercise At Least One Hour a Day	1 hour	2	Aerobic Exercise (Cardio)	1 hour
3	Strength Training	1 hour	4	Practice Exercise Snacks	1 minutesute
5	Soccer	30 minutes	6	High-Impact Exercise	30 minutes
7	Dance	30 minutes	8	Zumba	1 hour
9	Workplace Physical Activity		10	Aquatic Exercise	1 hour
11	Walking	30 minutes	12	Eccentric Exercise	
13	Betaine (TMG)	500 mg	14	Maintain Optimal Iron Levels	10 mg
15	Intermittent Fasting		16	Beta-Alanine	2 g
17	Colostrum	20 g	18	Ashwagandha	120 mg
19	Breathing Techniques	10 minutes	20	Cocoa	
21	Quercetin	200 mg	22	Climbing	1 hour
23	Tai Chi	1 hour	24	Stair Climbing	10 minutes
25	Omega-3 (Fish Oil)	500 mg	26	Beetroot	
27	Nicotinamide Mononucleotide (NMN)	250 mg	28	Hatha Yoga	1 hour
29	Blood Flow Restriction Training	15 minutes	30	Hydroxymethylbutyrate (HMB)	3 g
31	Ashwagandha KSM-66		32	Lactobacillus Plantarum	10 billion CFU

33	Bromelain		34	Exercise and Sauna	
35	Maintain Optimal Vitamin D Levels	1000 iu	36	Mangiferin	150 mg
37	Ecklonia Cava	100 mg	38	Beetroot Juice	
39	Pranayama (Yoga Breathing)	15 minutes	40	Urolithin A	250 mg

1



Exercise At Least One Hour a Day

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps

Exercise training is the most effective strategy to increase VO2 max in both adults and children [\[R, R, R\]](#).

High-intensity interval training (HIIT) may provide the greatest benefits on VO2 max. This type of exercise may cause greater VO2 max increments than continuous training. HIIT interventions with long intervals (at least 2 minutes), high volumes (at least 15 minutes), and long duration (at least 12 weeks) may be most effective [\[R, R, R, R, R, R, R, R\]](#).

Aerobic training may also increase VO2 max. You can start with lower-impact workouts such as walking or zumba and gradually incorporate higher-intensity exercise [\[R, R, R, R, R, R, R, R\]](#).

Resistance training may also improve VO2 max, but less effectively than HIIT or aerobic training [\[R, R\]](#).

2



Aerobic Exercise (Cardio)

IMPACT

5 / 5

EVIDENCE

4 / 5

How to implement

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

TYPICAL STARTING DOSE
1 hour

Description

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

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

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

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

How it helps

Exercise training is the most effective strategy to increase VO2 max in both adults and children [\[R, R, R\]](#).

Aerobic training may increase VO2 max. You can start with lower-impact workouts such as walking or zumba and gradually incorporate higher-intensity exercise [\[R, R, R, R, R, R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

Cardio exercise may increase VO₂ max more in people with your [AMPD1](#) gene variant [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
AMPD1	rs17602729	GG	

3



Strength Training

IMPACT

4 / 5

EVIDENCE

4 / 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

Exercise training is the most effective strategy to increase VO2 max in both adults and children [R, R, R].

Resistance training may improve VO2 max, but less effectively than HIIT or aerobic training [R, R].

4



Practice Exercise Snacks

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Integrate short bursts of physical activity, each lasting about 1 to 2 minutes, into your daily routine at least two to three times a day. These 'exercise snacks' can include activities like doing a set of stairs, rapid bodyweight exercises, pull-ups, push-ups, sit-ups, or brisk walking.

TYPICAL STARTING DOSE

1 minutesute

Description

Staying physically active is essential for maintaining overall health and well-being. **Exercise snacks** are brief, frequent bursts of physical activity integrated into daily routines, helping combat the health risks associated with prolonged sitting and sedentary behavior, such as obesity and cardiovascular issues. Examples include taking the stairs or doing quick exercises during work breaks.

Staying active can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

Exercise snacks are short, quick bursts of physical activity performed throughout the day, designed to break up prolonged periods of sitting or inactivity. These brief bouts of exercise can be as short as a few minutes and are incorporated into daily routines to boost overall physical activity levels.

Exercise snacks are crucial for health because they combat the negative effects of sedentary behavior, such as prolonged sitting, which is associated with an increased risk of obesity, cardiovascular diseases, diabetes, and musculoskeletal issues. They help improve blood circulation, regulate blood sugar levels, and enhance mood and cognitive function.

Examples of exercise snacks include taking the stairs instead of the elevator, doing a few minutes of bodyweight exercises (e.g., squats or push-ups) during work breaks, or walking briskly for a few minutes after meals. These short, frequent bursts of activity contribute to a more active lifestyle and can significantly benefit overall health by reducing the risks associated with excessive sitting.

How it helps

A meta-analysis of 27 studies and 720 participants concluded that regular physical training improves VO2max, especially at 80% intensity or more and for 30 minutes or more [\[R\]](#).

Workplace physical interventions may improve VO2 max by 3.5 mL/kg/min according to a meta-analysis of 138 studies and 38,231 participants [\[R\]](#).

5



Soccer

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Engage in a game of soccer for at least 30 minutes, three times a week. This activity can be informal, such as playing with friends at a local park, or through structured league participation.

TYPICAL STARTING DOSE
30 minutes

Description

Soccer is a popular sport that provides cardiovascular exercise, improves coordination, and improves strength and endurance.

Soccer, also known as football, is the most popular sport in the world. The objective is to score goals by kicking the ball into the opposing team's goal post.

Playing soccer helps improve cardiovascular fitness, coordination, strength, endurance and more. Additionally, soccer is a great way to boost self-confidence, teamwork, and social interaction.

How it helps

A meta-analysis of 17 studies concluded that recreational soccer improves VO2 max by 3.51 mL/kg/min, making it more effective than strength training and continuous endurance running [\[R\]](#).

6



High-Impact Exercise

IMPACT

3 / 5

EVIDENCE

4 / 5

How to implement

Engage in high-impact exercises like jogging, skipping rope, or playing sports such as basketball or volleyball for at least 30 minutes, 3 to 4 times a week. Ensure to include a warm-up and cool-down period of 5 to 10 minutes to prevent injuries.

TYPICAL STARTING DOSE

30 minutes

Description

High-impact exercise, such as running or jumping, can help improve cardiovascular fitness, bone density, and overall strength. It's an effective way to burn calories and promote physical health when performed safely and in moderation.

How it helps

Exercise training is the most effective strategy to increase VO2 max in both adults and children [\[R, R, R\]](#).

A meta-analysis of 35 studies concluded that running for 1 year increases VO2 max by 7.1 mL/min/kg [\[R\]](#).

High-intensity interval training (HIIT) may provide the greatest benefits on VO2 max. This type of exercise may cause greater VO2 max increments than continuous training. HIIT interventions with long intervals (at least 2 minutes), high volumes (at least 15 minutes), and long duration (at least 12 weeks) may be most effective [\[R, R, R, R, R, R, R, R\]](#).

Aerobic training may also increase VO2 max [\[R, R, R, R, R, R, R, R\]](#).

In contrast, a meta-analysis of 21 studies found no beneficial effects of jumping on VO2 max [\[R\]](#).

7



Dance

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Engage in dance activities for at least 30 minutes, three times per week. You can choose any form of dance you enjoy, such as ballroom, hip hop, or salsa, and you can dance at home, in a studio, or in a group class setting.

TYPICAL STARTING DOSE

30 minutes

Description

Dancing involves moving your body to music. Many people take dance classes to learn various styles of dance and improve their skills. Examples include:

- Ballet
- Zumba
- Belly dancing
- Hip hop
- Salsa

Dancing is a fun, creative, and relaxing activity. It can also provide a range of health benefits, improving your heart health, brain health, fitness, and more.

How it helps

A meta-analysis of 7 studies concluded that dance increases VO2 max (by 3.4 mL/kg/min). Another meta-analysis (2 studies) found beneficial effects of dance therapy in heart failure patients [\[R, R\]](#).

Similarly, 2 meta-analyses (the largest one with 11 studies) concluded that Zumba increases VO2 max [\[R, R\]](#).

Dancing involves coordinated movements that elevate heart rate, thereby enhancing your body's oxygen consumption. This heightened aerobic exercise trains your cardiovascular system, facilitating more efficient usage and transport of oxygen.

8



Zumba

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Participate in a Zumba class at least 3 times per week for a duration of one hour each session. Choose a class appropriate for your fitness level to ensure safety and effectiveness.

TYPICAL STARTING DOSE

1 hour

Description

Zumba is a fitness program that combines dance and aerobic movements set to energetic music. It's popular for its potential to improve cardiovascular fitness, coordination, and overall physical health through a fun and engaging workout.

How it helps

Zumba may slightly improve VO2 max according to a meta-analysis of 8 studies [\[R\]](#).

9



Workplace Physical Activity

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Incorporate short, frequent breaks during your workday to stand up, stretch, or walk for 5-10 minutes every hour. Aim to include at least 30 minutes of moderate-intensity physical activity, such as brisk walking or cycling, during your work day, either in one go or broken up into shorter sessions.

Description

Workplace physical activity involves incorporating physical movement into the workday to promote employee health and productivity. It can reduce the risk of sedentary-related health issues, boost mental well-being, and enhance job performance.

How it helps

Workplace physical interventions may improve VO2 max by 3.5 mL/kg/min according to a meta-analysis of 138 studies and 38,231 participants [\[R\]](#).

10



Aquatic Exercise

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Participate in aquatic exercise sessions, such as swimming or water aerobics, for 60 minutes, 3 to 5 times per week. Ensure the exercise intensity is moderate, allowing you to talk but not sing during the activity. Consistency over time is key, so aim to incorporate this into your weekly routine for at least 3 to 6 months to observe benefits.

TYPICAL STARTING DOSE

1 hour

Description

Aquatic exercise involves physical activity performed in water, such as swimming, water aerobics, or aquatic therapy. It is gentle on the joints, making it suitable for individuals with mobility issues, and can help improve cardiovascular fitness and muscle strength.

Aquatic exercise is any type of low-impact physical activity performed in a pool. In this type of cardio exercise, water helps the body float, which reduces gravity and makes the practice more comfortable and tolerable [\[R\]](#), [\[R\]](#).

Compared to land-based exercise, aquatic exercise may be better by [\[R\]](#):

- Reducing the stress and impact on joints
- Lowering fracture risk

Hence, it is usually **recommended for the elderly**. Aquatic exercise is also suitable for people who don't know how to swim [\[R\]](#).

How it helps

Aquatic exercise improves VO2 max according to a meta-analysis of 28 studies. However, land-based exercise has much larger effects. Nevertheless, a meta-analysis of 20 studies concluded that this type of exercise increases VO2 max by 4.12 mL/kg/min in postmenopausal women [\[R\]](#), [\[R\]](#).

11



Walking

IMPACT

3 / 5

EVIDENCE

3 / 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

- A systematic review of 42 studies (1843 participants) shows walking groups provide various health benefits, including improved VO2 max (2.66 mL/kg/min), physical functioning (SF-36), and reduced depression scores (-0.67 effect size) [\[R\]](#).
- A meta-analysis of 24 trials (1128 sedentary adults) found regular brisk walking (9.9-65 min/bout, 38.3 min/bout, 8–104 weeks, 2–7 days/week, 50–270 min/week, 188 min/week) increased VO2max, reduced body weight, BMI, body fat, and diastolic blood pressure, benefiting cardiovascular health [\[R\]](#).
- Insufficient evidence from a meta-analysis of 37 RCTs (2001 participants) suggests unclear requirements for walking (frequency, duration, intensity) to improve CVD risk factors, with significant effects on seven out of 13 factors [\[R\]](#).
- Regular walking increases your heart and lung fitness, improving your body's ability to use oxygen (VO2 Max).

12



Eccentric Exercise

IMPACT

3 / 5

EVIDENCE

3 / 5

Description

Eccentric exercise is a type of exercise where the muscle lengthens as it contracts. It has been shown to have a number of health benefits, including increased muscle strength, improved bone density, and reduced risk of injury.

How it helps

- A meta-analysis of 14 studies concluded that eccentric cycling training improves VO2 max and 6-min walking distance [\[R\]](#).

13



Betaine (TMG)

IMPACT

3 / 5

EVIDENCE

1 / 5

How to implement

To take Betaine (TMG) as a supplement, consume 500-2000 mg daily, preferably with a meal to enhance absorption. It is recommended to start at the lower end of the dosage range and adjust based on personal tolerance and effectiveness. This supplement can be taken indefinitely for ongoing support of heart health and liver function.

TYPICAL STARTING DOSE

500 mg

Description

Betaine is a compound found in various foods and used in dietary supplements for its potential to support liver health and contribute to healthy homocysteine levels.

How it helps

In a placebo-controlled trial of 29 young professional soccer players, supplementation with betaine (2 g/day for 14 weeks) improved maximal oxygen uptake (VO2max), anaerobic peak power, and muscular strength [\[R\]](#).

Please note: *Doses above 4 g/day may increase LDL and triglyceride levels. TMG supplementation can cause a person’s urine and sweat to smell fishy* [\[R\]](#), [\[R\]](#).

14



Maintain Optimal Iron Levels

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Check your iron levels. If they are below optimal, take a 10 mg iron supplement daily, preferably with a meal to enhance absorption and reduce stomach upset.

TYPICAL STARTING DOSE

10 mg

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** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Foods rich in iron include [\[R\]](#):

- Oysters
- White beans
- Beef
- Chocolate
- Spinach
- Fortified cereals

Women should be getting **8-18 mg** of iron per day, while **men** should be getting **8 mg** [\[R\]](#).

Groups at risk of iron deficiency include [\[R\]](#):

- Women
- Children
- Vegetarians
- Routine blood donors

Iron supplements are available for people who can't meet their needs through a balanced diet, but they should not be taken without consulting a doctor.

How it helps

Supplementation with iron (100-300 mg/day) may increase VO2 max in iron-deficient athletes and women of reproductive age. **However, there is no evidence that iron increases VO2 max in people with sufficient iron levels** [\[R\]](#), [\[R\]](#).

Please note: *A high dose of iron can be toxic. If you are not deficient, it is best to get iron from food. Talk to your doctor before taking iron supplements* [\[R\]](#).

15



Intermittent Fasting

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Limit your daily eating to a specific window of time, typically within an 8-hour period such as from 12 pm to 8 pm, and fast for the remaining 16 hours of the day. Repeat this daily or for at least 3-4 days per week.

Description

Intermittent fasting is an eating pattern that involves cycling between periods of fasting and eating. It may help with weight management, improve metabolic health, and offer potential benefits for certain health conditions when done under proper guidance.

[Intermittent fasting](#) (IF) is a pattern of eating that alternates between periods of eating and fasting. The most popular IF method is called the 16/8 method, where you fast for 16 hours and eat during an 8-hour window.

People mainly practice IF to lose weight. Besides benefits related to weight reduction, IF may help lower the risk of [\[R\]](#):

- Alzheimer's disease
- Joint pain
- Asthma
- Multiple sclerosis
- Stroke

Some types of intermittent fasting, such as Ramadan fasting, are also practiced for religious reasons.

How it helps

A systematic review of 28 studies found that time-restricted feeding improved maximum oxygen uptake but Ramadan intermittent fasting reduced it. Intermittent fasting had mixed effects on body composition, muscle strength, and anaerobic capacity [\[R\]](#).

Intermittent fasting can lead to an increase in mitochondrial biogenesis in the cells, which can improve your VO2 max.

16



Beta-Alanine

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 2-3 grams of beta-alanine supplement daily, ideally in divided doses throughout the day to minimize potential skin tingling sensations. This supplementation can be continued for at least 4 weeks to observe benefits in exercise performance and muscle endurance.

TYPICAL STARTING DOSE

2 g

Description

Beta-alanine is an amino acid that can enhance muscle endurance by increasing the body's buffering capacity against lactic acid accumulation during intense exercise. Supplementing with beta-alanine may help improve athletic performance and delay muscle fatigue.

How it helps

A meta-analysis of 15 studies concluded that supplementation with beta-alanine (typically, 108-245 mg/day for 7-49 days) improves exercise performance (including muscular and isometric endurance) by 2.85% [\[R\]](#).

Similarly, a systematic review of 8 studies identified beta-alanine among the supplements that improve endurance performance in older people [\[R\]](#).

By increasing carnosine levels, beta-alanine supplementation may improve VO2 max by delaying muscle fatigue and enhancing exercise performance.

17



Colostrum

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take colostrum supplements orally, typically 20 to 60 grams daily, split into two to three doses. It is recommended to start with a lower dose and gradually increase as needed. This supplement can be taken for varying durations, from a few weeks to several months, depending on the health goals and responses observed.

TYPICAL STARTING DOSE

20 g

Description

Colostrum is the first milk produced by mammals, including humans, after giving birth. It is rich in nutrients and antibodies and is believed to support newborns' immune systems and overall health.

Colostrum, or “first milk,” is the very first type of milk produced right after a mammal gives birth. It supports the newborn’s immune system and provides a rich source of nutrients and growth factors [\[R\]](#).

People take colostrum to boost immunity and exercise performance [\[R\]](#).

How it helps

In a study with 42 competitive cyclists, those who consumed either 20g/d or 60g/d of bovine colostrum along with 40g of whey protein concentrate showed a small but significant improvement in time trial performance after a 2-hour ride at 65% VO2max [\[R\]](#).

In a study with 29 male road cyclists, those who took bovine colostrum protein concentrate (CPC) showed improved performance (1.9%) in a 40 km time trial (TT40) after 5 weeks of supplementation compared to a placebo group. Additionally, bovine CPC prevented a decrease in ventilatory threshold [\[R\]](#).

Colostrum supplements may enhance aerobic capacity by increasing the body's levels of IGF-1, a hormone that supports muscle growth and repair. This could potentially improve physical performance and endurance.

18



Ashwagandha

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take 250-600 mg of ashwagandha supplement daily. It can be consumed with water or a meal, depending on your preference or as advised by a healthcare provider.

TYPICAL STARTING DOSE
120 mg

Description

[Ashwagandha](#) (*Withania somnifera*) is an herb used in traditional Indian medicine. This herb is known as an *adaptogen* because it helps people adapt to stress.

This herb is known as an *adaptogen* because it helps people adapt to stress [\[R\]](#), [\[R\]](#).

How it helps

Supplementation with ashwagandha (300-600 mg/day) may improve VO2 max in both athletes and non-athletes [\[R\]](#), [\[R\]](#).

Ashwagandha may help by improving hemoglobin content in red blood cells. This may result in increased oxygen delivery to the muscles [\[R\]](#).

19



Breathing Techniques

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Practice deep breathing exercises for 10 minutes daily, preferably in a quiet space where you won't be disturbed. Sit or lie down in a comfortable position, slowly inhale through your nose, allowing your chest and lower belly to rise, hold the breath for a moment, and then exhale slowly through your mouth or nose. This can be done at any time of day to reduce stress and improve focus.

TYPICAL STARTING DOSE

10 minutes

Description

Breath awareness and specific breathing techniques, such as deep breathing or mindfulness-based practices, can help reduce stress, improve focus, and enhance overall mental well-being. These techniques are valuable tools for managing anxiety and promoting relaxation.

Most breathing techniques involve taking slow and even breaths. Their main goal is to prevent rapid breathing (**hyperventilation**) [\[R\]](#).

Breathing techniques tend to help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Stress
- Anxiety
- Sleep problems
- Asthma

One example is the **Buteyko breathing technique**. It's often used by people with asthma or other conditions that affect the lungs [\[R\]](#).

Another example is **yogic breathing**. [Yoga](#) is a practice that combines breathing techniques with exercise and meditation [\[R\]](#), [\[R\]](#).

How it helps

Training the breathing muscles with a special device may considerably increase VO2 max. However, the evidence is mixed [\[R\]](#), [\[R\]](#), [\[R\]](#).

Breathing techniques may help by improving the efficiency of breathing endurance and increasing blood flow to the respiratory muscles [\[R\]](#).

20



Cocoa

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate 30-60 grams of high-quality dark chocolate (with at least 70% cocoa content) into your daily diet. Enjoy it as a snack or dessert to reap the potential heart health benefits.

Description

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It is found any many foods and drinks, and people have also used it as a medicine for thousands of years. The numerous active components of cocoa can help with weight control, fatigue, mood, and digestion, among others.

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It’s often used for making chocolate, hot chocolate, and pastries. People have also used it as a medicine for over a thousand years [\[R\]](#), [\[R\]](#).

Cocoa contains many active components that likely help [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Control weight
- Lower fatigue
- Boost mood
- Improve digestion
- Balance blood sugar
- Support heart health

Note that pure cocoa is likely a healthier choice than chocolate. If you eat chocolate, choose dark chocolate with more cocoa and less sugar and fat.

How it helps

Consuming dark chocolate (20-40 g/day) may increase VO2 max [\[R\]](#), [\[R\]](#).

Its component theophylline may increase VO2 max in people with COPD [\[R\]](#).

Antioxidant components in cocoa may help by increasing metabolic activity in the muscles [\[R\]](#).

How to implement

TYPICAL STARTING DOSE

200 mg

Description

Quercetin is a plant-based antioxidant. It supports the immune system and helps lower inflammation [R, R].

- Apples
- Onions
- Tea

People mainly use quercetin supplements to relieve allergies [R, R, R].

How it helps

Supplementation with quercetin (600-1000 mg/day) may improve VO2 max. However, the authors warned that **its effects may be small and irrelevant** [R, R].

Quercetin may help by increasing metabolic activity in the muscles [R].

Please note: *quercetin may inhibit the production of the thyroid hormone T4 (thyroxine). Individuals with thyroid disorders, particularly hypothyroidism or low T4 levels, should exercise caution when using quercetin and always consult with a healthcare provider before taking this supplement [R].*

Please note: quercetin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using quercetin supplements [R].

How to implement

TYPICAL STARTING DOSE

1 hour

Description

How it helps

Please note: Climbing injuries are common and can be challenging to diagnose. Climbers typically get injured on their fingers, and if they have been injured before, they are more likely to get hurt again. Seek medical attention if you experience pain after practicing [R].

How to implement

TYPICAL STARTING DOSE

1 hour

Description

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

Tai chi can support cardiovascular health through its gentle, flowing movements that increase oxygen uptake and aerobic ability.

24



Stair Climbing

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Incorporate stair climbing into your daily routine by choosing stairs over elevators or escalators whenever possible. Aim for at least 10 minutes of continuous stair climbing or multiple shorter sessions that add up to 10 minutes per day. This practice can be continued indefinitely to maintain or improve cardiovascular health and lower body strength.

TYPICAL STARTING DOSE

10 minutes

Description

Stair climbing is a great way to get a full-body workout, improve your cardiovascular health, and burn calories. It can also help to improve your balance and coordination.

How it helps

A study in young adults showed that regular stair climbing exercise improved cardiorespiratory fitness, but the increase was modest [\[R\]](#).

Elderly individuals with mobility limitations benefited from a 12-week weighted stair climbing program, enhancing leg power, but larger studies are needed for confirmation [\[R\]](#).

Stair climbing for 7 weeks in sedentary women improved HDL cholesterol, reduced total:HDL ratio, and lowered VO2 and heart rate during the exercise [\[R\]](#).

A different study in sedentary women found that stair climbing increased VO2 max and reduced LDL cholesterol without changing other lipid profiles [\[R\]](#).

Stair climbing, treadmill running, and elliptical training all increased VO2max similarly in moderately active females over 12 weeks, with decreased sub-maximal heart rate [\[R\]](#).

Comparing stair climbing and running in college-age women, both improved aerobic capacity and performance, suggesting stair climbing as a viable alternative to running [\[R\]](#).

Stair climbing increases heart rate, boosting aerobic capacity over time as it challenges the body to use oxygen more efficiently during exertion.

25



Omega-3 (Fish Oil)

IMPACT1 / 5

EVIDENCE1 / 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

According to one study, omega-3 supplementation (for 8 weeks), combined with lifestyle changes, may lead to improved VO2 max in overweight women [\[R\]](#).

Omega-3 improves blood flow during exercise, potentially leading to increased VO2 Max).

26



Beetroot

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate beetroot into your diet by eating it raw in salads or drinking beetroot juice. Aim for a serving of about one small beetroot or 200-250 ml of beetroot juice daily. You can maintain this dietary practice consistently as part of your regular diet.

Description

Beetroot is a vegetable rich in dietary nitrates, which may help improve cardiovascular health and exercise performance.

How it helps

In a placebo-controlled trial of 13 recreational runners, drinking nitrate-rich beetroot juice for 3 days increased VO2 max. Beetroot juice also increased VO2 max in a non-placebo-controlled trial of 16 soccer players. However, beetroot juice failed to improve this parameter in another trial of 12 elite runners [\[R\]](#), [\[R\]](#).

Beetroot is rich in dietary nitrates, which the body can convert to nitric oxide. This compound can improve blood flow and oxygen delivery to the muscles.

27



Nicotinamide Mononucleotide (NMN)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250-500 mg of nicotinamide mononucleotide (NMN) orally once daily in the morning. It can be taken with or without food. Continue this regimen as part of your daily supplement routine to support cellular health and energy levels.

TYPICAL STARTING DOSE

250 mg

Description

Nicotinamide mononucleotide is a compound that is believed to support cellular energy production and may have potential benefits for aging-related processes.

How it helps

NMN (600-1200 mg/day for 6 weeks) increased VO2 max during exercise training in a placebo-controlled trial of 48 recreationally trained runners [\[R\]](#).

NMN supplements might improve your VO2 max because they increase the level of NAD+ in your cells, which is essential for energy production and physical performance. This potentially increases aerobic capacity, allowing you to exercise longer and harder.

28



Hatha Yoga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Practice Hatha Yoga for 60 minutes at least twice a week. Choose a quiet, comfortable space and consider guided sessions for beginners or those unfamiliar with the poses. Consistency over a period of months to years is beneficial for appreciating its full effects.

TYPICAL STARTING DOSE

1 hour

Description

Hatha yoga is a gentle and accessible form of yoga that combines physical postures, breathing exercises, and meditation. Practicing hatha yoga regularly can promote flexibility, stress reduction, and overall physical and mental well-being.

How it helps

In a study of 80 sedentary women, those in the Hatha yoga group showed significant benefits after a 6-month program, including weight loss (1.03 kg), reduced body fat (4.82%), improved knee and elbow strength (14.6% and 13.1% gains, respectively), and increased relative VO2 max (6.1% increase) [\[R\]](#).

Hatha yoga may help by training the respiratory muscles and enhancing oxygen uptake.

29



Blood Flow Restriction Training

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Wrap a blood flow restriction (BFR) band or cuff around the upper portion of your limbs (arms or legs) at a pressure that feels tight but not painful, aiming for a perceived tightness of 7 out of 10. Engage in low-intensity resistance training, such as lifting weights that are 20% to 30% of your one-rep max, or perform bodyweight exercises. Do this for 15-30 minutes, 2-3 times a week. Always release the bands after each exercise set to restore normal circulation.

TYPICAL STARTING DOSE

15 minutes

Description

Blood flow restriction (BFR) training is a specialized fitness and rehabilitation technique that involves applying pressure to restrict blood flow to specific muscles during exercise. This is typically achieved using cuffs or wraps placed on the limbs and then inflated to a controlled pressure. By temporarily reducing blood flow while allowing arterial inflow, BFR training creates a unique physiological response. It induces metabolic stress and muscle fatigue, leading to muscle growth and strength gains, even with lighter weights.

BFR is widely used in rehabilitation settings to aid in the recovery of injured individuals, helping them rebuild muscle strength without overloading compromised areas. It also has applications in improving muscular endurance and may have potential cardiovascular benefits, such as lowering blood pressure and enhancing vascular function. However, it should be performed under the guidance of a trained professional, as it's not suitable for everyone and has specific safety considerations.

How it helps

Two separate non-placebo-controlled trials showed that BFR training had a positive impact on aerobic capacity. In one study with 31 elite rowers, 15 sessions of 5-hour practical BFR over 5 weeks increased VO2 max. In another trial involving 18 male swimmers, applying BFR to the upper limbs 3x/week for 5 weeks also led to improved VO2 max [\[R\]](#), [\[R\]](#).

30



Hydroxymethylbutyrate (HMB)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take hydroxymethylbutyrate (HMB) as a supplement in a dose of 3 grams per day. This can be split into three 1-gram servings taken with meals throughout the day to help with muscle strength and body composition. Continuation typically ranges from weeks to months, depending on fitness goals and personal response.

TYPICAL STARTING DOSE

3 g

Description

HMB is a metabolite of the amino acid leucine. It is often used as a dietary supplement to support muscle recovery and reduce muscle breakdown during intense physical training.

HMB, or beta-hydroxy-beta-methylbutyrate, is a compound naturally produced in the body and available as a supplement. It helps build muscle tissue.

Athletes use HMB to support muscle growth, reduce muscle damage, and enhance recovery.

How it helps

A systematic review of 9 studies concluded that supplementation with HMB (3 g/day) improves aerobic fitness markers (including VO2 max) [\[R\]](#).

31



Ashwagandha KSM-66

IMPACT

1 / 5

EVIDENCE

1 / 5

Description

[Ashwagandha](#) (*Withania somnifera*) is an herb used in traditional Indian medicine. This herb is known as an *adaptogen* because it helps people adapt to stress.

This herb is known as an *adaptogen* because it helps people adapt to stress [\[R\]](#), [\[R\]](#).

KSM-66 is extracted using a unique process that preserves the full spectrum of active compounds (*withanolides*). This extract has been studied for several health benefits, including reducing stress and anxiety, improving cognitive function, enhancing physical performance, and supporting immune health.

How it helps

In a placebo-controlled trial of 49 healthy, athletic adults, supplementation with ashwagandha KSM-66 for 12 weeks increased VO2 max and improved quality of life [\[R\]](#).

32



Lactobacillus Plantarum

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a probiotic supplement containing *Lactobacillus plantarum* 299V daily. The typical dosage is 10 billion colony-forming units (CFUs). Continue for at least 4 weeks to assess benefits on digestive health.

TYPICAL STARTING DOSE
10 billion CFU

Description

[Lactobacillus plantarum](#) is a [probiotic](#) bacterium found in many fermented plant products such as sauerkraut, pickles, brined olives, and Korean kimchi [\[R\]](#).

People take *L. plantarum* supplements to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Diarrhea
- Skin appearance
- IBD
- High cholesterol

How it helps

In a placebo-controlled study of 54 healthy participants, the probiotic *L. plantarum* TWK10 was found to improve exercise performance in a dose-dependent manner. Participants who received TWK10 showed increased aerobic endurance, reduced fatigue-associated markers during exercise, and beneficial shifts in body composition, with decreased body fat and increased muscle mass [\[R\]](#).

L. plantarum can enhance your VO2 max by potentially improving your body's oxygen-use efficiency during exercise.

33



Bromelain

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500mg of bromelain supplement two to three times daily, preferably with food to reduce the risk of gastrointestinal discomfort. It is recommended to use for short-term relief, typically not exceeding several months, unless supervised by a healthcare provider.

Description

Bromelain is an enzyme found in pineapple that may have anti-inflammatory and digestive benefits. It's often used as a dietary supplement to aid digestion and reduce swelling associated with injuries or surgery.

[Bromelain](#) is an extract from pineapples. It's rich in enzymes that break down proteins [\[R\]](#).

Bromelain may have some health benefits. People use it to [\[R\]](#):

- Maintain joint health
- Help with burns
- Support heart health

How it helps

In a placebo-controlled trial of 18 healthy adults, supplementation with bromelain increased VO2 max [\[R\]](#).

34



Exercise and Sauna

IMPACT

1 / 5

EVIDENCE

1 / 5

Description

Regular exercise offers a wide range of health benefits, including improved cardiovascular fitness, enhanced muscle strength, better mental health, and reduced risk of chronic diseases such as obesity, diabetes, and heart disease. Engaging in physical activity promotes overall well-being and longevity.

Sauna is a form of whole-body hot application that originated in Finland. Saunas are small rooms that use dry heat from a stove or hot rocks to raise the temperature of the room to 80-100 °C with very low humidity (10-20%) [\[R\]](#).

[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 **30 minutes of moderate physical activity every day**, including walking. **Getting a mix of cardio (at least 150 min/week) and strength training (2 times/week) may be optimal.**

People mainly use saunas to help [\[R\]](#):

- Detox
- Increase blood circulation
- Reduce pain
- Promote relaxation

How it helps

A study compared exercise with and without sauna bathing in sedentary adults with cardiovascular risk factors. Adding sauna to regular exercise significantly enhanced cardiorespiratory fitness, reduced systolic blood pressure, and lowered cholesterol, suggesting that sauna bathing is an effective complement to exercise for cardiovascular improvement [\[R\]](#).

35



Maintain Optimal Vitamin D Levels

IMPACT

1 / 5

EVIDENCE

1 / 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

People with low vitamin D levels may have lower VO2 max, especially if they are physically inactive [\[R, R\]](#).

Supplementation with vitamin D (50,000 IU/week) as an add-on to aerobic exercise may further increase VO2 max. However, vitamin D alone may be ineffective [\[R, R, R\]](#).

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* [\[R\]](#).

36



Mangiferin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a mangiferin supplement of approximately 150-300 mg daily, ideally with a meal to enhance absorption. The duration of use depends on the specific health concern being addressed and recommendations from a healthcare provider.

TYPICAL STARTING DOSE

150 mg

Description

Mangiferin, a natural compound found in mangoes and other plants, is known for its antioxidant and anti-inflammatory properties. It has the potential to protect cells from oxidative stress and inflammation, promoting overall well-being.

Mangiferin is a natural compound found in mangoes and several other plants.

Researchers are interested in its potential benefits for blood sugar control, liver health, heart health, and more. However, the available evidence to support its use as a supplement is limited [\[R\]](#).

How it helps

Mangiferin may boost VO2 max by improving your body's ability to utilize oxygen during intense exercise.

The combination of mango leaf extract (140 mg/day) with quercetin (600 mg/day) and tiger nut extract (350 mg/day) or with luteolin (50 mg/day) **increased peak and mean power output (by 5-7%) and enhanced VO2 max (by 5-8%) and brain oxygenation** in women in a [placebo-controlled trial of 30 healthy volunteers \[R\]](#).

37



Ecklonia Cava

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a supplement of Ecklonia Cava extract, typically available in capsule format, with a standard dose ranging between 100-400 mg daily. It can be taken with or without food, but consistency in timing can help maintain stable levels in your body. It's generally recommended to start with the lower end of the dosing spectrum and adjust based on personal tolerance and efficacy. Continue taking daily for at least a few weeks to gauge the full effect.

TYPICAL STARTING DOSE

100 mg

Description

Ecklonia cava is a type of brown seaweed often used in supplements for its potential antioxidant and anti-inflammatory properties, which may support cardiovascular health and overall well-being.

Ecklonia cava, also known as “sea trumpet”, is a brown seaweed that grows along the coasts of Korea and Japan. People use it as a food, fertilizer, and supplement [\[R\]](#), [\[R\]](#).

Ecklonia cava is traditionally used to fight [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Urinary diseases
- Hemorrhoids
- Constipation

How it helps

Supplementation of Ecklonia cava polyphenol improved endurance performance in a study with college students. The study observed an increase in time to exhaustion and a higher mean VO2 max in the ECP group, suggesting that ECP supplementation may enhance the oxidation of glucose and reduce lactate production during intense exercise [\[R\]](#).

38



Beetroot Juice

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Consume 200-250ml of beetroot juice daily, at least 1-2 hours before engaging in physical activity or as part of your breakfast routine. This regimen should be maintained consistently for at least 2 weeks to start noticing benefits in terms of increased stamina and blood pressure regulation.

Description

Beetroot juice is a concentrated source of dietary nitrates, known for their potential to enhance athletic performance and improve blood pressure regulation. It is often consumed by athletes to enhance stamina and aid in recovery.

Beetroot (*Beta vulgaris*) contains iron, nitrates, sodium, potassium, and betalaine [\[R\]](#).

Beets are an inexpensive and mineral-rich vegetable that are widely used in Western cooking. Compared to other vegetables with high iron content, beets have a low price and are easy to store [\[R\]](#).

How it helps

In a placebo-controlled trial of 13 recreational runners, drinking nitrate-rich beetroot juice for 3 days increased VO2 max. Beetroot juice also increased VO2 max in a non-placebo-controlled trial of 16 soccer players. However, beetroot juice failed to improve this parameter in another trial of 12 elite runners [\[R, R, R\]](#).

Beetroot juice is rich in dietary nitrates, which the body can convert to nitric oxide. This compound can improve blood flow and oxygen delivery to the muscles.

39



Pranayama (Yoga Breathing)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Practice pranayama for 10 to 15 minutes daily. Choose a quiet, comfortable spot where you won't be disturbed. Begin with simple techniques like Ujjayi (Ocean Breath) or Anulom Vilom (Alternate Nostril Breathing), gradually working your way up to more advanced techniques. Consistency is key for observing benefits.

TYPICAL STARTING DOSE

15 minutes

Description

Pranayama is a yogic practice involving controlled and mindful breathing techniques. It is believed to enhance mental clarity, reduce stress, and improve respiratory health by optimizing the flow of life force energy (prana) in the body.

How it helps

In a non-placebo-controlled trial of 200 soldiers acclimated to high altitude, practicing Pranayama yoga improved VO2 max [\[R\]](#).

40



Urolithin A

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take Urolithin A as a dietary supplement in the form of a capsule or powder. The typical dosage ranges between 250 mg to 1,000 mg daily. It should be consumed with or after a meal to enhance absorption, and consistent daily usage over an extended period of months is recommended for best results.

TYPICAL STARTING DOSE
250 mg

Description

Urolithin A is a compound produced by the gut microbiota when digesting ellagic acid, a polyphenol found in certain fruits and nuts. It is studied for its potential to promote muscle health, improve mitochondrial function, and support cellular longevity.

How it helps

In a study of 88 older adults, urolithin A supplementation (at 500 mg or 1000 mg doses for 4 months) resulted in a significant 12% increase in muscle strength. It also showed meaningful improvements in aerobic endurance and physical performance, while reducing inflammation and enhancing mitochondrial efficiency. However, it did not significantly affect peak power output [\[R\]](#).

In another study of 66 older participants, 1000 mg of urolithin A supplementation for 4 months significantly increased muscle endurance compared to the placebo. It also lowered plasma levels of acylcarnitines, ceramides, and C-reactive protein. However, improvements in the 6-minute walk distance and maximal ATP production in the hand muscle were not significant [\[R\]](#).

Urolithin A is believed to stimulate the production of new mitochondria, thus boosting energy production. This can improve your VO2 max, ultimately enhancing aerobic capacity.

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.