

Lactate

Biohacker Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

Powered by

omicsedge

Table of Contents

03 How this works

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

07 Introduction

08 Your genetics

09 Your recommendations

15 Next Steps

- 15 Your Lab Results

DISCLAIMER

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

Personal information

NAME

Sample Client

SEX AT BIRTH

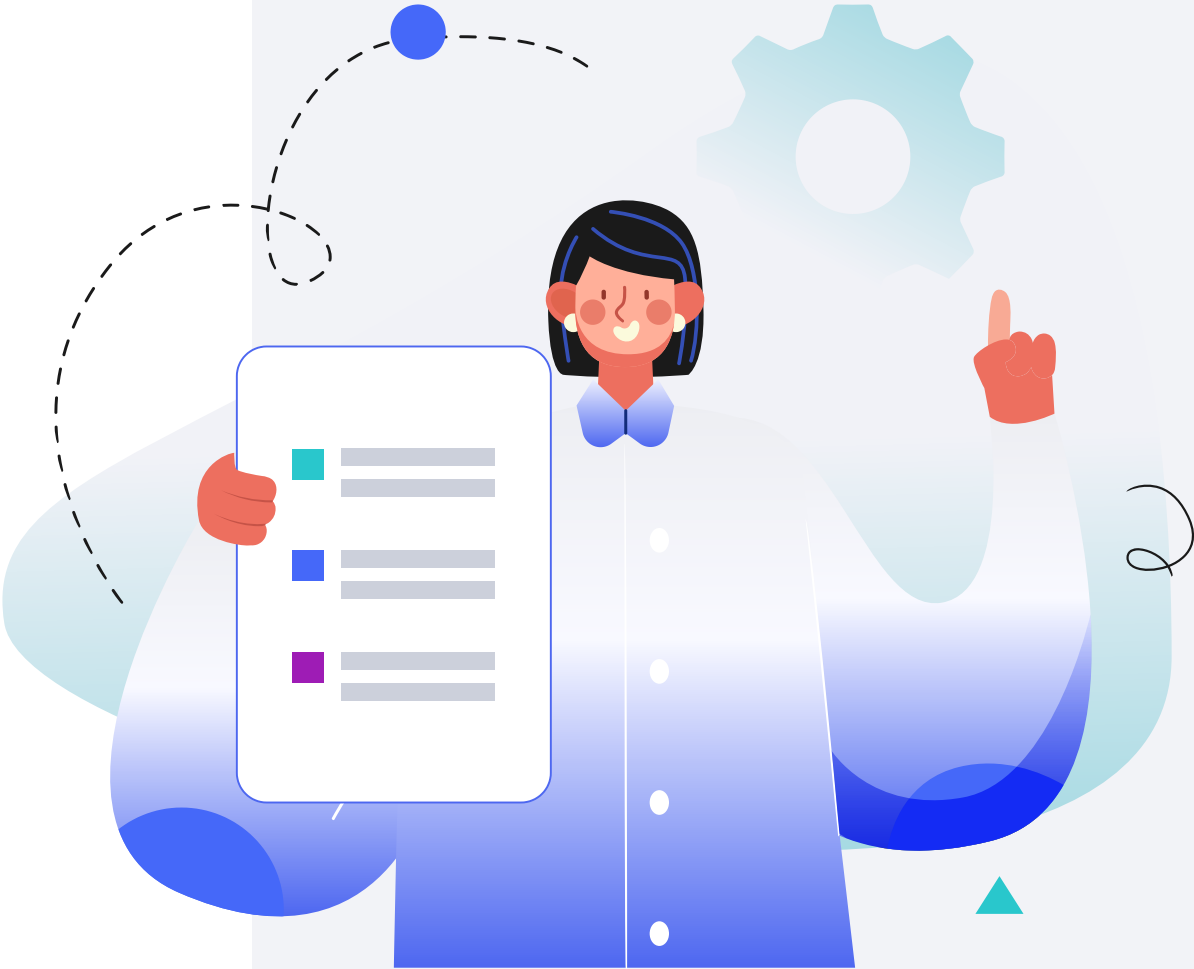
Male

HEIGHT

5ft 5" 165cm

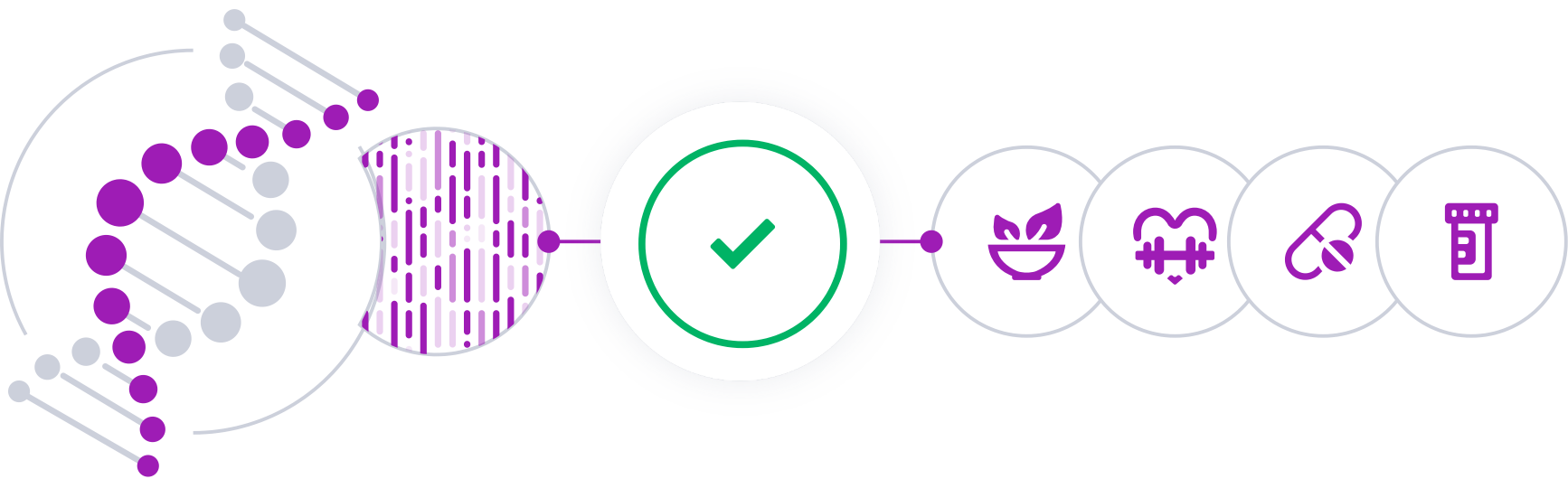
WEIGHT

137lb 62kg



How this works

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

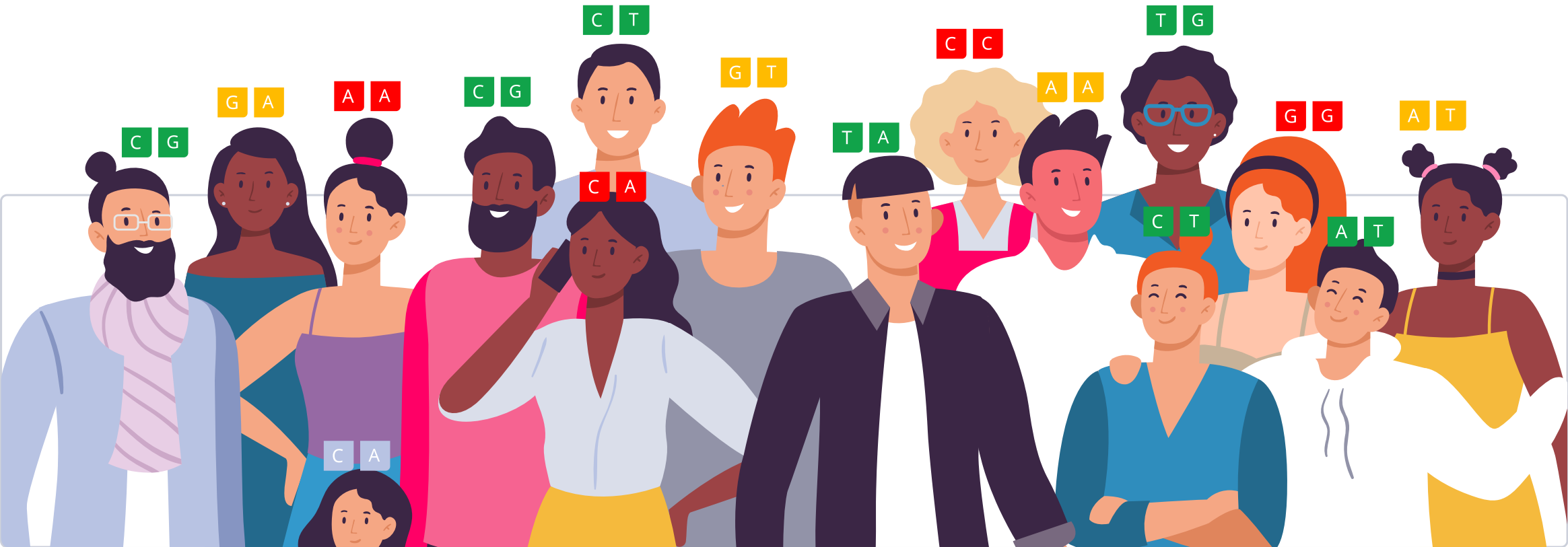


Similarly, our Trait Reports look at how your DNA influences your traits.



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

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



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

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

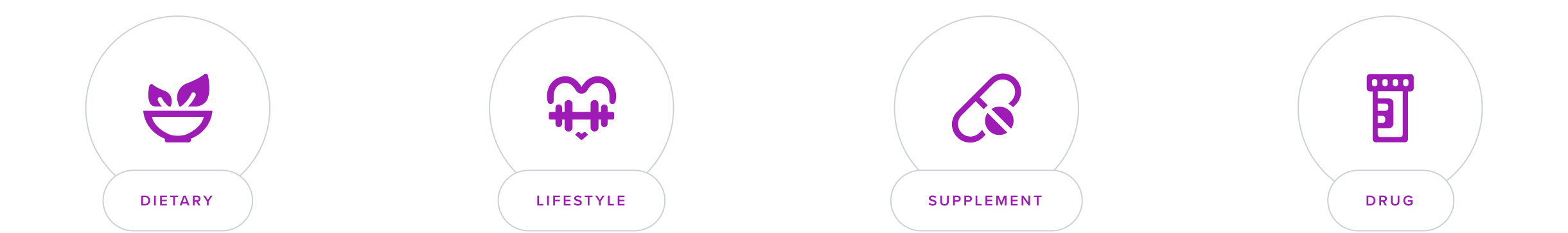
You have 2 risk alleles

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

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

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

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



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

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



Impact

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

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

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

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

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

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

Introduction

Lactate is a byproduct that your body normally produces, especially during exercise. When exercise becomes intense, your body starts burning sugar without using oxygen (anaerobic metabolism). This process spikes lactate levels [\[R\]](#).

Professional athletes use blood lactate as a marker of **fatigue and exercise performance** [\[R\]](#).

People with **diabetes** may have reduced oxidative capacity. In other words, they tend to produce more lactate when burning sugar. For this reason, higher lactate levels may be linked to diabetes and higher blood sugar [\[R\]](#).

Genetics of Lactate Levels

Lactate is a byproduct that your body normally produces, especially during exercise. When exercise becomes intense, your body starts burning sugar without using oxygen (anaerobic). This process spikes lactate levels. Professional athletes use blood lactate as markers of **fatigue and exercise performance** [R, R].

Besides exercise and conditions like diabetes, genetics may also influence your lactate levels. Most of the involved genes play a role in sugar metabolism [R].

For example, variants near the [GCKR](#) gene are linked to lactate levels, diabetes, and insulin resistance. This gene helps make a crucial enzyme for sugar metabolism [R, R].

Keep in mind that your diet, lifestyle, environment, and other genetic variants also influence your lactate levels.



Predisposed to typical lactate levels based on 11,965 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HBS1L	rs9376091	TT
SH2B3	rs7137828	CT
GCKR	rs1260326	TC
ZFPM2	rs6993770	AT
PFKP	rs10794972	CA
SPATS2L	rs59273177	AA
ALDH2	rs7138688	TT
TMX4	rs1473698	TT

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

Your Recommendations

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

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

DOSAGE		DOSAGE	
1	Blueberries	2	Flotation1 hour
3	Rhodiola500 mg	4	Sensory Deprivation40 minutes
5	Stair Climbing10 minutes	6	Schisandra1 g
7	Hydrogen Water	8	Practice Exercise Snacks1 minutesute

1



Blueberries

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate a half to one cup of fresh or frozen blueberries into your daily diet. You can add them to your breakfast cereal, smoothies, or enjoy them as a snack on their own.

Description

Blueberries are a nutritious fruit packed with antioxidants, vitamins, and fiber. They are known for their potential to support brain health, reduce the risk of chronic diseases, and promote overall well-being.

[Blueberries](#) are enjoyed all around the world for their sweet taste and nutritional benefits. They may support [\[R\]](#):

- Heart health
- Cognitive function
- Normal blood sugar levels

How it helps

In 2 placebo-controlled trials of 25 runners, supplementation with blueberries for 4 days before completing an 8-km time trial reduced blood lactate levels by 1.2 mmol/L [\[R, R\]](#).

2



Flotation

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate a flotation therapy session into your schedule 1-2 times per week, each session lasting for about an hour. Find a local spa or facility that offers sensory deprivation tanks or flotation tanks, and book your sessions in advance to ensure availability.

TYPICAL STARTING DOSE

1 hour

Description

Flotation therapy, involving relaxation in a sensory deprivation tank filled with buoyant saltwater, is believed to reduce stress, ease muscle tension, and promote mental relaxation. It can provide a calming and rejuvenating experience, potentially benefiting mental and physical well-being.

How it helps

In a non-placebo-controlled trial of 24 untrained men, completing a 1-hour flotation REST session before isometric muscle strength testing reduced perceived pain and blood lactate levels after the exercise [\[R\]](#).

Flotation can promote muscle relaxation and recovery after exercise, which could indirectly decrease lactate production.

3



Rhodiola

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of rhodiola supplement daily, preferably in the morning to avoid potential interference with sleep.

TYPICAL STARTING DOSE

500 mg

Description

Rhodiola is a plant native to the arctic regions of Europe and Asia, where it's traditionally used to enhance stamina, combat stress and fatigue, and improve mental performance and resilience in harsh environments. Its main compounds include rosavins and salidroside.

[Rhodiola](#) (*Rhodiola rosea*) is a plant that grows in the mountains of eastern Europe and Asia [\[R\]](#).

Rhodiola is an *adaptogen*, meaning that it may help you adapt to stress. According to early research, this herb may help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fatigue
- Burnout
- Low mood

How it helps

In a placebo-controlled trial of 14 trained male athletes, supplementation with rhodiola for 4 weeks reduced blood lactate and plasma creatine kinase levels after a cardio-pulmonary exhaustion test [\[R\]](#).

4



Sensory Deprivation

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Engage in sensory deprivation by spending 20 to 40 minutes in a quiet, dark room, free from distractions such as your phone or background noise, at least once a week. Alternatively, for a more immersive experience, consider using a sensory deprivation tank once a month, where you float in saltwater in a dark, soundproof tank.

TYPICAL STARTING DOSE

40 minutes

Description

Sensory deprivation involves isolating an individual from sensory input to induce deep relaxation and altered states of consciousness. It is used for relaxation, meditation, and potential mental health benefits.

How it helps

In a non-placebo-controlled trial of 24 untrained men, completing a 1-hour flotation REST session before isometric muscle strength testing reduced perceived pain and blood lactate levels after the exercise [\[R\]](#).

5



Stair Climbing

IMPACT1 / 5

EVIDENCE1 / 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

In one trial, stair climbing over 7 weeks improved HDL cholesterol and reduced total:HDL ratio, while VO2 and heart rate decreased. In another trial, 8 weeks of stair climbing increased VO2max and reduced LDL cholesterol without affecting other lipid markers [\[R\]](#), [\[R\]](#).

6



Schisandra

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take schisandra supplements in the form of capsules or powder. For general well-being, consume 1 to 3 grams of the powder daily, or as per the capsule product's instructions, typically ranging from 250mg to 500mg taken twice daily. It's recommended to follow this regimen for several months to observe benefits, always under the guidance of a healthcare professional.

TYPICAL STARTING DOSE

1 g

Description

Schisandra is a plant native to East Asia and is traditionally used in herbal medicine. Schisandra berries contain a variety of compounds, including lignans and antioxidants. These berries have been used for centuries in traditional Chinese medicine to promote overall health, boost energy, and support liver function.

How it helps

In a placebo-controlled trial of 45 postmenopausal women, supplementation with schisandra extract (1 g/day) for 12 weeks decreased lactate levels at rest [\[R\]](#).

7



Hydrogen Water

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 1.5 to 2 liters of hydrogen-rich water daily, spread out over the course of the day. It is best to start with a lower volume and gradually increase it to allow your body to adjust. This practice should be continued daily as a part of your lifestyle to maintain its potential benefits.

Description

Drinking hydrogen-rich water is believed to have antioxidant properties and may help combat oxidative stress in the body. Some studies suggest it could potentially support overall health and well-being.

How it helps

Hydrogen-rich water may help combat lactate build-up by neutralizing harmful oxidative stress in your body during and after exercise. This could lead to improved recovery and less muscle fatigue due to decreased lactic acid accumulation.

In a placebo-controlled trial of 12 healthy men, drinking hydrogen-rich water (1260 mL) before resistance training improved muscle function reduced the lactate response, and alleviated delayed-onset muscle soreness. In another trial (12 healthy men), drinking hydrogen-rich water (600 mL) 30 min before a 10 min warm-up lowered blood lactate (by 1.1 mmol/L) and ventilatory equivalents for oxygen and RPE (by 2.7 and 0.7 points, respectively). However, neither lactate concentrations nor ratings of perceived exertion were significantly different after pre-exercise supplementation with hydrogen-rich water in a placebo-controlled trial of 16 male soccer players [\[R\]](#), [\[R\]](#), [\[R\]](#).

8



Practice Exercise Snacks

IMPACT

0 / 5

EVIDENCE

0 / 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

Regular physical activity can enhance the body's ability to clear lactate from the blood, thus improving lactate metabolism and potentially lowering lactate levels.

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.