SelfDecode™

Lactate Dehydrogenase (LDH)

Biohacker Report

REPORT CATEGORY

FITNESS

Sample Client

Report date: 15 January 2026

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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

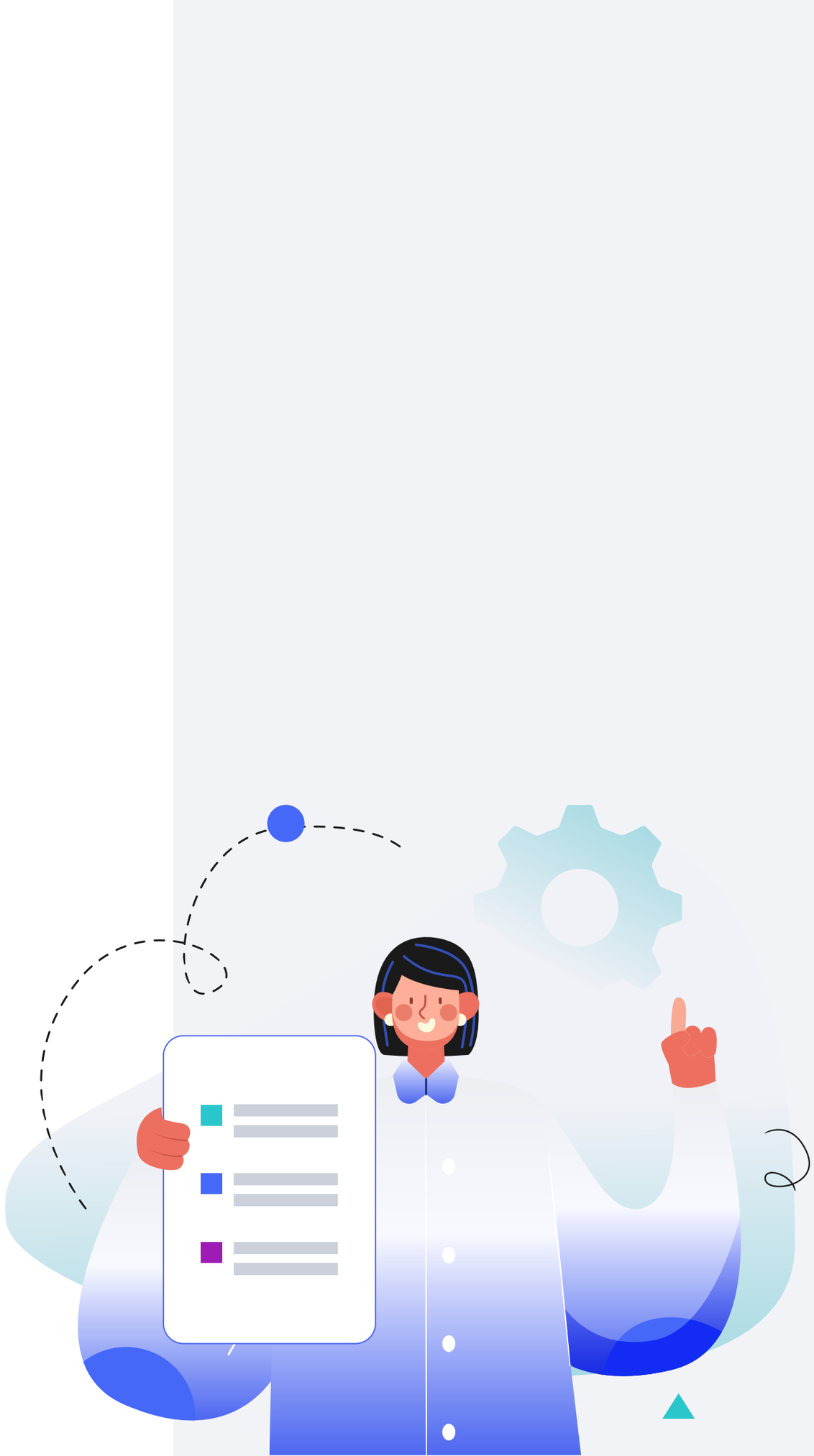
Male

HEIGHT

5ft 5" 165cm

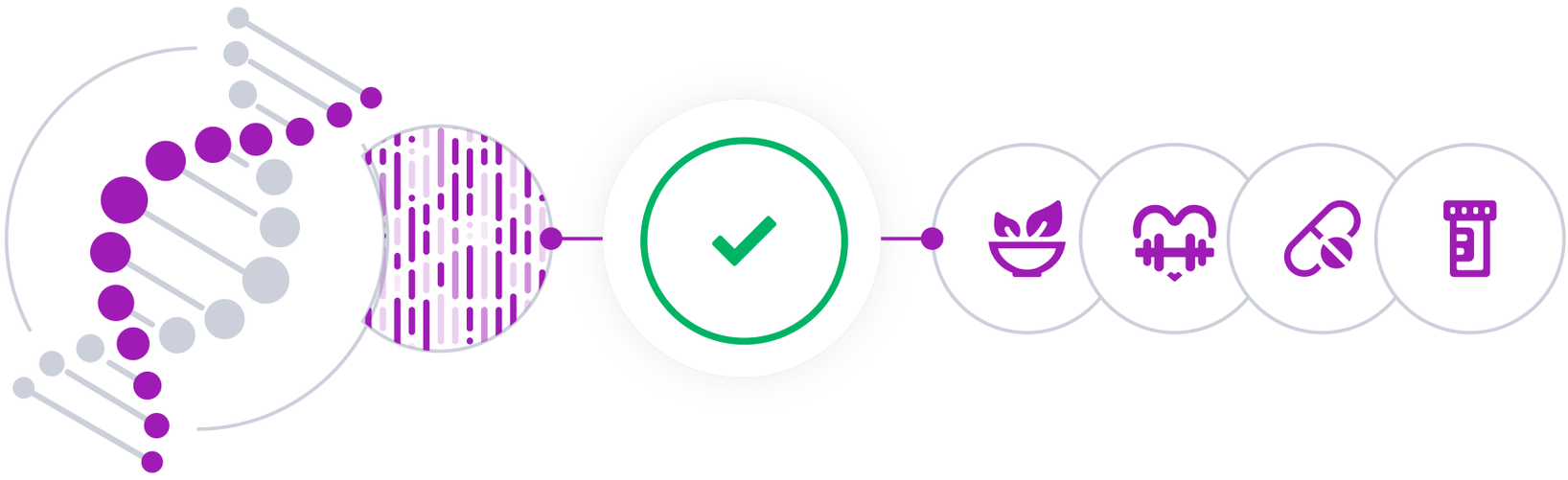
WEIGHT

137lb 62kg



How this works

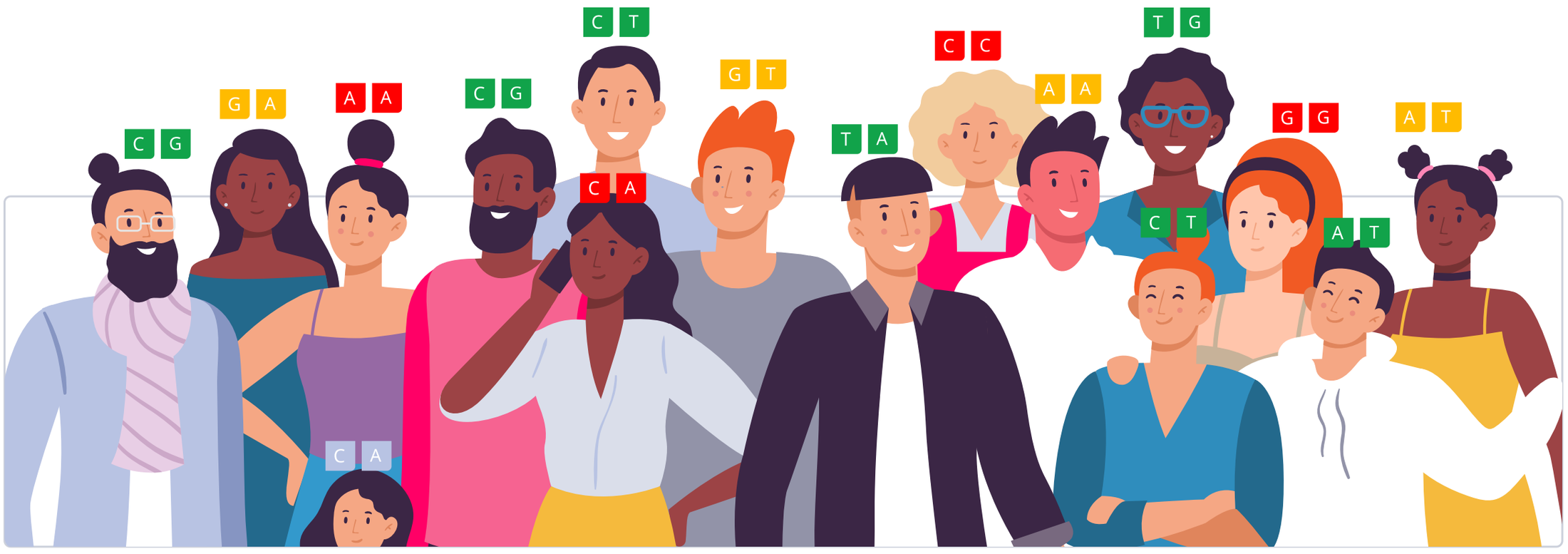
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

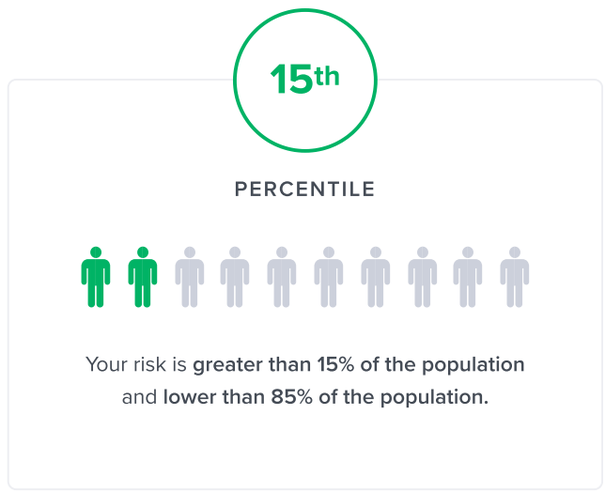
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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.

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.



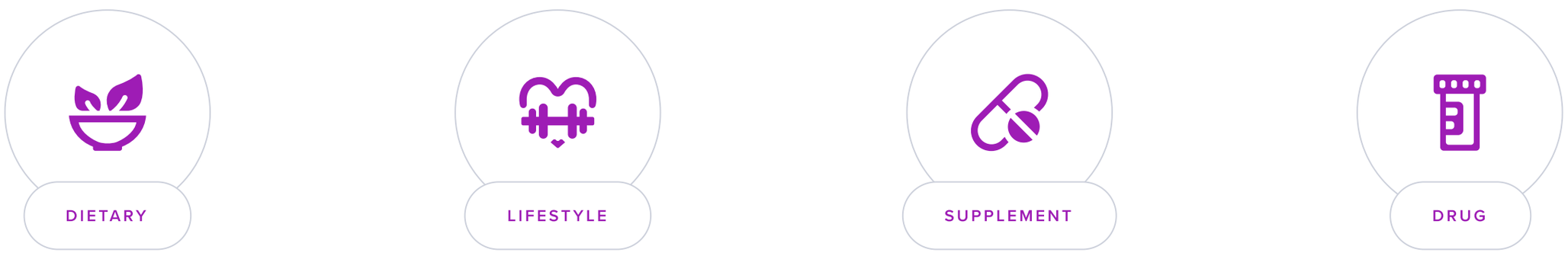
Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

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

Lactate Dehydrogenase (LDH) is an enzyme found in many body tissues, including the liver, heart, kidneys, brain, and lungs. It plays a crucial role in the process of converting sugar into energy for cells.

An LDH test measures the amount of the enzyme in the blood. **Elevated levels of LDH can indicate tissue damage or disease**, as the enzyme leaks out of damaged cells into the bloodstream.

Monitoring LDH levels can provide insights into tissue health, the progress of certain conditions, and the effectiveness of treatments. If there are concerns regarding abnormal LDH levels or related symptoms, it's essential to consult with a healthcare professional.

Factors Influencing LDH Levels

About **40-50%** of differences in people's LDH levels may be due to **genetics** [R].

Genetics can influence baseline LDH levels and the response of LDH to certain conditions or treatments. Some genetic mutations and variants can affect LDH production or function, although such cases are rare.

Other factors influencing LDH levels include:

- Tissue Injury or Damage: Injuries, burns, or any condition that results in tissue damage can lead to an increase in LDH levels.
- Heart Attack: Damage to the heart muscle cells during a heart attack can raise LDH levels.
- Liver Disease: Conditions like hepatitis or liver cirrhosis can result in elevated LDH due to liver cell damage.
- Hemolytic Anemia: As red blood cells break down, LDH levels can increase.
- Lung Conditions: Pulmonary diseases, like pulmonary embolism, can lead to elevated LDH levels.
- Cancer: Some types of cancer, especially lymphoma and leukemia, can cause elevated LDH levels.
- Muscular Dystrophy: This condition leads to muscle breakdown, which can raise LDH levels.
- Infections: Certain infections, such as meningitis or encephalitis, can elevate LDH levels.

TYPICAL LEVELS

Predisposed to typical LDH levels based on 15 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STAB1	rs150956780	GG
LDHA	rs116841148	GG
CD163L1	rs4072797	TC
CD163	rs4883263	TC
CSF1	rs333947	GG
LILRB5	rs12975366	TC
CD163L1	rs7305678	GT
PTPRJ	rs2930191	GA
ANO5	rs7481951	TT
KLF5	rs7318906	GG
CD163L1	rs145411783	CC
CD163L1	rs117692263	TT
HLA-DQB1	rs17412833	AA
/	rs393600	AA
CFH	rs2274700	AA
NINJ1	rs12342201	AA

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	Fruits And Vegetables	
2	Vitamin E	200 iu
3	L-Carnitine	1 g
4	Omega-3 (Fish Oil)	2000 mg
5	Dietary Antioxidants	
6	Whole-Body Vibration	15 minutes
7	Quercetin	250 mg
8	Melatonin	500 mcg
9	Zinc	15 mg
10	Curcumin	500 mg
11	N-acetylcysteine (NAC)	1200 mg
12	D-Ribose	15 g

1

Fruits And Vegetables

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Increase your intake of fruits and vegetables to at least five servings per day, aiming for a variety of types and colors to ensure a broad range of nutrients. Each serving size should roughly be the amount you can fit in one hand. Try to incorporate at least one serving of fruits or vegetables into every meal and snack throughout the day.

Description

A diet rich in fruits and vegetables provides essential nutrients, antioxidants, and dietary fiber. This combination supports overall health, helps maintain a healthy weight, and reduces the risk of chronic diseases such as heart disease and certain cancers.

How it helps

In 2 non-placebo-controlled trials of 709 patients with suspected myocardial infarction, consuming more dietary antioxidants by including more fruits, vegetables, pulses, and crushed almonds and walnuts mixed with skim milk in the diet attenuated the increase in LDH observed in these patients [R, R].

A study of 32 runners associated regular beetroot intake with lower levels of LDH and other muscle damage markers after completing a race [R].

In 5 placebo-controlled trials of 15 untrained subjects and 85 athletes, consuming tomato juice or powder (providing 15-30 mg/day lycopene) for 1-8 weeks reduced exercise-induced markers of oxidative stress (8-oxodG, MDA, and 8-isoprostane), inflammation (CRP), and muscle damage (myoglobin, creatine phosphokinase, and lactate dehydrogenase) while increasing total antioxidant capacity [R, R, R, R, R].

2

Vitamin E

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 200 IU of Vitamin E daily as a supplement, preferably with a meal that contains fat to enhance absorption.

TYPICAL STARTING DOSE

200 iu

Description

Vitamin E is a fat-soluble antioxidant found in various foods, such as nuts and seeds. It is known for its ability to protect cells from oxidative damage, support immune function, and may play a role in skin health. Vitamin E supplements are used to bolster antioxidant defenses and may be beneficial for conditions related to oxidative stress.

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

Supplementation with low-dose (below 500 IU) vitamin E may prevent exercise-induced muscle damage, as shown by decreased LDH levels [R].

3

L-Carnitine

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 500 mg of L-carnitine supplement daily with a glass of water, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

1 g

Description

L-carnitine is an amino acid-like compound that plays a role in energy metabolism and helps prevent toxic substances from building up in cells. It is often used in dietary supplements for its potential to support muscle recovery, reduce fatigue, and enhance athletic performance.

L-carnitine is a compound that helps you burn fat. It also prevents toxic substances from building up in cells [R].

Your body can usually make enough carnitine to meet its needs. You can also get it from **meat and dairy products** [R].

People use L-carnitine for [R, R, R, R, R, R]:

- Heart problems
- Overactive thyroid
- Fertility problems
- Blood sugar control
- Weight control

How it helps

Supplementation with L-carnitine may decrease LDH levels 24 hours post-exercise. However, it may show no effects beyond this period [R].

4

Omega-3 (Fish Oil)

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

2000 mg

Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

Omega-3 fatty acids are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [R, R, R].

There are three major types of omega-3s: ALA, EPA, and DHA [R, R].

Fatty fish are rich in EPA and DHA. They include [R]:

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week.** Fish oil supplements are available for those who don't eat fish regularly [R].

How it helps

Supplementation with omega-3 fatty acids may lower LDH levels after exercise in healthy individuals [R, R].

5

Dietary Antioxidants

IMPACT 2 / 5

EVIDENCE 2 / 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

In 2 non-placebo-controlled trials of 709 patients with suspected myocardial infarction, consuming more dietary antioxidants by including more fruits, vegetables, pulses, and crushed almonds and walnuts mixed with skim milk in the diet attenuated the increase in LDH observed in these patients [R, R].

Flavanol-rich chocolate lowered LDH activity by 11% in a non-placebo-controlled trial of 28 male soccer players [R].

6

Whole-Body Vibration

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Stand, sit, or lie on a machine with a vibrating platform for about 15 minutes a day, three times a week. Make sure to start with a lower intensity and gradually increase as you get more accustomed to the vibrations.

TYPICAL STARTING DOSE

15 minutes

Description

Whole-body vibration involves standing, sitting, or lying on a vibrating platform to stimulate muscle contractions. It's used in fitness routines and rehabilitation for improving muscle strength, circulation, and balance, and may benefit conditions like osteoporosis. No specific chemical compound or nutrient is associated with whole-body vibration.

Whole-body vibration is a form of exercise and treatment utilizing a vibrating platform upon which a person stands or performs various exercises. It creates vertical, oscillating vibrations with frequencies and amplitudes that can be controlled by the user [R].

Whole-body vibration is used for a variety of purposes, including [R]:

- Weight loss
- Boosting strength
- Improving balance/coordination
- Boosting mood

How it helps

In people with delayed-onset muscle soreness, whole-body vibration training may reduce LDH levels at 24 hours post-exercise and other markers of muscle damage while reducing pain [R, R].

7

Quercetin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 250-1000 mg of quercetin supplement daily with a glass of water, preferably with a meal to aid in its absorption.

TYPICAL STARTING DOSE

250 mg

Description

Quercetin is a natural plant flavonoid found in various foods, particularly in fruits and vegetables like apples, onions, and broccoli. It is used as a dietary supplement and is valued for its potential antioxidant and anti-inflammatory properties.

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

Good sources of quercetin include [R]:

- Apples
- Onions
- Tea

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

How it helps

In 2 placebo-controlled trials of 28 young men, supplementation with quercetin (1000 mg/day for 14 days) lowered LDH and other markers of muscle damage [R, 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].

8

Melatonin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 500 mcg of melatonin orally, about 30 minutes before bedtime, to help with sleep. It can be taken daily as needed.

TYPICAL STARTING DOSE

500 mcg

Description

Melatonin is a natural hormone produced by the pineal gland in the brain that helps regulate the sleep-wake cycle. It plays a crucial role in promoting sleep onset and maintaining a consistent sleep pattern, making it a commonly used supplement for managing sleep disorders and jet lag.

Melatonin is an important sleep hormone. Bright light at night may prevent your body from making enough melatonin [R, R, R].

Your body makes melatonin on its own. However, some people take melatonin supplements to help them sleep. It may help with jet lag in particular [R, R, R].

How it helps

In a placebo-controlled trial of 24 athletes, supplementation with melatonin (100 mg/day) 30 min before bedtime for 4 weeks reduced the levels of LDH and other muscle damage markers [R].

9

Zinc

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

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

TYPICAL STARTING DOSE

15 mg

Description

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

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

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

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

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

How it helps

In a placebo-controlled trial of 80 patients with beta-thalassemia major, supplementation with zinc (40 mg/day) for 12 weeks lowered LDH levels [R].

10

Curcumin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

Turmeric is a yellow spice from India. It may reduce inflammation and oxidative stress [R].

The most important active compound in turmeric is **curcumin.** People use curcumin for [R, R, R, R, R, R]:

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

Curcumin could potentially reduce LDH levels through several mechanisms:

1. **Anti-inflammatory effects**: By reducing inflammation, curcumin could minimize tissue damage and thereby decrease the release of LDH into the bloodstream.
2. **Antioxidant properties**: Curcumin's antioxidant action may protect cells and tissues from oxidative stress, reducing cellular damage and necrosis, which in turn could lower the release of LDH.
3. **Direct effects on cell metabolism and health**: Curcumin may directly influence cellular processes that lead to improved cell health and stability, reducing the likelihood of cell damage and LDH release.
4. **Direct inhibition at the gene level**: Curcumin may inhibit LDH gene expression [R]

One study showed significant decreases in LDH levels after curcumin supplementation, indicating its beneficial effects on reducing muscle damage and oxidative stress [R].

Please note: *curcumin 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 curcumin or turmeric supplements* [R, R, R].

11

N-acetylcysteine (NAC)

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

1200 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

N-acetylcysteine (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [R].

People take NAC to potentially support [R, R]:

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

In a placebo-controlled trial of 140 COVID-19 patients at the ICU, intravenous NAC administration for 3 days lowered lactate dehydrogenase levels [R].

12

D-Ribose

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 5 grams of D-Ribose powder mixed with water or juice, three times a day. Start with this dosage for at least 3 weeks to help improve energy levels and heart function, then adjust as needed.

TYPICAL STARTING DOSE

15 g

Description

D-ribose is a sugar molecule that plays a role in energy production in cells. It is sometimes used as a supplement to support muscle recovery, reduce fatigue, and improve exercise performance.

D-ribose is a sugar involved in the production of energy in the body. It is also the structural basis of DNA and RNA [R].

People use it as a supplement to help with heart disease and chronic fatigue syndrome [R, R, R].

How it helps

In a placebo-controlled trial of 21 untrained men, supplementation with D-ribose before a limb plyometric exercise session lowered LDH levels 24 hours post-exercise [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.