SelfDecode™

Heart Attack

Disease Report

REPORT CATEGORY

HEART & BLOOD VESSELS

Sample Client

Report date: 29 July 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

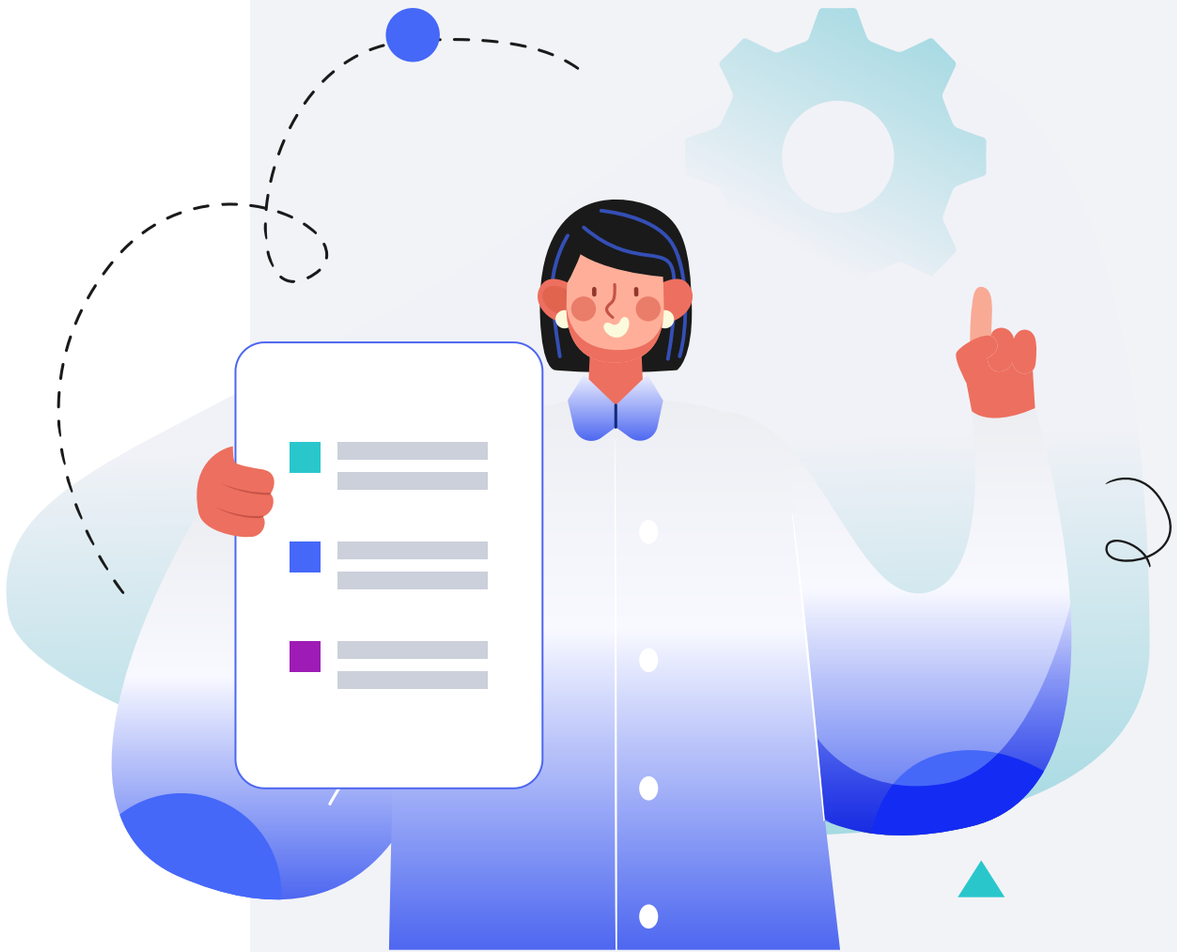
Male

HEIGHT

5ft 9" 175.0cm

WEIGHT

165lb 75.0kg



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.

Introduction

Myocardial infarction, also known as a heart attack, occurs when the blood supply to a part of the heart is disrupted, causing damage to the heart muscle.

This can be caused by a blockage in one of the coronary arteries, which supply oxygen-rich blood to the heart. It kills about **3 million people per year worldwide** [R].

Symptoms of a heart attack may include [R]:

- Chest pain, pressure, or tightness
- Pain or discomfort in or spreading to the shoulder, arm, back, neck, or jaw
- Cold sweat
- Heartburn or indigestion
- Lightheadedness or sudden dizziness
- Nausea
- Fatigue
- Shortness of breath

If you think you or someone you know may be having a heart attack, it is important to seek medical attention immediately. Heart attacks can be life-threatening and require emergency treatment.

Treatment for a heart attack may include **medications and surgical procedures**. It is also important to make lifestyle changes to reduce the risk of future heart attacks, such as **quitting smoking, exercising regularly, and eating a healthy diet**.

Risk Factors

Key Takeaways:

- **50-60%** of differences in people's chances of having a heart attack may be due to genetics.
- About **3 million people** around the world die from heart attacks every year.
- If you have a high genetic risk, you may lower your overall risk by taking action on risk factors that you can change.
- Other risk factors include age (45+ for men, 55+ for women), smoking, high blood pressure, obesity, diabetes, stress, and high cholesterol.
- Click the **Recommendations** tab for potential dietary and lifestyle changes, and **next steps** for relevant labs.

Risk factors for a heart attack include [R]:

- Age (over 45 for men and over 55 for women)
- Exposure to cigarette smoke
- Sedentary lifestyle
- Unhealthy diet
- Stress
- Recreational drug use
- **Genetics**

For example, genetically high ApoB, betaine, choline, and L-carnitine may be causally associated with a higher risk of myocardial infarction [R, R, R, R].

The following health conditions may contribute to a heart attack [R]:

- High blood pressure
- High cholesterol or triglycerides
- Obesity
- Diabetes
- Autoimmune conditions

About **50-60%** of differences in people's chances of having a heart attack may be due to genetics [R].

TYPICAL LIKELIHOOD

Typical likelihood of a heart attack based on 888,414 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CDKN2A	rs2891168	GG
GGT5	rs180803	GG
PHACTR1	rs9349379	GG
PLPP3	rs9970807	CC
ABO	rs532436	AA
SORT1	rs7528419	AA
SMARCA4	rs55791371	AA
MIA3	rs35700460	GG
COL4A1	rs11617955	TT
GUCY1A1	rs72689147	GG
SAYSD1	rs1544935	TT
LIPA	rs1332329	CC
PCSK9	rs11206510	TT
SMAD3	rs72743461	CC
EDNRA	rs4593108	CC
VAMP8	rs10176176	TT
MRPS6	rs28451064	AG
TRIB1	rs2001846	TT
SH2B3	rs653178	CT
POC1B	rs2681472	AG
SFXN2	rs1004467	AG
COL4A2	rs55940034	GA
FES	rs2521501	TA
DDI1	rs2019090	AT
ZC3HC1	rs11556924	TC
ATP5MC1	rs35895680	CA
JCAD	rs2505083	TC
HHIPL1	rs10139550	CG

GENE	SNP	GENOTYPE
LPA	rs10455872	AA
PLG	rs2315065	CC
APOE	rs56131196	GG
ZEB2	rs17678683	TT
TTC32	rs16986953	GG
BCAS3	rs7212798	TT
ZNF32	rs1870634	TT
CTSH	rs7165042	GG
IL6R	rs12118721	CC
SRR	rs9914266	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
1	Avoid Noise Pollution	
2	Mediterranean Diet	
3	Salvia Miltiorrhiza	
4	N-acetylcysteine (NAC)	600 mg
5	Niacin Supplements	20 mg
6	Avoid BPA (Bisphenol A) Exposure	
7	Avoid Betaine (TMG) Supplements	
8	Magnesium Sulfate	200 mg
9	Melatonin	500 mcg
10	Hyperbaric Oxygen Therapy	90 minutes
11	Avoid Calcium Supplements	
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14	Avoid L-Arginine Supplements	
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1

Avoid Noise Pollution

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Minimize exposure to loud environments by using noise-cancelling headphones or earplugs, especially in areas known for high noise levels such as construction sites, concerts, and busy urban streets. Aim to keep the volume of personal audio devices below 60% of their maximum. At home, use carpets, curtains, and wall fabrics to reduce indoor noise, and prefer quieter appliances. Try to dedicate at least one hour of quiet time before bed to aid in relaxation and improve sleep quality.

Description

Noise pollution refers to the presence of excessive, disruptive, or unwanted sound in the environment. It often includes sounds from traffic, industrial machinery, construction, loud music, and other sources that exceed acceptable or comfortable noise levels. Noise pollution disrupts normal activities and can have detrimental effects on human health, well-being, and the natural world.

Prolonged exposure to high noise levels can lead to a range of health issues, including:

- Stress
- Anxiety,
- Sleep disturbances
- High blood pressure
- Heart disease
- Impaired cognitive function

How it helps

A meta-analysis of 23 studies found that the risk of myocardial infarction increased by 1% for every 10-dB increment in road traffic and aircraft sound [R].

2

Mediterranean Diet

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

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

Description

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

The Mediterranean diet focuses on traditional cuisine from the Mediterranean regions. It's rich in [R]:

- Olive oil
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

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

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

How it helps

Adherence to a Mediterranean diet may reduce the risk of having a heart attack and dying from this condition. Components of this diet such as olive oil, fruits, vegetables, and legumes may have the strongest impact on heart attack [R, R, R].

The Mediterranean diet may also reduce the risk in people with a history of heart attack [R, R, R].

3

Salvia Miltiorrhiza

IMPACT 3 / 5

EVIDENCE 2 / 5

How to implement

Take 200-600mg of Salvia miltiorrhiza extract in capsule or tablet form daily, divided into two or three doses. This should be taken with water, preferably 30 minutes before meals. Continue for a period of 8 to 24 weeks for noticeable effects.

Description

Salvia miltiorrhiza, also known as Danshen, is a traditional Chinese medicinal herb. It is primarily used for its potential cardiovascular benefits, including improving blood circulation and reducing the risk of heart-related conditions. It contains various compounds, including tanshinones and salvianolic acids.

How it helps

A Cochrane review of 6 trials and 2368 participants concluded that *Salvia miltiorrhiza* preparations halve mortality in patients with acute myocardial infarction. However, the authors warned about the weakness of the evidence [R].

Salvia miltiorrhiza may help by enhancing blood flow and reducing inflammation.

4

N-acetylcysteine (NAC)

IMPACT 2 / 5

EVIDENCE 3 / 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

600 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

N-acetylcysteine (NAC) acts as a powerful antioxidant, helping to minimize damage caused by inflammation and oxidative stress, two elements often elevated during a heart attack. Moreover, NAC can help dissolve blood clots, potentially preventing or alleviating blockages that trigger heart attacks.

A meta-analysis of 9 studies and 1419 patients with ST segment elevation myocardial infarction, supplementation with NAC **reduced all-cause mortality (by almost 2-fold), the occurrence of major adverse cardiovascular events (by 58%), and myocardial enzyme hs-TnT level** [R].

5

Niacin Supplements

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a 20 mg niacin supplement daily, preferably with a meal to aid in absorption and minimize potential stomach upset.

TYPICAL STARTING DOSE

20 mg

Description

Niacin is an essential B vitamin that plays a vital role in metabolism, supporting heart health, maintaining healthy cholesterol levels, and promoting overall cellular function when included in a balanced diet or as a supplement.

Niacin (vitamin B3) is found in many foods. It supports your nervous system, skin, gut, and more [R].

Adults should get **16 mg** of niacin a day, and most people get enough from their diets [R].

Experts recommend getting niacin from food rather than supplements [R, R].

How it helps

Niacin, also known as Vitamin B3, can help prevent heart attacks by improving cholesterol levels and promoting good heart health. It increases HDL, the 'good' cholesterol, which carries LDL, the 'bad' cholesterol, back to the liver for processing, reducing the risk of arterial blockage.

Stratified meta-analysis suggests niacin monotherapy may reduce certain cardiovascular events in patients not on statin treatment, based on older studies. Its role in lipid control for secondary prevention, particularly in statin-intolerant patients, warrants further investigation in contemporary populations. [R]

Niacin use in 11 trials (9,959 subjects) was linked to significantly reduced risks of composite cardiovascular disease (CVD) events and major coronary heart disease events, but not stroke incidence.) [R]

In seven studies with 5137 patients, niacin therapy significantly reduced coronary artery revascularization, nonfatal myocardial infarction, stroke, and transient ischemic attack, with a possible but nonsignificant decrease in cardiac mortality. [R]

A review of 23 randomized controlled trials (RCTs) involving 39,195 participants found evidence that niacin does not reduce mortality, cardiovascular mortality, non-cardiovascular mortality, myocardial infarctions, or strokes. However, it is associated with side effects, and its benefits in preventing cardiovascular disease events are unlikely. [R]

Please note: *Niacin has been linked to liver damage, diabetes, and strokes. It may also cause flushing, bruises, and bleeding. Most doctors do not recommend taking niacin unless a person can't take statins and has close medical supervision. Talk to your doctor before taking niacin.* [R, R, R, R, R, R, R]

6

Avoid BPA (Bisphenol A) Exposure

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

To avoid BPA exposure, choose BPA-free products, particularly when selecting food containers, water bottles, and baby bottles. Prefer glass, porcelain, or stainless steel containers, especially for hot food or liquids. Reduce use of canned foods as they may be lined with BPA and avoid handling thermal paper receipts, as they can contain BPA. When possible, select fresh or frozen foods over canned goods.

Description

Avoiding BPA (Bisphenol A) exposure involves minimizing contact with products or containers containing this chemical, which is commonly found in plastics and can potentially disrupt hormone regulation.

BPA (bisphenol A) is a chemical used to make certain plastics and resins. BPA-containing plastics are often used in containers that store food and beverages. Plastics marked with **recycling code 3 or 7** may contain BPA [R].

BPA is a well-known hormone disruptor. Research has linked BPA exposure to diabetes, heart disease, altered behavior, and more [R].

How it helps

A meta-analysis of 2 studies found a significant association between urine BPA detection and heart attacks in patients with diabetes [R].

BPA can disrupt heart function and cardiovascular processes, raising blood pressure. High blood pressure is a significant risk factor for heart attacks.

7

Avoid Betaine (TMG) Supplements

IMPACT 1 / 5

EVIDENCE 3 / 5

How to implement

Do not purchase or consume any dietary supplements that list betaine (also known as trimethylglycine or TMG) among their ingredients. Check the labels of supplements you currently use or plan to buy to ensure they are free of betaine.

Description

Avoiding excessive betaine supplements is recommended, as very high intake may have potential side effects. Betaine can be obtained naturally from foods like beets and spinach without the risk of overconsumption.

How it helps

Genetic prediction results suggested that for every 1 unit increase in betaine, the relative risk of heart failure and myocardial infarction increased by 1.4% and 1.7%, respectively [R].

A meta-analysis of 16 prospective studies, 19 256 participants, and 3315 incident cases found that people with elevated concentrations of TMAO precursors (l-carnitine, choline, or betaine) had an approximately **1.3 to 1.4 times higher risk for major adverse cardiovascular events (MACE)** compared to those with low concentrations [R].

8

Magnesium Sulfate

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Take 200-400 mg of magnesium sulfate orally with water once daily, ideally in the evening or as directed by your healthcare provider. Continue this supplementation as recommended by your healthcare provider, often for several weeks to months for optimal benefits.

TYPICAL STARTING DOSE

200 mg

Description

Magnesium sulfate, also known as Epsom salt, is used in baths and topical applications to soothe sore muscles, alleviate stress, and promote relaxation. It is believed to be absorbed through the skin, providing a calming effect on muscles and the nervous system.

How it helps

Magnesium Sulfate helps regulate heart function and can prevent further heart damage after a heart attack. It plays a crucial role in maintaining a normal heartbeat and might reduce the risks of arrhythmias (abnormal heart rhythms).

In a study of 103 patients with acute myocardial infarction (AMI), magnesium infusion for 48 hours reduced tachyarrhythmias, conduction disturbances, and intrahospital mortality compared to a placebo group, supporting a potential protective role of magnesium in AMI patients [R].

Another study involving 38 AMI patients found that pretreatment with intravenous magnesium sulfate reduced reperfusion arrhythmia incidence and lowered ST segment re-elevation after coronary reperfusion. It also reduced interleukin-6 (IL-6) levels, suggesting a protective effect against reperfusion injuries [R].

In a clinical trial with 108 AMI patients who underwent primary coronary intervention, intravenous magnesium improved left ventricular systolic function, reduced left ventricular end-diastolic volume index, and increased coronary flow velocity reserve (CFVR), indicating favorable functional outcomes as an adjunct to primary coronary intervention [R].

9

Melatonin

IMPACT 1 / 5

EVIDENCE 2 / 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

Melatonin is known for regulating sleep patterns but it is NOT proven to directly prevent or treat heart attacks. Some studies suggest that melatonin can contribute to reducing blood pressure and inflammation, potentially indirectly supporting heart health.

10

Hyperbaric Oxygen Therapy

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Schedule and attend sessions in a hyperbaric oxygen therapy chamber as your doctor prescribes, typically for about 60 to 90 minutes per session. The exact number of sessions required can vary based on the condition being treated, but it often ranges from 20 to 40 sessions, which may be conducted daily or a few times a week.

TYPICAL STARTING DOSE

90 minutes

Description

Hyperbaric oxygen therapy increases the amount of oxygen in the blood and tissues, which can help to improve circulation, reduce inflammation, and promote healing.

How it helps

A review of 6 small trials with 665 patients with acute coronary syndrome found that hyperbaric oxygen therapy reduced the risk of death by around 42%, the volume of damaged muscle, the risk of MACE, and the time to relief from ischemic pain. Only a single patient was reported to have significant barotrauma to the tympanic membrane. An older meta-analysis of 4 trials with 462 participants found similar results [R, R].

Hyperbaric oxygen therapy increases the amount of oxygen in the blood, which aids in the repair of damaged heart tissues and growth of new blood vessels.

Please note: *Hyperbaric oxygen therapy is a potentially dangerous procedure that should only be performed under medical supervision. People with pneumothorax or congestive heart failure are at especially high risk of adverse effects. Because highly concentrated oxygen can easily catch on fire, avoid potential fire sources around hyperbaric oxygen chambers, oxygen gas cylinders, tanks, and concentrators* [R, R].

11

Avoid Calcium Supplements

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Do not purchase or consume any calcium supplements. If you're currently using them, discontinue use immediately and do not replace them with another form of calcium supplement. Ensure that your calcium needs are met through dietary sources such as dairy products, leafy green vegetables, or fortified foods instead.

Description

Calcium supplements are pills people take to increase their calcium levels. But sometimes, instead of helping, they can lead to kidney stones and heart issues. Therefore, it's generally healthier to get your calcium from food like milk, cheese, and leafy green vegetables.

How it helps

In a study of 17,968 participants aged 40-79, calcium supplementation was linked to increased cardiovascular and all-cause mortality in women but not in men. A review of 26 studies and 16 trials found that calcium supplements raised the risk of coronary heart disease by 8%, and by 20% when taken alone. Similarly, they increased the risk of myocardial infarction by 14%, and by 21% when taken alone. Dietary calcium sources did not increase cardiovascular disease risk, but calcium supplements might elevate coronary heart disease risk, particularly for myocardial infarction. Another meta-analysis involving 89,251 participants found no significant associations between supplementation and composite cardiovascular outcomes [R, R, R].

A genetic predisposition to higher serum calcium levels was associated with an increased risk of coronary artery disease and myocardial infarction [R, R].

Please note: *calcium competes with iron for absorption in the intestines, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using calcium supplements.*

12

Avoid Lead Exposure

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

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

Description

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

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

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

How it helps

A study of 5736 adults associated high blood lead levels with an increased risk of COPD. heart attack, and stroke [R].

Lead accumulation can increase blood pressure, risking heart attack.

13

Coenzyme Q10 and Selenium

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

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

Description

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

How it helps

According to one study, selenium supplementation (100 micrograms/day for 6 months) may increase blood selenium levels and reduce cardiac deaths in people with acute heart attack [R].

Coenzyme Q10 functions as an antioxidant that helps protect cells from damage, while selenium supports overall heart function. Together, they can enhance cardiac performance.

14

Avoid L-Arginine Supplements

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Do not purchase or consume L-arginine supplements. If you have been taking them, do not purchase or consume any more L-arginine in supplement form going forward.

Description

Avoiding excessive L-arginine supplements is advisable, as high doses may lead to potential side effects and interactions with medications.

How it helps

L-arginine supplements might increase nitric oxide in your body, which can cause blood vessels to widen. But for those recovering from a heart attack, this could put excessive strain on your heart, making recovery more difficult.

Genetically higher arginine levels may be associated with an increased risk of heart attack [R].

Supplementation with L-arginine (Arg), the primary precursor of nitric oxide (NO), increased cardiovascular events and mortality in a small study in patients with acute coronary syndrome [R].

15

Mustard

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Incorporate mustard as a supplement by adding 1-2 teaspoons of ground mustard seeds to your daily diet. You can sprinkle it over salads, add it to dressings, or mix it into warm water to drink. Do this consistently every day.

Description

Mustard is a condiment made from the seeds of the mustard plant and is commonly used to enhance the flavor of various dishes. Mustard seeds contain compounds like antioxidants and omega-3 fatty acids, which may support heart health and possess anti-inflammatory properties.

How it helps

In a placebo-controlled trial of 260 patients with suspected acute myocardial infarction, supplementation with mustard oil (alpha-linolenic acid, 2.9 g/day) for 1 year reduced cardiac events (28% vs. 34.7% in the placebo group), nonfatal infarctions (15.0% vs. 25.4% in the placebo group), total cardiac arrhythmias, left ventricular enlargement, and angina pectoris [R].

Mustard seeds are rich in omega-3 fatty acids that may help reduce the risk of heart attacks by decreasing inflammation and preventing clot formation in the blood vessels.