

Arsenic

DNA Health Report

REPORT CATEGORY —



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

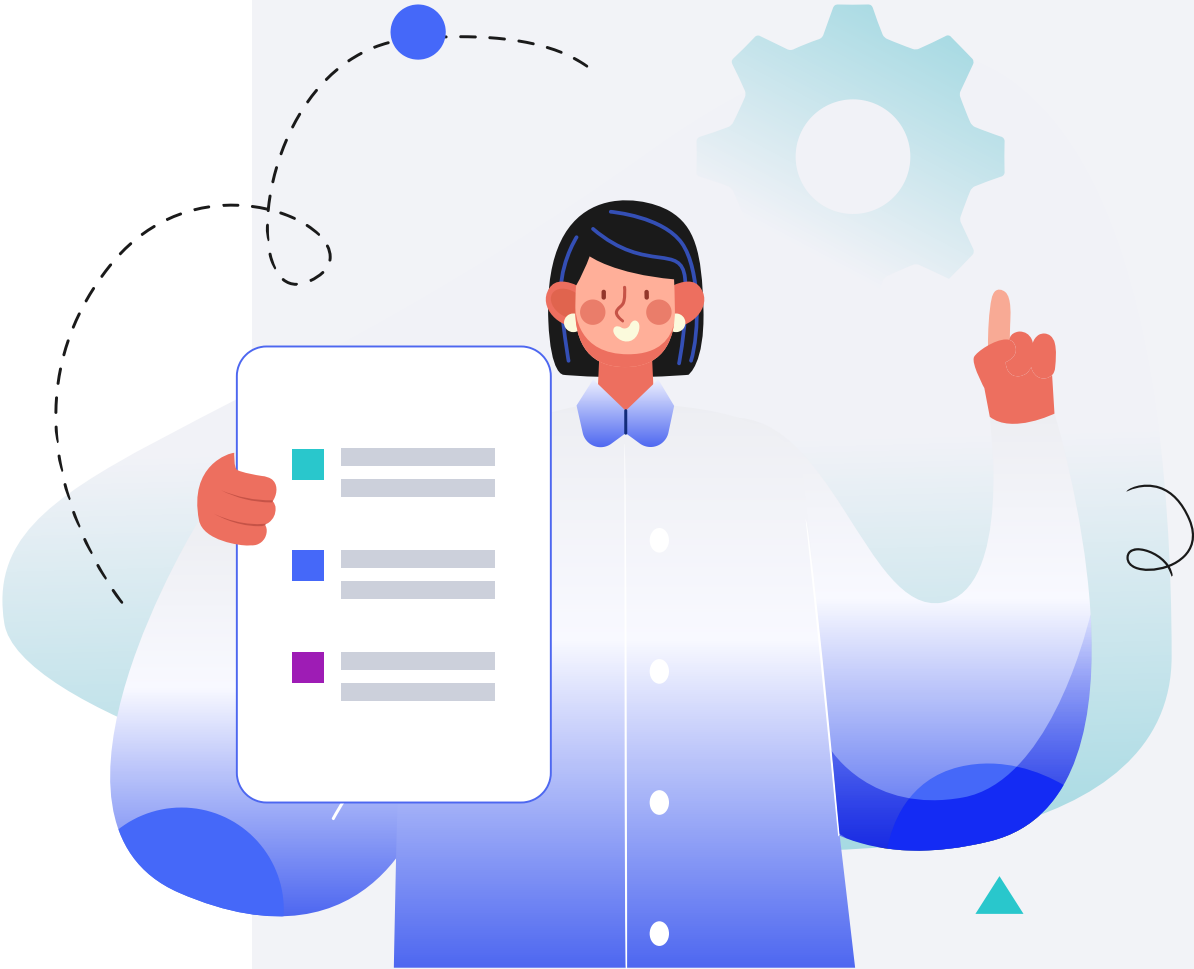
Male

HEIGHT

5ft 5" 165cm

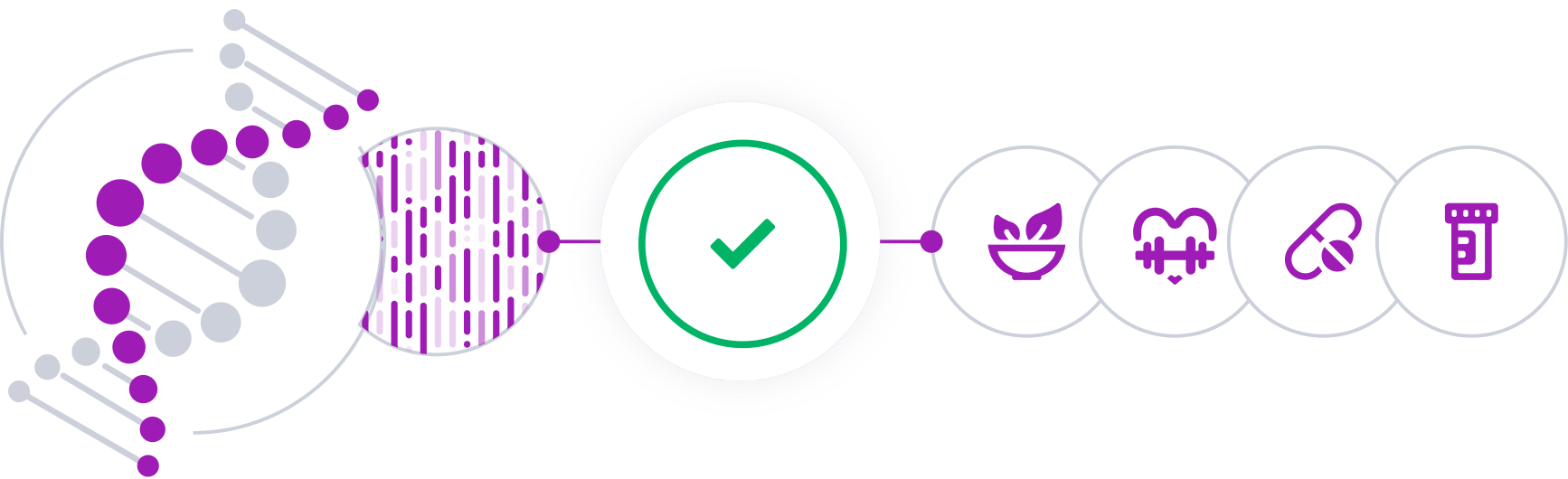
WEIGHT

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.

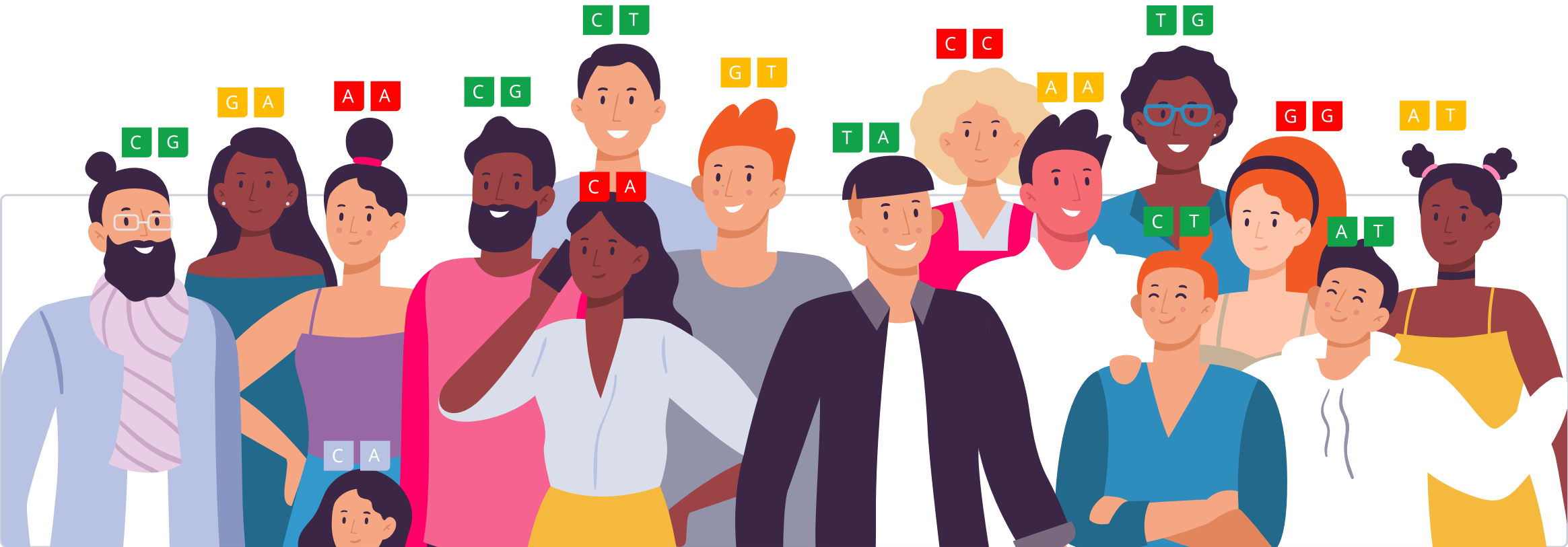


Similarly, our Trait Reports look at how your DNA influences your traits.



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.

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

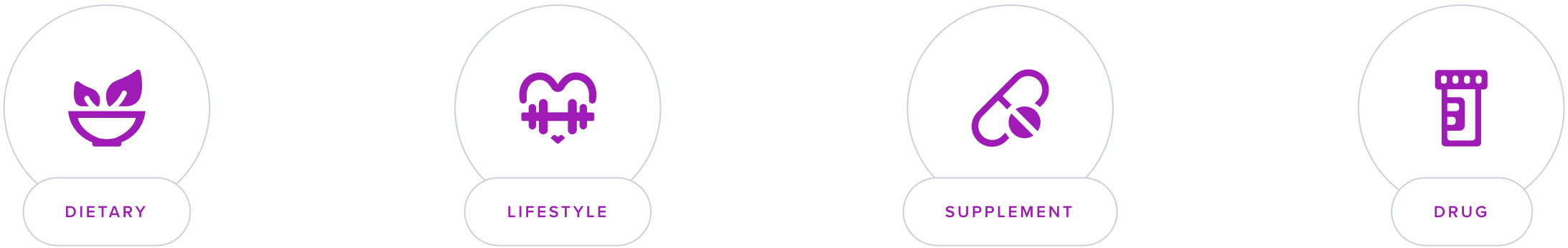
You have 2 risk alleles

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

Arsenic is a [heavy metal](#) and a major environmental toxin. Contaminated water and foods grown in contaminated soil are the main sources of arsenic exposure for most people [\[R\]](#).

High levels of arsenic have been reported in countries like Bangladesh, Thailand, China, Mexico, Argentina, Chile, Finland and Hungary [\[R\]](#).

People working in certain industries may also be exposed to high arsenic levels. Examples include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Chemical plants
- Smelting
- Pesticide manufacturing

Long-term arsenic exposure can contribute to:

- Nerve problems [\[R\]](#)
- Skin lesions and darkening of the skin [\[R\]](#)
- Cognitive impairment [\[R\]](#)
- Cancer [\[R\]](#)
- High blood pressure [\[R\]](#)
- Diabetes [\[R\]](#)

Mees’ lines are white lines on the fingernails or toenails. They can be a sign of arsenic poisoning, but they have been linked to a range of other health issues as well [\[R\]](#).

Genetics of Arsenic Levels

Some people may be better than others at processing and removing arsenic from their bodies. Up to **60%** of these differences may be due to genetics [\[R\]](#).

For example, a gene called [AS3MT](#) helps make an enzyme that turns arsenic into its less toxic form. Certain variants in this gene are linked to enhanced arsenic metabolism. As a result, people with these variants may have lower odds of developing skin lesions due to arsenic poisoning [\[R\]](#), [\[R\]](#), [\[R\]](#).

On the other hand, some variants are linked to slower arsenic metabolism. Arsenic exposure from drinking water may have a stronger impact on skin lesions in the presence of these variants [\[R\]](#).

Keep in mind that the environment may also influence your arsenic levels. The only way to determine your arsenic levels is to take a blood or urine test.

If your levels are high, your doctor may recommend chelation therapy. This is a form of treatment that binds heavy metals and helps remove them from the body [\[R\]](#).



TYPICAL LEVELS

Predisposed to typical levels of arsenic based on 4 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTHFR	rs1801133	AA
GSTO1	rs4925	AC
BORCS7	rs11191527	CC
MTHFR	rs1476413	CC
GSTO1	rs11191979	CT
GSTO1	rs2164624	AG
BORCS7	rs3740393	GC
AS3MT	rs3740390	CT
ATP5MK	rs7911488	AG
AS3MT	rs11191439	TT
GSTP1	rs1695	AA
GSTP1	rs1138272	CC

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

Your Recommendations

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

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

DOSAGE		DOSAGE	
1	Avoid Arsenic Exposure	2	Methylfolate400 mcg
3	Modified Citrus Pectin15 g	4	Activated Charcoal500 mg
5	Sweating More30 minutes	6	Dietary Iron
7	Spirulina500 mg	8	Dietary Folate
9	Alpha-Lipoic Acid600 mg	10	Dietary Selenium
11	N-acetylcysteine (NAC)1200 mg	12	Methylsulfonylmethane (MSM)1 g

1



Avoid Arsenic Exposure

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

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

Description

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

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

The main sources of exposure to arsenic are contaminated [\[R\]](#), [\[R\]](#), [\[R\]](#):

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

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

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

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

How it helps

Contaminated water and foods grown in contaminated soil or fished from contaminated water are the main sources of arsenic exposure for most people [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Some helpful tips to reduce exposure to arsenic from water and food include [\[R\]](#):

- Testing the arsenic concentration of your drinking water, especially if it comes from a well
- Installing a water filter
- Avoiding food grown in contaminated soil or fished from contaminated water as much as possible
- Eating a variety of fruits and vegetables to avoid high exposure to arsenic
- Cooking rice in excess water to wash 40-60% of its arsenic content off

People working in certain industries may also be exposed to high arsenic levels. Examples include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Chemical plants
- Smelting
- Pesticide manufacturing

People working in these industries should take steps to reduce exposure by using the required safety equipment, or changing clothes after working.

2



Methylfolate

IMPACT3 / 5

EVIDENCE2 / 5

How to implement

Take an L-methyl folate supplement (400-800 micrograms daily), ideally with a meal, to improve absorption. This dosage is recommended for adults, including pregnant women, to support overall health, especially to reduce the risk of neural tube defects in developing fetuses. Continue daily use as part of your regular supplement routine.

TYPICAL STARTING DOSE

400 mcg

Description

Folate, a B-vitamin, is crucial for DNA synthesis, cell growth, and the formation of red blood cells. Adequate folate intake supports overall health and reduces the risk of neural tube defects during pregnancy.

Vitamin B9 (*folate*) plays an essential role in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Making DNA
- Metabolism
- Energy production

SelfDecode recommends L-methylfolate as the preferred folate supplement for those who need one. It is superior to folic acid because it doesn't require activation, but the research is still ongoing [\[R\]](#), [\[R\]](#).

How it helps

Supplementation with folate (400-800 mcg/day for 12-24 weeks) may help lower blood arsenic, especially in people with folate deficiency. It may help by turning arsenic into a compound more easily eliminated with urine [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: *You shouldn't consume more than 1,000 micrograms of folate from supplements per day* [\[R\]](#).

3



Modified Citrus Pectin

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 5 grams of modified citrus pectin in powder form, mixed with water or juice, three times per day away from meals.

TYPICAL STARTING DOSE

15 g

Description

Modified citrus pectin is a fruit fiber processed to improve absorption from the digestive system into the bloodstream. It can help protect against some chronic conditions and has benefits for heart health. Additionally, it may help remove toxic heavy metals from your body to promote good overall health.

How it helps

In a non-placebo-controlled trial of 8 healthy volunteers, ingesting modified citrus pectin (15 g/day for 5 days and 20 g on day 6) increased urinary excretion of arsenic by 130% at day 1 [R].

Modified citrus pectin may bind with arsenic and assist in its removal.

4



Activated Charcoal

IMPACT0 / 5

EVIDENCE0 / 5

How to implement

Take 500-1000 mg of activated charcoal with a full glass of water at least 1 hour before a meal or 2 hours after a meal. Do not consume it daily for long periods; use it for short-term detoxification or occasional upset stomach only.

TYPICAL STARTING DOSE

500 mg

Description

Activated charcoal is a porous substance that is highly effective at absorbing and trapping toxins and chemicals in the digestive tract. It is sometimes used in emergency medical settings for poisoning treatment and in certain beauty and wellness products.

How it helps

Treatment including activated charcoal improved arsenic poisoning in several cases [R, R, R].

Activated charcoal may help by binding to arsenic and reducing its absorption in the body.

5



Sweating More

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate at least 30 minutes of moderate-intensity exercise, such as brisk walking, cycling, or swimming, into your daily routine to induce sweating. Ensure to stay hydrated by drinking water before, during, and after exercise. Aim for most days of the week for consistent benefits.

TYPICAL STARTING DOSE

30 minutes

Description

Sweating more through physical activity or heat exposure helps regulate body temperature, eliminate toxins, and support cardiovascular health by improving blood flow and reducing the risk of heat-related illnesses.

How it helps

Sweating can help remove arsenic from your body as toxins can be expelled through perspiration. It's not prevention but can help reduce the level of arsenic already absorbed.

6



Dietary Iron

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate iron-rich foods into your daily meals, such as red meat, chicken, turkey, fish, beans, lentils, tofu, cooked spinach, and fortified cereals. Aim for at least 18 mg of iron per day for adult women and 8 mg per day for adult men. It's also beneficial to pair these foods with vitamin C-rich foods like oranges, strawberries, or bell peppers to enhance iron absorption.

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 [\[R\]](#):

- Menstruating women
- Children
- Vegetarians
- Routine blood donors

How it helps

Iron competes with arsenic for absorption in the gastrointestinal tract. Adequate dietary iron can reduce arsenic absorption, especially in individuals with iron-deficiency anemia.

7



Spirulina

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 1-8 g of spirulina supplements daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

Spirulina is a blue-green algae. It is rich in nutrients like protein, vitamins, and minerals, particularly vitamin B12 and iron, and is a source of antioxidants, chlorophyll, and phycocyanin. It can be found in powdered or tablet form as a supplement, and is often used to boost energy, support the immune system, and enhance overall nutrition. Additionally, spirulina.

[Spirulina](#) is a supplement made from blue-green algae that grows in fresh and marine water [\[R, R\]](#).

Dried spirulina is up to 70% protein. It’s also rich in vitamins, antioxidants, and healthy fats. This makes it a great source of nutrition for both people and livestock [\[R, R, R\]](#).

People use spirulina supplements to reduce [\[R, R\]](#):

- Cholesterol
- Blood pressure
- Blood sugar

How it helps

Recommendation references: [R](#)

8



Dietary Folate

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Increase your intake of folate-rich foods such as leafy green vegetables, fruits, nuts, and legumes. Aim to consume these foods daily, incorporating them into various meals throughout the day to meet the recommended dietary allowance of 400 micrograms for adults.

Description

[Vitamin B9](#) (*folate*) plays an essential role in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Making DNA
- Metabolism
- Energy production

Rich sources of folate include [\[R\]](#), [\[R\]](#):

- Beef liver
- Spinach
- Black-eyed peas
- Asparagus
- Citrus fruits

While folate deficiency is rare, it can happen in people who don’t eat enough fruits and vegetables. Alcoholics and lactating women may also be at increased risk [\[R\]](#).

Adults should get **400 micrograms (mcg)** of folate per day. Pregnant or breastfeeding women should get **500-600 mcg per day**. Supplements are usually in the form of *folic acid* or [L-methylfolate](#) (5-MTHF) [\[R\]](#), [\[R\]](#).

How it helps

Folate can assist in the methylation of arsenic which helps in its detoxification and excretion from the body. Consuming folate-rich foods could help mitigate arsenic toxicity.

9



Alpha-Lipoic Acid

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 600-1800 mg of alpha-lipoic acid daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

600 mg

Description

[Alpha-lipoic acid](#) is a natural antioxidant found in almost every cell in your body. People use alpha-lipoic acid to help with issues like skin aging, weight loss, and high blood sugar [\[R, R, R\]](#).

People use alpha-lipoic acid to help with [\[R, R, R, R\]](#):

- Complications of high blood sugar
- Skin aging
- Weight loss
- Carpal tunnel syndrome

How it helps

Alpha-lipoic acid has properties that can help remove heavy metals from the body. Below are some findings from **animal studies** on ALA and arsenic toxicity:

Studies indicate that ALA can significantly reduce oxidative stress and protect against arsenic-induced damage in various tissues. For instance, ALA co-administration in rats exposed to arsenic resulted in decreased oxidative stress and improved antioxidant enzyme activities, such as superoxide dismutase and catalase, in the brain [\[R, R\]](#).

Additionally, ALA may protect liver mitochondria from arsenic-induced dysfunction by enhancing mitochondrial antioxidant defenses. It may also alleviate blood issues caused by arsenic exposure, restoring redox balance and reducing oxidative damage [\[R, R\]](#).

However, clinical studies to confirm these benefits are lacking.

10



Dietary Selenium

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate selenium-rich foods into your daily diet, such as Brazil nuts, seafood, and organ meats. Eating 1-2 Brazil nuts a day can meet the daily selenium requirement for most adults.

Description

Selenium is a trace mineral found in various foods, including nuts, seeds, and seafood. It is an essential nutrient that plays a crucial role in maintaining the body's antioxidant defenses and supporting thyroid function.

[Selenium](#) supports [\[R\]](#):

- Reproduction
- Thyroid function
- DNA production
- Immune response

Adults should be getting **55 micrograms** of selenium per day. Good sources of selenium include [\[R\]](#):

- Brazil nuts
- Fish
- Meat
- Eggs
- Rice
- Oatmeal

How it helps

Selenium binds with arsenic to form a complex that is less harmful, which your body can easily get rid of. A diet rich in selenium can help mitigate arsenic toxicity and reduce its harmful effects.

11



N-acetylcysteine (NAC)

IMPACT

0 / 5

EVIDENCE

0 / 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

Intravenous NAC improved acute arsenic poisoning in a man who had ingested a lethal dose of sodium arsenate [\[R\]](#).

NAC has also reduced the oxidative damage caused by arsenic in multiple animal studies [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

NAC may help by contributing to the production of the master antioxidant glutathione [\[R\]](#).

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

12



Methylsulfonylmethane (MSM)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 1 to 3 grams of Methylsulfonylmethane (MSM) per day, divided into three doses. This can be in the form of capsules or powder that is mixed with water. It is recommended to start with a lower dose to assess tolerance, then gradually increase to the desired dose over a period of 1 to 2 weeks.

TYPICAL STARTING DOSE

1 g

Description

MSM is a naturally occurring sulfur compound found in foods and used in dietary supplements. It has anti-inflammatory properties and may be used to support joint health and reduce exercise-related muscle soreness.

A molecule of MSM is broken down in the body into a sulfate (sulfur) group and two methyl groups.

The following may increase people’s needs for sulfur and methyl groups: physical activity, recovery from injuries, inflammation, infections/sickness, toxins, etc.

People also need more sulfur when taking hormones (DHEA, pregnenolone, etc.), drugs (Aspirin, Tylenol, NSAIDs, birth control, etc.) or supplements (flavonoids & polyphenols - resveratrol, quercetin, curcumin, etc.) that undergo sulfation.

How it helps

Methylsulfonylmethane (MSM) is an organic sulfur compound that has gained attention for its potential health benefits, including its role in detoxification processes. When it comes to arsenic toxicity, MSM may help in the following ways:

- Enhancement of Glutathione Levels:** MSM may boost the production of glutathione, a powerful antioxidant that plays a crucial role in detoxifying arsenic from the body. Glutathione conjugates with arsenic, making it more water-soluble and easier to excrete via urine.
- Anti-inflammatory Properties:** Arsenic exposure can lead to oxidative stress and inflammation. MSM's anti-inflammatory properties can help mitigate these effects, reducing cellular damage and promoting overall health.
- Sulfation Pathway Support:** Sulfur is a key component in the sulfation pathway, a major detoxification route in the liver. MSM, being a rich source of sulfur, can support this pathway, enhancing the body's ability to detoxify and eliminate arsenic.

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.