SelfDecode™

# SHBG

## Biohacker Report

REPORT CATEGORY

SEX HORMONES

## Sample Client

Report date: 15 January 2026

Powered by omicsedge

# Table of Contents



## Personal information

NAME

**Sample Client**

SEX AT BIRTH

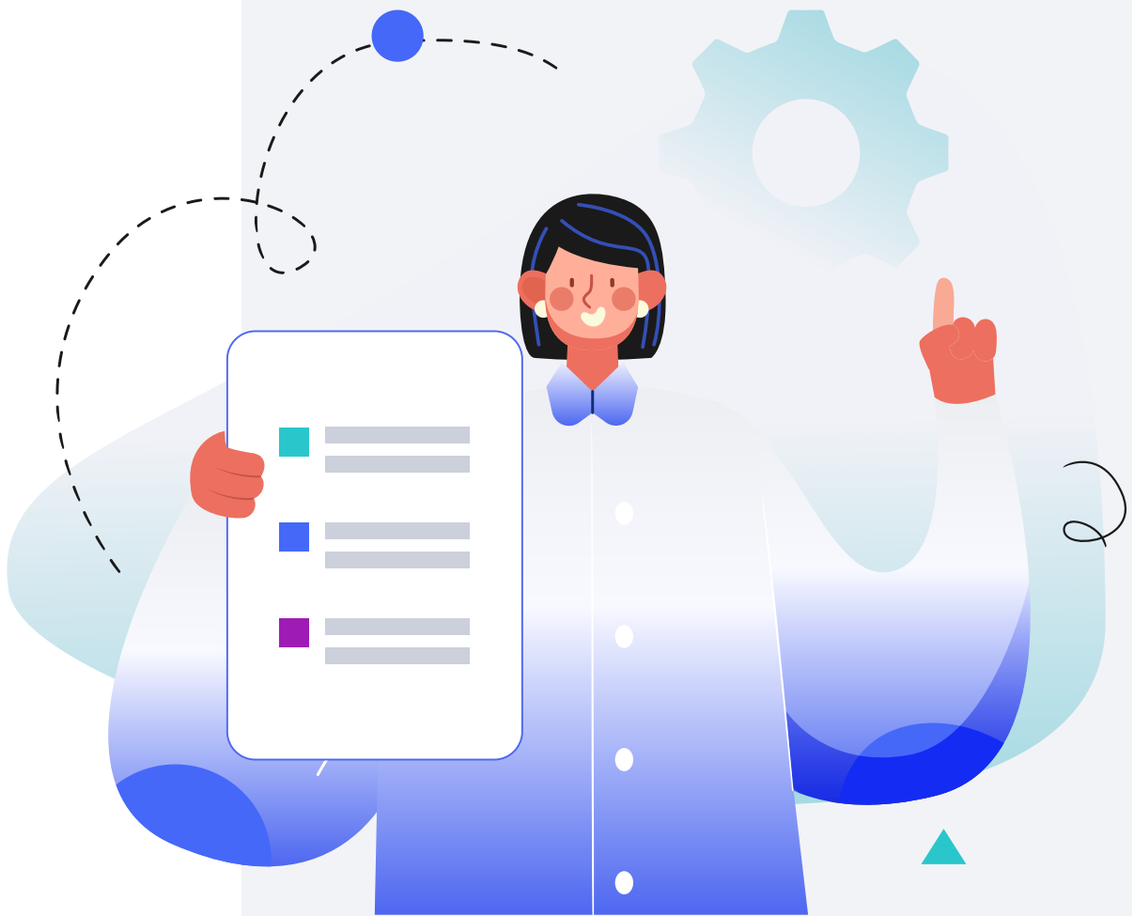
**Male**

HEIGHT

**5ft 5"** 165cm

WEIGHT

**137lb** 62kg

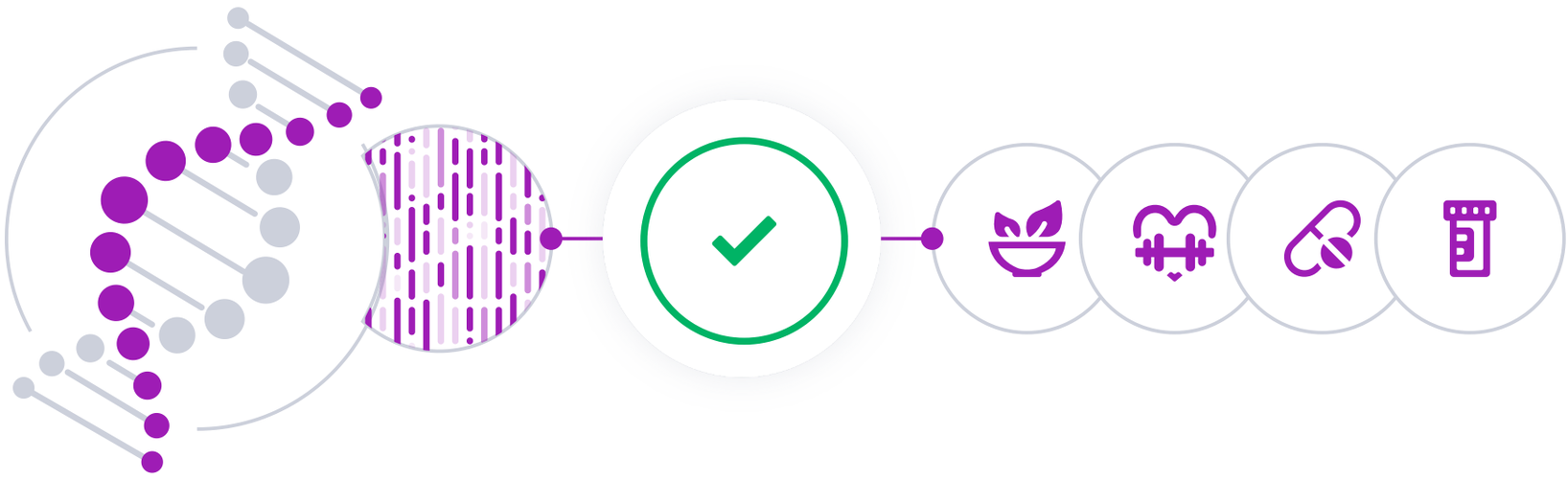


DISCLAIMER

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.

# How this works

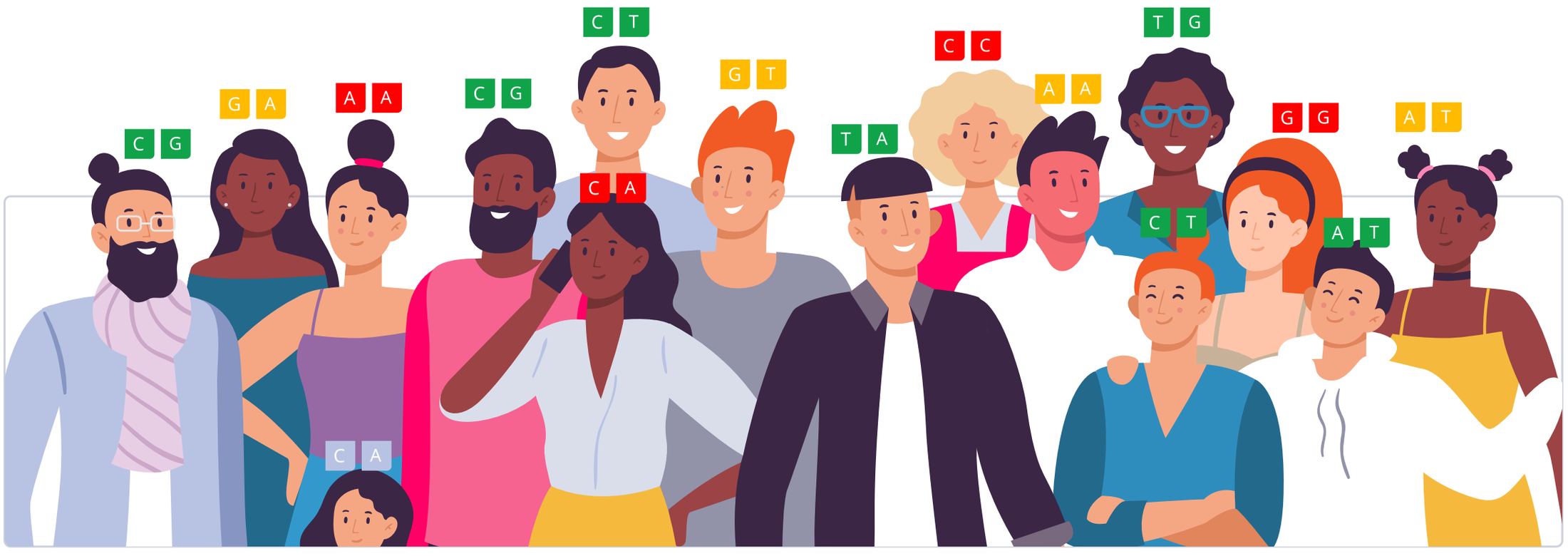
**Our Wellness Reports analyze how your DNA influences your health.**
**We then use this analysis to give you personalized risk estimates and recommendations.**



**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.

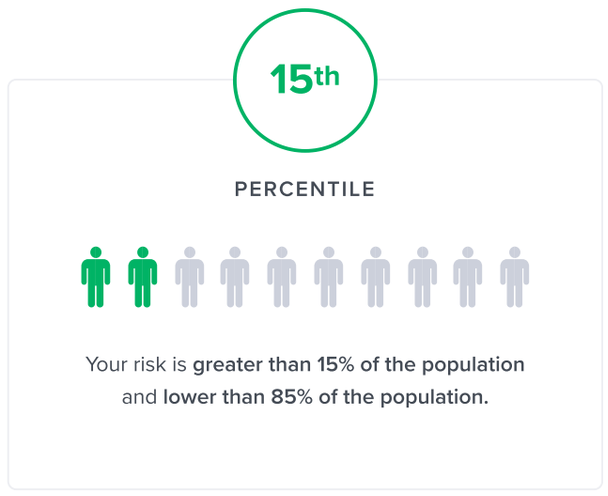
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

SHBG (sex hormone-binding globulin) is a protein made in the liver that binds to sex hormones and helps transport them in the blood. Hence, SHBG controls the levels of sex hormones [R, R, R].

**SHBG is not routinely tested**. Your doctor may order an SHBG test in unusual circumstances, like if you have signs of high or low testosterone with normal testosterone levels. Signs of altered testosterone levels include [R, R, R]:

- Low sex drive, infertility, erectile dysfunction (in men)
- Infertility, irregular periods, excess facial or body hair (women)

# Factors Affecting SHBG Levels

PERSONALIZED TO GENES

Genetically higher levels of SHBG may be causally associated with **higher odds** of the following health issues:

- Lower BMD [R, R, R, R]
- Asthma (women) [R]
- Joint pain [R]
- PCOS [R, R]
- Varicose veins (women) [R]
- Fractures [R, R]
- Facial wrinkles [R]
- Schizophrenia [R]
- Joint inflammation [R]
- Deep vein thrombosis [R]

Genetically higher levels of SHBG may be causally **protective** against the following:

- Tachycardia [R]
- High cholesterol [R]
- High blood sugar [R, R, R, R, R, R]
- High blood pressure [R]
- Gout [R]
- Kidney health (men) [R]
- Erectile dysfunction [R]
- Stroke [R]
- Fatty liver [R, R]
- Heart health (men) [R]

SHBG (sex hormone-binding globulin) is a protein made in the liver that binds to sex hormones and helps transport them in the blood. Hence, SHBG controls the levels of sex hormones. Your doctor may order a test in unusual circumstances, like if you have signs of high or low testosterone with normal testosterone levels [R, R, R].

SHBG production is controlled by [R, R, R]:

- Sex hormones
- Thyroid hormones

HIGHER LEVELS

**Predisposed to higher SHBG levels based on 512,384 genetic variants we looked at**

**Your top variants that most likely impact your genetic predisposition:**

| GENE | SNP | GENOTYPE |
|---|---|---|
| TNFSF12 | rs4227 | TT |
| TP53 | rs1042522 | CC |
| TP53 | rs1625895 | CC |
| TNFSF12 | rs4968200 | GG |
| TNFSF12 | rs3803800 | GA |
| DNAH2 | rs12185237 | CT |
| TMEM102 | rs117573122 | GG |
| / | rs137853336 | CC |
| / | rs143650826 | TT |
| DNAH2 | rs142627042 | CC |
| ZBTB4 | rs12051767 | CC |
| NR1H4 | rs61755050 | TT |
| MPDU1 | rs11078697 | CC |
| SHBG | rs116289877 | AA |
| SERPINA1 | rs28929474 | CC |
| SAT2 | rs55784804 | GG |
| SPEM1 | rs199795512 | TT |
| EIF4A1 | rs17883687 | GG |
| PLA2G12A | rs41278045 | AA |
| DNAH2 | rs34511268 | TT |
| FXR2 | rs118174079 | GG |
| EFNB3 | rs117584963 | CC |
| ATP1B2 | rs117322070 | CC |
| ATP1B2 | rs76733190 | CC |
| SERPINA1 | rs28929470 | GG |
| TMEM256 | rs139552861 | CC |
| EFNB3 | rs12939910 | CC |
| NR2F6 | rs116189680 | GG |
| CCND2 | rs76895963 | TT |
| TNFSF12 | rs8069501 | AA |
| GNGT2 | rs11650494 | GG |
| MAP1A | rs55707100 | CC |

- Insulin
- Dietary factors

Disturbances in any of these can affect SHBG levels.

**Around 40% of differences in people's SHBG levels may be due to genetics** [R].

| GENE | SNP | GENOTYPE |
|---|---|---|
| SOS2 | rs72681869 | GG |
| TNFSF12 | rs35386490 | TT |
| TNFSF12 | rs74351250 | GG |
| TNFSF12 | rs76749877 | GG |
| EIF3J | rs151291132 | AA |
| WDR72 | rs113401670 | CC |
| CHRNB1 | rs78608504 | CC |
| JMJD1C | rs117212080 | 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 PBDE | |
| 2 | Purple Sweet Potato | |
| 3 | Avoid PAHs Exposure | |
| 4 | Boron | 3 mg |
| 5 | Shilajit | 500 mg |

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## Avoid PBDE

IMPACT 1 / 5

EVIDENCE 1 / 5

### How to implement

To avoid PBDEs, replace old furniture that might contain these chemicals, vacuum and dust your home regularly to reduce dust particles that might contain PBDEs, and use products labeled as PBDE-free. Ensure you check labels on electronics, furnishings, and textiles for mention of being PBDE-free.

### Description

Polybrominated Diphenyl Ethers (PBDEs) are commonly found in flame retardants used in household items. These chemicals are linked to health issues like hormone disruption and neurodevelopmental problems. Opt for PBDE-free products, improve ventilation, and frequently clean to minimize dust, which can contain PBDE particles, promoting a healthier living environment.

### How it helps

A study of 544 adolescents associated exposure to organophosphate esters (a class of PBDE) with **lower total testosterone and estradiol levels, and higher SHBG** [R].

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## Purple Sweet Potato

IMPACT 1 / 5

EVIDENCE 1 / 5

### How to implement

Incorporate 100-150 grams of purple sweet potato into your diet 3-4 times a week. This can be achieved by baking, boiling, or including it in smoothies.

### Description

Purple sweet potatoes are a colorful and nutritious variety of sweet potatoes that originated in southeast Asia. They are packed with antioxidants, fiber, and vitamins, especially vitamin A and C, which supports eye health and overall immunity.

### How it helps

Purple sweet potato is high in fiber and antioxidants. This may help maintain healthy levels of SHBG by promoting a balanced hormone production and controlling inflammation.

In a non-placebo-controlled trial of 24 postmenopausal women, replacing their staple food with purple sweet potato (390 g, 2-3x/day) for 30 days **increased SHBG levels by 9.5%** [R].

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# Avoid PAHs Exposure

IMPACT 1 / 5

EVIDENCE 1 / 5

## How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

## Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

## How it helps

A study of 648 premenopausal and 370 postmenopausal women associated exposure to PAH metabolites with decreased E2, TT, FAI, and TT/E2, and increased SHBG levels [R].

PAHs may disrupt hormonal balance, potentially impacting SHBG levels.

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# Boron

IMPACT 1 / 5

EVIDENCE 0 / 5

## How to implement

Take a boron supplement of 3 to 6 mg daily, with food to enhance absorption. This dosage range is commonly recommended for general health benefits, based on nutritional studies. It's advisable to continue this regimen daily for an extended period, as long-term benefits depend on consistent supplementation.

TYPICAL STARTING DOSE

**3 mg**

## Description

Boron is a trace mineral that plays a role in bone health, cognitive function, and hormone regulation.

Boron is a mineral in many foods, including:

- Fruits and fruit juices
- Avocados
- Potatoes
- Legumes
- Drinks (coffee, milk, cider, wine, and beer)

Scientists aren’t sure if boron has any roles in the body, so they don’t consider it an essential nutrient.

Some people take boron supplements to balance hormone levels, increase athletic performance, and more. However, the evidence to support these uses is weak.

## How it helps

In a non-placebo-controlled trial of 8 healthy men, supplementation with boron (11.6 mg/day) for a week lowered SHBG levels [R].

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# Shilajit

IMPACT 0 / 5

EVIDENCE 0 / 5

## How to implement

Take a pea-sized portion (approximately 500mg) of purified shilajit resin and dissolve it in warm water, tea, or milk. Consume this once daily, ideally in the morning on an empty stomach for best absorption. Continue this routine daily for 6 to 8 weeks to observe benefits.

TYPICAL STARTING DOSE

**500 mg**

## Description

Shilajit, also known as shilaras or bitumen, is a tar-like substance that oozes from sedimentary rocks worldwide, especially in the Himalayas. It is made of rock humus, minerals, and organic substances (e.g., marine organisms) decomposed by microbes and compressed by layers of rock [R].

Shilajit is called a rasayana (rejuvenator) and a maharasa (super-vitalizer) in Ayurveda (indigenous Indian medicine). It is traditionally used to [R, R, R]:

- Boost energy levels
- Improve memory and focus
- Fight stress
- Manage male reproductive disorders

Shilajit is sold as capsules or powder [R].

## How it helps

In a clinical trial of healthy men, purified Shilajit (250 mg, 2x/day) for 3 months increased total and free testosterone, as well as dehydroepiandrosterone (DHEAS). This suggests Shilajit may decrease SHBG levels [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.