

Bioavailable Testosterone

Biohacker Report

REPORT CATEGORIES —



SEX HORMONES



SEXUAL HEALTH

Sample Client

Report date: 15 January 2026

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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.



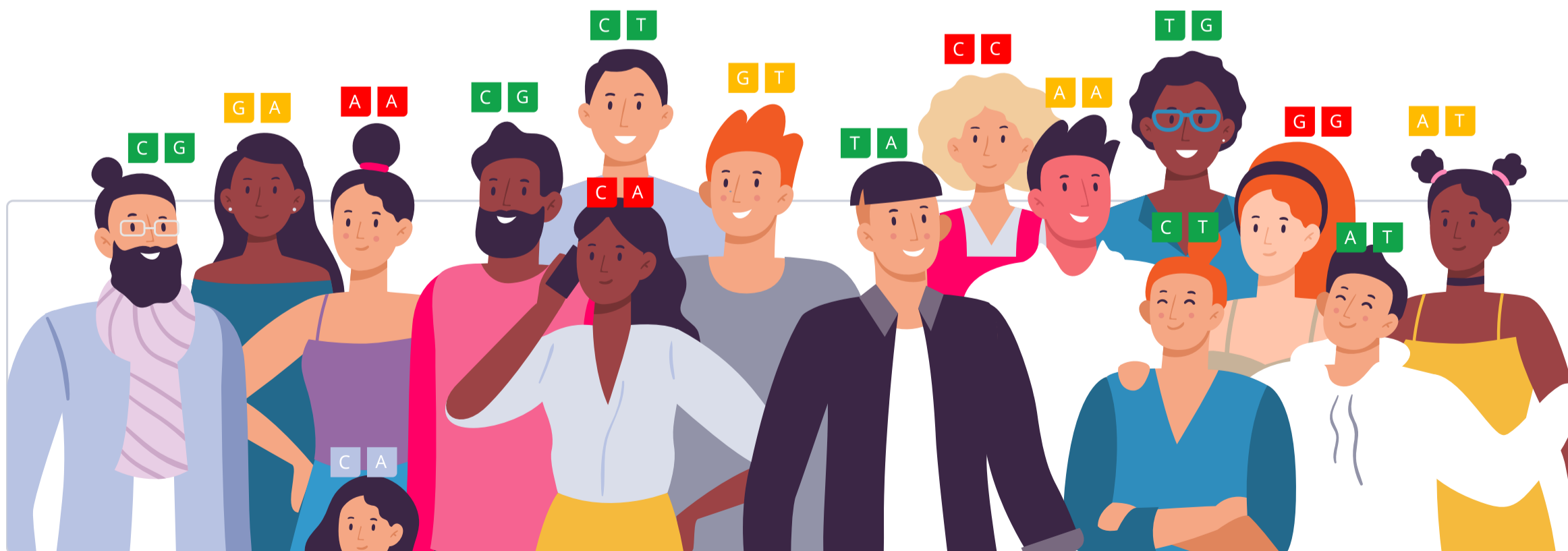
Similarly, our Trait Reports look at how your DNA influences your traits.



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.

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

Testosterone is a hormone mainly produced by the testes in men or ovaries in women. It is made from cholesterol [\[R\]](#).

In the blood, testosterone is present in 3 main forms [\[R\]](#):

- Bound to [SHBG](#)
- Weakly bound to albumin
- Not bound to any proteins—free testosterone

Approximately **2-3%** of total testosterone is **free**. Along with a fraction weakly bound to albumin, it constitutes **bioavailable testosterone** (roughly 50% of total testosterone). “Bioavailable” means your body can use it [\[R\]](#).

Free testosterone is crucial because this is the active fraction that causes health effects. Testosterone bound to albumin first needs to detach and become free before acting [\[R\]](#).

Testosterone helps [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve bone health
- Build and maintain muscle mass and strength
- Increase red blood cell production
- Improve libido and sexual function
- Increase sperm production
- Support mood and brain function

However, **genetically higher** testosterone levels may play a role in health issues like:

- Depression [\[R\]](#)
- Rheumatoid arthritis [\[R\]](#)
- Blood clotting issues (thromboembolism) [\[R\]](#)

Contributing Factors and Genetics

Free blood testosterone and the one weakly bound to albumin constitute **bioavailable testosterone**. This fraction of testosterone (roughly 50%) can enter tissues and cause health effects [R].

About **45%** of the differences in bioavailable testosterone levels may be due to **genetics** [R].

Free testosterone declines with age in both men and women after peaking in the late 20s [R, R].

Other factors associated with low testosterone include [R]:

- **Obesity**
- Some medications
- Alcohol abuse
- Certain chronic medical conditions (e.g., type 2 diabetes, obstructive sleep apnea)

Bioavailable and free testosterone are less often ordered as lab markers than total testosterone because they are **more expensive and difficult to measure**.

However, it may be necessary to test free testosterone levels in people who have symptoms of low testosterone but have normal total testosterone levels [R].



TYPICAL LEVELS

Predisposed to typical bioavailable testosterone levels based on 20,252 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AR	rs776715248	T
FKBP4	rs56196860	CC
EIF4A1	rs545206972	CC
SRD5A2	rs113017476	GG
ESR1	rs190930099	AA
FAM9A	rs111386834	T
/	rs7912521	TT
PPP2R3C	rs10137488	TT
KCNIP4	rs7679843	CC
MME	rs61762319	AA
ORM1	rs10982156	TT
CYP19A1	rs17703883	TT
ABT1	rs79310511	AA
RORB	rs912202	GG
/	rs11703376	CC
GPR83	rs12796488	AC
DGKB	rs9986829	AG
LIN28B	rs9322822	TC
GOLT1A	rs35737316	CT
JHY	rs10892924	AT
MANBA	rs17254118	CC
/	rs116923389	TT
AMER1	rs146225865	G
/	rs2035837	TT
YIPF6	rs147676232	C
UHRF1BP1	rs11751920	GG
EDA2R	rs73221538	C
HSD17B10	rs140498714	C
UGT1A4	rs2011425	TT
RTL9	rs41306249	T
GPR139	rs2764772	AA

GENE	SNP	GENOTYPE
PEX2	rs71529289	CC
BBX	rs34040779	TT
TNFSF12	rs1799941	GG

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	Strength Training	1 hour	2	Exercise At Least One Hour a Day	1 hour
3	Aerobic Exercise (Cardio)	1 hour	4	Zinc	10 mg
5	Avoid Opioid Drugs		6	DHEA (Dehydroepiandrosterone)	25 mg
7	Avoid Low-Fat High-Carb Diets		8	Tongkat Ali	200 mg
9	Fenugreek	500 mg	10	Ashwagandha	120 mg
11	Sleep for 7+ Hours		12	Geranylgeraniol	150 mg
13	Shilajit	500 mg	14	Forskolin	500 mg
15	Pomegranate Peel and Cocoa Extracts		16	Saw Palmetto	320 mg
17	Cognitive-Behavioral Therapy (CBT)		18	Magnesium	350 mg
19	Boron	3 mg	20	Pomegranate Peel	
21	Cocoa Extracts	500 mg			

1




Strength Training

IMPACT

 3 / 5

EVIDENCE

 3 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [\[R\]](#). Some of the most common strength training methods include [\[R\]](#):

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [\[R\]](#):

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Moderate-high-intensity exercise may increase bioavailable testosterone levels within the first 30 minutes. Studied types of exercise include [\[R, R, R, R, R, R, R, R\]](#):

- Cardio (e.g., running)
- High-intensity interval training (HIIT)
- Strength

More studies are needed to determine the amount and type of exercise that may offer the greatest benefits [\[R, R\]](#).

Exercise may help by directly increasing testosterone production [\[R\]](#).

2



Exercise At Least One Hour a Day

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps


A single bout of moderate-high-intensity exercise (for 20-90 minutes) may increase free testosterone levels **immediately and within 30 min after exercise** [\[R\]](#).

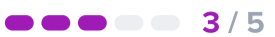
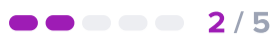
Similarly, **regular training (for at least 3 weeks) may increase free testosterone levels**. Helpful exercise types include [\[R\]](#), [\[R\]](#):

- Cardio
- Interval training
- Strength training

Cardio and interval training may be more effective than strength training in older people [\[R\]](#).

Exercise may help by increasing testosterone production [\[R\]](#).

3  **Aerobic Exercise (Cardio)**

IMPACT  **EVIDENCE** 

How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.


Interval training is a type of cardio that combines periods of high-intensity training with brief rest periods.


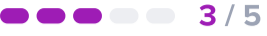
How it helps

Moderate to vigorous exercise (for 20-90 minutes) may increase free testosterone levels **immediately and within 30 min after exercise** [\[R\]](#).

Similarly, **regular training (for 3 weeks or more) may increase free testosterone levels** [\[R, R\]](#).

Older people may benefit the most from cardio or interval training. They can help by boosting testosterone production [\[R, R\]](#).

4  **Zinc**

IMPACT  **EVIDENCE** 

How to implement

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

TYPICAL STARTING DOSE

10 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

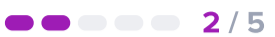
Zinc plays a key role in producing and regulating hormones, including testosterone.

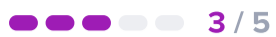
Studies concluded that zinc deficiency may reduce testosterone levels, including free testosterone. In line with this, zinc supplementation may increase them [\[R, R, R\]](#).

However, zinc and folate may not offer the same benefits in subfertile men [\[R\]](#).

In one study, zinc supplementation increased **free testosterone** levels in cyclists after exhaustive exercise [\[R\]](#).

5  **Avoid Opioid Drugs**

IMPACT  2 / 5

EVIDENCE  3 / 5

How to implement

Do not use opioid medications unless prescribed by a healthcare provider for specific medical conditions where pain management is necessary, and even then, use them only as directed for the shortest possible duration.

Description

Avoiding the misuse and addiction to opioids is essential for physical and mental well-being, as these drugs can lead to dependence, overdose, and serious health consequences. Responsible use and adherence to medical advice are crucial for managing pain and avoiding opioid-related risks.

How it helps

Different studies concluded that opioid use may reduce testosterone levels in men [\[R, R\]](#).

According to one study, oral sustained-action opioids in men produce subnormal sex hormone levels, including free testosterone, in 56% of users [\[R\]](#).

6



DHEA (Dehydroepiandrosterone)

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 25-50 mg of DHEA orally with water daily, preferably in the morning to mimic the body's natural rhythm of DHEA production. It is advisable to start at the lower dose to assess tolerance and adjust as needed. Consult a healthcare provider for personalized advice and before starting a new supplement regimen.

TYPICAL STARTING DOSE

25 mg

Description

DHEA is a hormone produced by the adrenal glands and has been used as a dietary supplement for various purposes, including supporting hormonal balance and energy levels. It may have potential benefits for specific individuals, but its use should be supervised by a healthcare professional due to its hormonal nature.

DHEA is a steroid hormone produced primarily by the adrenal glands. It is also produced to a much lesser extent by the testes and ovaries and, possibly, the brain [\[R, R\]](#).

DHEA helps make the sex hormones [testosterone](#) and [estrogen](#). DHEA is important for [\[R, R, R, R\]](#):

- Mood
- Immunity
- Muscle strength
- Bone health
- Skin health

DHEA is released in response to stress. In fact, one of DHEA's important roles is to protect against the adverse effects of prolonged and excessive exposure to cortisol, the stress hormone [\[R, R, R\]](#).

How it helps

In a meta-analysis, DHEA supplementation increased testosterone levels in men (by 21.36 ng/dl). It seems to have even stronger effects on women [\[R, R\]](#).

In a study of middle-aged men, DHEA (150 mg/day) increased **free testosterone** [\[R\]](#).

DHEA may act as a precursor to testosterone in the body.

Please note: DHEA has been banned by sport associations and anti-doping agencies. DHEA should not be used at high doses or long-term and is contraindicated in patients with hormone-responsive cancers. DHEA supplements should only be used with the prescription of a medical professional. Discuss risks and side effects with your doctor [\[R\]](#).

7

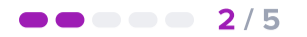


Avoid Low-Fat High-Carb Diets

IMPACT

 2 / 5

EVIDENCE

 2 / 5

How to implement

Opt for a diet that balances macronutrients rather than focusing on low fat and high carbohydrates. Include moderate to high amounts of healthy fats and proteins while choosing complex carbohydrates over simple ones. Aim to make this dietary adjustment a permanent part of your eating habits rather than a temporary diet.

Description

Avoiding low-fat-high-carb diets can help promote a balanced macronutrient intake and better blood sugar control. Incorporating healthy fats into the diet supports satiety, hormone production, and overall nutritional well-being.

How it helps

Following a **low-fat diet (for 2-10 weeks)** may decrease free testosterone levels in men, especially in white men [\[R\]](#).


Fat intake provides cholesterol, the backbone of testosterone, and raises testosterone production. **Low-fat diets may lower testosterone levels due to the restricted cholesterol supply** [\[R\]](#).

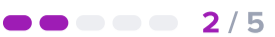
Accordingly, **reducing carbohydrate intake (to 25-30%) and increasing fat intake (for 8-12 weeks)** may raise free testosterone levels [\[R\]](#), [\[R\]](#).

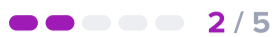
However, high-fat diets with a very low-carbohydrate content (2-10% carbs) may have **no effect on free testosterone levels** [\[R\]](#), [\[R\]](#).

Talk to your doctor or nutritionist before increasing your intake of fats or following a high-fat diet. Eating too much fat from the wrong sources may increase your risk of heart disease [\[R\]](#), [\[R\]](#).

The [Mediterranean diet](#) is an example of a diet rich in healthy fats [\[R\]](#).

8  **Tongkat Ali**

IMPACT  2 / 5

EVIDENCE  2 / 5

How to implement

Take 200-400 mg of Tongkat Ali extract daily, preferably in the morning, to maintain consistent levels in your body. This dosage is typically taken in a single dose or divided into two doses throughout the day. Use for a period of 5-9 weeks followed by a break or as advised by a healthcare professional.

TYPICAL STARTING DOSE

200 mg

Description

Tongkat Ali is a plant native to Southeast Asia. Traditionally and today, its roots have been used as a herbal remedy to boost energy, improve libido, and support overall vitality. It's typically consumed as a tea or in powdered form. The main compounds in Tongkat Ali are quassinoids, which are believed to have potential benefits for hormonal balance and sexual health.

[Tongkat ali](#) or longjack (*Eurycoma longifolia*) is a plant native to Southeast Asia. It has a long history in traditional medicine [\[R\]](#).


Today, people mainly use extracts from its root to support erectile function and fertility [\[R\]](#).

How it helps

Supplementation with **tongkat ali extract (200-600 mg/day for 2-12 weeks)** may increase free testosterone levels [\[R, R\]](#).

Tongkat ali may help by [\[R\]](#):

- Increasing testosterone production
- Reducing testosterone breakdown

9  **Fenugreek**

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Take a 500 mg fenugreek supplement daily, preferably with a meal to aid in digestion and absorption.

TYPICAL STARTING DOSE

500 mg

Description

Fenugreek is an herb and spice commonly used in traditional medicine for its potential to support digestive health, regulate blood sugar levels, and promote lactation in nursing mothers. Its compounds, such as soluble fiber and fenugreek seeds, contribute to its various health benefits.

[Fenugreek](#) is a leafy green legume originating from central Asia. Its leaves and seeds are both used in cooking. Some people also use the seeds to make tea [[R](#), [R](#)].

People use fenugreek tea or supplements for [[R](#), [R](#), [R](#), [R](#)]:

- Reproductive health
- Blood sugar control
- Decreasing cholesterol

How it helps

Supplementation with fenugreek seed extract (500-600 mg/day for 12 weeks) may **increase free testosterone levels in men**. However, fenugreek may not provide this benefit to men with enlarged prostate [[R](#), [R](#), [R](#), [R](#)].

10  **Ashwagandha**

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Take 250-600 mg of ashwagandha supplement daily. It can be consumed with water or a meal, depending on your preference or as advised by a healthcare provider.

TYPICAL STARTING DOSE

120 mg

Description

[Ashwagandha](#) (*Withania somnifera*) is an herb used in traditional Indian medicine. This herb is known as an *adaptogen* because it helps people adapt to stress.

This herb is known as an *adaptogen* because it helps people adapt to stress [\[R, R\]](#).

How it helps

Ashwagandha supplementation increased testosterone levels in several studies [\[R, R, R\]](#).

In one study with men experiencing stress and fatigue, ashwagandha improved **free testosterone** levels [\[R\]](#).

Ashwagandha may help by boosting the production of luteinizing hormone, which stimulates the testes to produce more testosterone. Additionally, it reduces cortisol levels, a hormone that can negatively impact testosterone if in excess.

11



Sleep for 7+ Hours

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

Sleep supports your body and mind [R, R]. More precisely, sleep helps:

- Support brain health [R, R]
- Maintain a healthy weight and appetite [R, R, R]
- Regulate blood pressure [R, R]
- Balance blood sugar [R, R]

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that's cool, dark, and quiet

How it helps


Getting too short (less than 6 hours/night) or too-long (more than 9 hours/night) sleep may be linked to lower free testosterone [R, R, R].

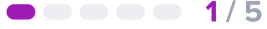
However, not all studies found this association [R, R].

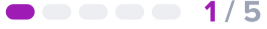
Sleeping disorders like **obstructive sleep apnea** may also be linked to lower free testosterone [R, R, R].

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that's cool, dark, and quiet

12  **Geranylgeraniol**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Geranylgeraniol can be taken as a dietary supplement, typically in the form of capsules or softgels. The recommended dosage varies depending on individual health needs and the specific product formulation. It is generally advised to start with a lower dose and gradually increase it, under the guidance of a healthcare professional. Taking it with a meal may enhance absorption and efficacy.

TYPICAL STARTING DOSE


150 mg

Description

Geranylgeraniol is a natural compound found in various plants and herbs, known for its potential health benefits. It plays a crucial role in the body's biosynthesis of essential molecules like CoQ10 and vitamin K2. This compound is noted for its anti-inflammatory, antioxidant, and anti-cancer properties, making it a promising supplement for enhancing overall well-being.

How it helps

Geranylgeraniol (GG) supplementation (150-300 mg) may enhance testosterone levels, particularly in people with baseline levels below 700 ng/dL. It showed significant increases in total, free, and bioavailable testosterone in an 8-week study of 66 healthy men and women [\[R\]](#).

13  **Shilajit**

IMPACT 1 / 5

EVIDENCE 1 / 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 placebo-controlled trial of 75 healthy middle-aged volunteers, supplementation with shilajit (250 mg, 2x/day) for 90 days significantly increased total testosterone, free testosterone, and DHEAS levels [\[R\]](#).

14  **Forskolin**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take 250 mg of a 10% forskolin extract twice a day. For best results, consume it on an empty stomach about 15-30 minutes before meals. This regimen should be followed daily for at least 12 weeks to evaluate its effectiveness.

TYPICAL STARTING DOSE

500 mg

Description

Forskolin is a natural compound found in the roots of the Indian coleus plant, and it has been studied for its potential to support weight management and heart health.

[Forskolin](#) is a popular supplement and research tool that entered medical practice from Ayurvedic medicine. It is obtained from the dried root of an Indian plant known as *Plectranthus barbatus* or *Coleus forskohlii* [\[R\]](#).

Forskolin is especially popular as a weight loss supplement, but the research behind it is limited [\[R, R, R\]](#).

How it helps

According to one small study, supplementation with **forskolin (250 mg of a 10% extract, 2x/day for 12 weeks)** may increase total and free testosterone levels in overweight and obese men. Forskolin may help by increasing testosterone production [\[R\]](#).

15



Pomegranate Peel and Cocoa Extracts

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing pomegranate peel and cocoa extracts once daily, ideally with a meal to enhance absorption. The specific dosage may vary based on the product, so follow the manufacturer's instructions on the label. Generally, it is recommended to continue daily supplementation for at least 8 to 12 weeks to evaluate its effects.

Description

Pomegranate peel extract comes from the pomegranate fruit. Cocoa extract is derived from the cacao bean. Both pomegranate and cacao have long histories of use in traditional medicines of their native lands. Pomegranate peel extract is rich in polyphenolic compounds like ellagic acid and may have anti-inflammatory and anticancer properties. Cocoa extract contains various bioactive compounds, including theobromine and flavanols, which are known for their antioxidant effects and potential cardiovascular benefits.

[Pomegranates](#) are red fruits that contain seeds covered by edible sweet coats. They are rich in antioxidants [\[R, R\]](#).

Pomegranate may reduce inflammation and support heart health. People use pomegranate seed oil and peel in cosmetics and traditional medicine [\[R, R\]](#).

[Cocoa](#) comes from the beans of the *Theobroma cacao* tree. It's often used for making chocolate, hot chocolate, and pastries. People have also used cocoa and cocoa seeds as a medicine for over a thousand years [\[R, R\]](#).

Cocoa contains many active components that likely help [\[R, R, R, R\]](#):

- Control weight
- Lower fatigue
- Boost mood
- Improve digestion
- Balance blood sugar
- Support heart health

How it helps


A product containing pomegranate peel powder and cocoa seed extracts (200-400 mg/day for 8 weeks) may increase free testosterone levels [\[R, R\]](#).

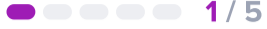
This extract blend may help by increasing testosterone production [\[R\]](#).

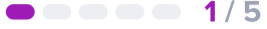
However, the available evidence is limited and of low quality.

A study on a combination of *Punica granatum* and *Theobroma cacao* extracts (LN18178 or Tesnor®) found that both doses significantly reduced AMS scores, improved well-being, and increased testosterone levels in participants after 56 days. Hand-grip strength improved, and stress scores decreased [\[R\]](#).

Please note: *Pomegranate root, stem, and peel may be harmful if consumed in large amounts* [\[R\]](#).

16  **Saw Palmetto**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take a saw palmetto supplement of 160 mg twice daily or 320 mg once a day. This dosage is typically taken in capsule form. Continue this regimen for at least two to six months to assess its effectiveness for conditions like benign prostatic hyperplasia.

TYPICAL STARTING DOSE

320 mg

Description

Saw palmetto is a plant extract derived from the berries of the saw palmetto palm (*Serenoa repens*). It has traditionally been used by Native Americans for various medicinal purposes. Today, it is primarily used as a dietary supplement for prostate health.

[Saw palmetto](#) (*Serenoa repens*) is a small palm plant native to the US [\[R\]](#), [\[R\]](#).

People use it to help with [\[R\]](#):

- Urinary problems
- Pain
- Hair loss

How it helps

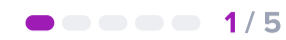
According to one study, **saw palmetto oil (enriched with β -sitosterol, 500 mg/day for 12 weeks)** may increase free testosterone levels in men with enlarged **prostate**. Saw palmetto may help by reducing testosterone breakdown [\[R\]](#).

17

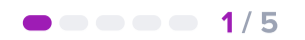


Cognitive-Behavioral Therapy (CBT)

IMPACT

 1 / 5

EVIDENCE

 1 / 5

How to implement

Schedule weekly sessions with a certified cognitive-behavioral therapist for a period of 5 to 20 weeks. Engage actively in exercises assigned by your therapist both during sessions and as homework to apply CBT strategies to daily life.

Description

Cognitive-behavioral therapy (CBT) is a psychotherapeutic approach that has been effective in treating various mental health conditions by helping individuals identify and change negative thought patterns and behaviors. It is widely used for conditions like depression, anxiety, and phobias.

Psychotherapy (talk therapy) involves talking about your health with a licensed therapist. It may improve the way you react to certain experiences [\[R\]](#).

Talk therapy is a great way to improve many conditions, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):


- Depression
- Anxiety disorders
- PTSD
- OCD
- Substance use disorder
- Bipolar disorder

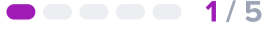
Cognitive-behavioral therapy (CBT) is a type of talk therapy. CBT aims to change the way you think about your life and yourself. Through CBT, a therapist can help you develop healthy coping mechanisms [\[R\]](#).

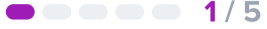
How it helps

Stress may reduce testosterone levels in men [\[R\]](#).

According to one study, **cognitive-behavioral stress management (for 10 weeks) may increase free testosterone** in men with high stress levels [\[R\]](#).

18  **Magnesium**

IMPACT  1 / 5

EVIDENCE  1 / 5

How to implement

Take up to 350 mg of magnesium daily as a supplement, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

350 mg

Description

Magnesium is an essential mineral involved in various bodily functions, including muscle contractions, nerve signaling, and bone health. Maintaining adequate magnesium levels through diet or supplements can support overall well-being and reduce the risk of magnesium deficiency-related health issues.

Magnesium is an essential mineral. Your body needs it for [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Muscle, nerve, and bone function
- Blood sugar and blood pressure control
- DNA and protein production
- Strong immunity


Women need **310-320 mg** of magnesium per day, while men need **400-420 mg** [\[R\]](#).

Foods rich in magnesium include **nuts, seeds, and leafy greens**. Magnesium is also available as a supplement [\[R\]](#).

How it helps

Magnesium plays a role in the enzymatic reactions that involve testosterone synthesis, helping to maintain normal testosterone levels.

In a [non-placebo-controlled trial of 30 healthy men](#), supplementation with magnesium (10 mg/kg) for 4 weeks **increased total and free testosterone levels in sedentary subjects and athletes** [\[R\]](#).

19  **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

Boron is a popular supplement for increasing testosterone levels. However, several studies **failed to confirm** this effect [\[R\]](#), [\[R\]](#).

In one small, low-quality study, boron supplementation (10 mg/day for 1 week) increased free testosterone [\[R\]](#).

20



Pomegranate Peel

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500mg of pomegranate peel extract in capsule form, twice daily with meals. Continue this supplement regimen for at least 8 weeks to observe potential health benefits.

Description

Pomegranate peel is the nutrient-rich outer covering of the pomegranate fruit. It has been used traditionally for centuries in its native lands from the Mediterranean to Asia as part of herbal remedies due to its antioxidant and anti-inflammatory properties. It is rich in polyphenolic compounds like punicalagins and anthocyanins.

How it helps

Pomegranate peel can increase bioavailable testosterone by inhibiting an enzyme called aromatase, which converts testosterone to estrogen. Additionally, the antioxidants in the peel can potentially reduce oxidative stress, which can help maintain overall testosterone levels.

A study on a combination of Punica granatum and Theobroma cocoa extracts (LN18178 or Tesnor®) found that both doses significantly reduced AMS scores, improved well-being, and increased testosterone levels in participants after 56 days. Hand-grip strength improved, and stress scores decreased [\[R\]](#).

21



Cocoa Extracts

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500 to 1000 mg of cocoa extract daily, in supplement form, preferably with meals to enhance absorption. This dosage can be adjusted based on the concentration of the active compounds within the extract, and should be continued regularly for at least two to four weeks to observe benefits.

TYPICAL STARTING DOSE

500 mg

Description

Cocoa extracts and cocoa flavanols, derived from cocoa beans, have shown promise in supporting heart health by helping to reduce blood pressure and improve endothelial function, although further research is needed to fully understand their potential benefits.

How it helps

Cocoa extracts can benefit Bioavailable Testosterone by stimulating the body to produce more of this specific hormone. This is due to cocoa's high content of L-arginine, an amino acid that boosts testosterone levels.

A study on a combination of Punica granatum and Theobroma cocoa extracts (LN18178 or Tesnor®) found that both doses significantly reduced AMS scores, improved well-being, and increased testosterone levels in participants after 56 days. Hand-grip strength improved, and stress scores decreased [\[R\]](#).

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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.

