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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

People have long been concerned with fertility. For example, the ancient Greeks and Romans would pray to their deities for fertility. But it wasn’t until the 1600s that we first discovered the existence of sperm (and eggs) [\[R\]](#), [\[R\]](#), [\[R\]](#).

We’ve learned a lot about fertility in the years since, and one of the major takeaways is that humans aren’t the most efficient reproducers in the animal kingdom.

To put this into context, **the average human male produces the same amount of sperm per day as a hamster**, despite having testicles 10 times the size [\[R\]](#)! This isn’t all that surprising – after all, we tend to live a lot longer than hamsters, so we aren’t in a major rush to reproduce.

While a hamster may produce sperm in high numbers, there are other variations in sperm quality that can define an efficient ‘reproducer.’ This can include how well sperm moves and how it is shaped [\[R\]](#).

All of these factors affect how efficient sperm is at fertilizing an egg. So, what can you do to make sure your sperm is in tip-top condition?

The first would be to not fall for any male fertility myths. Many exist today, despite scientific advances!

You’ve probably heard that masturbating too frequently or wearing briefs instead of boxers can influence fertility. These are myths [\[R\]](#). However, **factors like your weight, smoking status, and diet can all have an impact on fertility, as can your DNA** [\[R\]](#), [\[R\]](#).

Sperm is the mechanism by which men pass on their DNA to their children, so it’s unsurprising that **genes and fertility are intrinsically linked**.

One gene linked to fertility is the [OGG1](#) gene, which is responsible for clearing toxic byproducts of cigarette smoke. If you carry it, then your risk of infertility may be increased if you smoke [\[R\]](#).

Read on to find out more about:

- **How your genetics play a role in male fertility**
- **Your genetic risk score based on over 15,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Male Fertility

Key Takeaways:

- Genes affecting male fertility may be involved with sperm production and protecting DNA from damage.
- Risk factors include: certain health or anatomical issues, stress, medical treatments, chemical/heat exposure, drug and alcohol use, smoking, obesity.
- If you have a high genetic risk, you may reduce overall risk by taking action on risk factors that you can change. If you have symptoms, consult your doctor.
- Click the **next steps** tab for relevant labs.

It's fairly normal for it to take a while for a couple to achieve a successful pregnancy. However, one or both people may be **infertile** if there is no successful pregnancy after a year of trying [\[R\]](#), [\[R\]](#).

In order to be fertile, the male reproductive system needs to [\[R\]](#), [\[R\]](#):

- Make healthy reproductive cells (sperm)
- Transport sperm into protective fluid (semen)
- Maintain high numbers of sperm in the semen

Thus, most problems with male fertility come from problems with sperm [\[R\]](#), [\[R\]](#).

Around 7% of men have fertility problems [\[R\]](#).

Risk factors and causes of male infertility include [\[R\]](#), [\[R\]](#):

- Health problems (e.g., hormone problems, infections, tumors)
- Anatomical problems (e.g., testicle or duct issues)
- Medical treatments (e.g., some medications, prior surgeries, radiation)
- Chemical or prolonged heat exposure
- Drug or alcohol use
- Smoking
- Being overweight or obese



MORE LIKELY

More likely to have male infertility based on 14,927 genetic variants we looked at



PERCENTILE



Your risk is greater than 86% of the population and lower than 14% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DRA	rs7192	GT
UBXN2B	rs147055282	CT
CYP7A1	rs142696294	CT
VRK1	rs115054029	AA
/	rs145215845	TT
ZNF644	rs181438267	GG
STXBP6	rs145365432	GG
THSD4	rs117324614	GG
DCLRE1A	rs146007001	CC
MBL2	rs79979441	GG
CXADR	rs138843744	TT
S1PR1	rs146428323	TT
SGCD	rs148776877	TT
PLEKHG1	rs149979208	CC
CHD8	rs139678772	GG
THSD4	rs149987389	GG
CRPPA	rs117536059	GG
/	rs139240144	GG
CLNK	rs78400468	CC
FPR2	rs62110083	GG
RBM18	rs148719260	CC
C22ORF39	rs143695006	CC
NARS2	rs17137231	GG
CSMD3	rs62514562	CC

Stress is another factor linked to lower sperm quality and decreased fertility [R, R, R, R, R].

To help prevent fertility problems, many doctors recommend [R]:

- Avoiding cigarettes, alcohol, and drugs
- Maintaining a healthy weight
- Avoiding testicle overheating
- Reducing stress
- Avoiding exposure to toxins (e.g., pesticides, heavy metals)

Male fertility treatment options include [R]:

- A healthy lifestyle (e.g., diet changes, weight loss)
- Switching to sperm-safe lubricants
- Hormone treatment or medication
- Surgery
- Counseling
- Assisted reproductive technology (ART)

Genetics plays a significant role in male fertility. Genes involved in male fertility may be involved with [R]:

- Sperm production ([SPATA16](#), [MTHFR](#), [HSF2](#))
- Protecting DNA from damage ([PRM1](#), [PRM2](#))

GENE	SNP	GENOTYPE
/	rs77805212	CC
S1PR1	rs12140635	AA
GATD3A	rs535511405	GG
ASPH	rs142172474	GG
HCN1	rs75800206	GG
FCGR2B	rs116020516	GG
TPM1	rs74724376	GG
/	rs193215795	CC
KBTBD8	rs74326646	CC
AXL	rs147469435	TT
PADI2	rs184595182	GG
TRIM24	rs191590233	CC
KTN1	rs77487636	TT
NARS2	rs191386217	AA
/	rs118081873	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 Organic Solvents	2	Avoid Pesticide Exposure
3	Anti-Inflammatory Diet	4	Zinc10 mg
5	Sleep for 7+ Hours	6	Avoid PAHs Exposure
7	Mediterranean Diet	8	Avoid Illicit Drugs
9	Zinc and Folate	10	Inositol2 g
11	Tomato	12	Aerobic Exercise (Cardio)1 hour
13	L-Carnitine500 mg	14	Vitamin C500 mg
15	Exercise At Least One Hour a Day1 hour	16	Avoid Radiation Exposure
17	Omega-3 (Fish Oil)500 mg	18	Avoid Secondhand Smoke
19	Avoid PFAS Exposure	20	Avoid Cadmium Exposure
21	Avoid Cannabis	22	Dietary Omega-3 Fatty Acids
23	Avoid PCBs	24	Alpha-Lipoic Acid100 mg
25	Tongkat Ali200 mg	26	Avoid Opioid Drugs
27	Coenzyme Q10 (CoQ10)100 mg	28	N-acetylcysteine (NAC)600 mg
29	Reduce Mobile Phone Use2 hours	30	Maintain Optimal Vitamin D Levels1000 iu
31	Mucuna Pruriens300 mg	32	Ashwagandha120 mg

33	Dietary Vitamin C		34	Maca	2 g
35	Lycopene	10 mg	36	Antioxidant Supplements	
37	Melatonin	500 mcg	38	Vitamin E	200 iu
39	Selenium Supplements	50 mcg	40	Avoid Lead Exposure	
41	Tribulus	250 mg	42	Black Chokeberry	
43	Avoid Dioxin		44	Black Seed Oil	2 tsp
45	Reduce EMF Exposure		46	Flower Pollen Extract and Black Seed (Black Cumin)	1000 mg
47	Carob	5 g	48	Black Seed (Black Cumin)	1000 mg
49	Avoid Formaldehyde Exposure		50	Avoid Mercury Exposure	
51	Avoid Air Pollution		52	Astaxanthin	12 mg
53	D-Aspartic Acid	2 g	54	Ubiquinol	100 mg
55	Yoga	30 minutes			

1



Avoid Organic Solvents

IMPACT4 / 5

EVIDENCE4 / 5

How to implement

Refrain from using products containing organic solvents such as paints, varnishes, paint strippers, cleaning supplies, glues, and adhesives. Seek out water-based or solvent-free alternatives and ensure proper ventilation when unavoidable exposure occurs.

Description

Avoiding exposure to organic solvents, often found in cleaning products and industrial settings, can reduce the risk of potential health issues such as respiratory problems and skin irritation. Implementing safety measures and proper ventilation helps minimize contact with these chemicals.

How it helps

According to experts, extended exposure to organic solvents may contribute to low sperm counts and male infertility [\[R, R\]](#).

For instance, exposure to organic solvents in the workplace is associated with reduced semen volume and sperm concentration [\[R\]](#).

Continuous exposure to organic solvents may contribute to low sperm counts by preventing the HPA axis from stimulating sperm production [\[R, R, R\]](#).

2



Avoid Pesticide Exposure

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Purchase organic produce when possible, wash fruits and vegetables thoroughly under running water, and peel them if not organic. Use natural pest control methods instead of chemical pesticides at home and garden. Limit the use of non-organic lawn and garden chemicals.

Description

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. Reducing pesticide exposure involves choosing organic or pesticide-free foods and using natural pest control methods to limit contact with potentially harmful chemical residues. It supports overall health by reducing the risk of pesticide-related health issues.

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. They are widely used in agriculture to improve crop yields. Common groups of pesticides include:

- Organophosphates (glyphosate, parathion, malathion, chlorpyrifos, diazinon, phosmet)
- Neonicotinoids (imidacloprid, acetamiprid, thiacloprid, clothianidin)
- Pyrethroids (permethrin, alpha-cypermethrin)

Chronic exposure to pesticides has been linked to:

- Fertility problems [\[R\]](#)
- Cognitive problems [\[R\]](#)
- Alzheimer’s and Parkinson’s disease [\[R\]](#), [\[R\]](#)
- Thyroid problems [\[R\]](#)
- Obesity [\[R\]](#)
- DNA damage and cancer [\[R\]](#), [\[R\]](#), [\[R\]](#)

How it helps

According to experts, extended exposure to pesticides may contribute to low sperm counts and male infertility [\[R\]](#), [\[R\]](#).

In 2 studies of 344 men, a high intake of pesticides from fruits and vegetables was associated with poorer semen quality [\[R\]](#), [\[R\]](#).

Continuous exposure to pesticides may contribute to low sperm counts by preventing the HPA axis from stimulating sperm production [\[R\]](#), [\[R\]](#), [\[R\]](#).

3



Anti-Inflammatory Diet

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Incorporate foods rich in omega-3 fatty acids, such as salmon and flaxseeds, fruits, vegetables, nuts, and whole grains into your daily meals. Avoid processed foods, red meats, and refined sugars. Aim for a balanced diet consisting mostly of plant-based foods and lean protein sources, adjusting portions sizes to meet your individual nutritional needs and health goals.

Description

An anti-inflammatory diet focuses on reducing inflammation in the body by emphasizing foods rich in anti-inflammatory compounds, such as fruits, vegetables, fatty fish, nuts, and seeds, while minimizing processed foods and those high in added sugars and trans fats.

Anti-inflammatory diets use healthy foods to reduce inflammation. These diets are generally high in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Colorful fruits and vegetables
- Nuts and seeds
- Fish
- Olive oil
- Tea

They also tend to restrict [\[R\]](#), [\[R\]](#):

- Processed food
- Sugar and refined carbs
- Red meat

The [Mediterranean diet](#) and the DASH diet are good examples of anti-inflammatory diets [\[R\]](#), [\[R\]](#).

How it helps

Diets high in unhealthy fats and sugar, like Western-style diets, are linked to lower [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Chances of conception
- Sperm quality

Adding **nuts** and other foods rich in healthy fats to a Western diet may help reverse these effects [\[R\]](#).

Following an anti-inflammatory diet may improve sperm count and quality. It may also improve the outcome of fertility treatment. Examples include the Mediterranean and DASH diets [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your [NAT2](#) gene variant may be linked to infertility in people who eat a less healthy diet [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
NAT2	rs1799930	GA	

4

Zinc

IMPACT

4 / 5

EVIDENCE

3 / 5

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

Low [zinc](#) levels in semen may be associated with low sperm count, motility, and viability, and reduced fertility [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, in a small study of 11 healthy volunteers, short-term zinc depletion (consuming 1.4 g/day for 35 days) reduced seminal volume, blood testosterone concentrations, and zinc loss per ejaculate [\[R\]](#).

Zinc supplementation (66 mg/day for 2-6 months) may increase sperm count, testosterone, dihydrotestosterone (DHT), and fertility. Combination with folate may offer greater benefits in some men [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Zinc may help by protecting sperm cells and enhancing their formation. Moreover, zinc is highly concentrated in the prostate and testes and is involved in the synthesis of testosterone [\[R\]](#), [\[R\]](#).

Please note: *A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day* [\[R\]](#), [\[R\]](#).

5



Sleep for 7+ Hours

IMPACT

3 / 5

EVIDENCE

3 / 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

Men sleeping approximately 7 to 7.5 hours per night exhibit the best semen quality, including higher semen volume and total sperm count. Both shorter and longer sleep durations are associated with poorer semen parameters. Sleeping less than 6 hours or more than 9 hours significantly decreases semen volume and total sperm number [\[R\]](#).

Short sleep duration, specifically less than 6 hours per night, may be associated with reduced fecundability in men [\[R\]](#).

Men sleeping more than 8 hours show a reduced probability of their partners' conception, suggesting that excessive sleep may negatively affect male reproductive potential [\[R\]](#).

6



Avoid PAHs Exposure

IMPACT

3 / 5

EVIDENCE

3 / 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 systematic review of 17 studies found a negative association between PAH metabolites and sperm volume, concentration, motility, and morphology, as well as increased DNA degeneration [R].

7



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

Diets high in unhealthy fats and sugar, like Western-style diets, are linked to lower [\[R, R, R, R, R\]](#):

- Chances of conception
- Sperm quality

Adding **nuts** and other foods rich in healthy fats to a Western diet may help reverse these effects [\[R\]](#).

Following a Mediterranean diet may improve sperm count and quality. It may also improve the outcome of fertility treatment. Foods and nutrients commonly included in this dietary pattern, such as fruits, vegetables, fish, nuts, and whole cereals, have also been associated with increased sperm quality [\[R, R, R, R\]](#).

8



Avoid Illicit Drugs

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Refrain from using any illegal substances, including but not limited to, narcotics, stimulants, hallucinogens, and cannabis where it's not legalized. This means not purchasing, possessing, or consuming these substances in any form or amount. Commit to this practice indefinitely for long-term health benefits.

Description

Avoiding the use of illicit drugs is essential for preserving physical and mental health, as these substances can lead to addiction, mental health disorders, and other physical health issues. Abstaining from their use supports a safer and healthier lifestyle.

Illicit drugs are highly addictive, illegal drugs. Examples include **marijuana, cocaine, meth, and MDMA (ecstasy)**. The term can also refer to a non-medical use of drugs that are legally available (e.g., medical marijuana in some countries and states) [\[R\]](#).

Illicit drug use can have a **devastating impact on all aspects of your health and wellbeing**. It can lead to [\[R\]](#):

- Dependence and addiction
- Injury and accidents
- Health and sleep problems
- Problems in family and social life

How it helps

Illicit drug use, including anabolic-androgenic steroids, marijuana, opioids, cocaine, and methamphetamines, negatively impacts male fertility. These substances can affect the hypothalamic-pituitary-testicular axis, sperm function, and testicular structure, leading to decreased fertility [\[R\]](#).

Marijuana use can lead to significant changes in estradiol, prolactin, sex hormone binding globulin (SHBG) levels, and testosterone-to-estradiol ratios, potentially impairing reproductive conditions [\[R\]](#), [\[R\]](#).

Heroin may also impair sperm parameters such as motility, morphology, and the histone-to-protamine transition in sperm, suggesting a broad impact on sperm maturity and overall semen quality [\[R\]](#).

9



Zinc and Folate

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take a zinc supplement of 15 mg per day and a folate supplement of 400-800 mcg per day with a glass of water, preferably with a meal to enhance absorption. Continue this regimen daily for at least three months to observe benefits.

Description

Zinc and folate are essential nutrients found in various foods, with zinc predominantly sourced from animal products and folate from leafy greens and legumes. Zinc plays a crucial role in immune function and wound healing, while folate is vital for cell division and the prevention of neural tube defects during pregnancy.

Zinc and [vitamin B9](#) (*folate*) are essential nutrients. Among other roles, they help make DNA and protect it from damage [\[R\]](#), [\[R\]](#).

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

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

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

How it helps

Lower zinc levels in the semen are linked to lower sperm quality [\[R\]](#), [\[R\]](#), [\[R\]](#).

A higher intake of zinc and folate may be linked to healthier sperm [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, supplementing with zinc and folate may help. However, not all studies found a benefit for this combination on sperm quality or birth rates [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Zinc and folate may help by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reducing oxidative damage to sperm
- Increasing testosterone levels
- Boosting sperm production

Please note: *A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day* [\[R\]](#), [\[R\]](#).

10



Inositol

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Take inositol as a daily supplement, usually available in powder or capsule form. The typical dosage ranges from 2 grams to 18 grams per day, divided into smaller doses taken with meals and water to aid absorption. It's important to start with a lower dose and gradually increase to avoid digestive side effects.

TYPICAL STARTING DOSE

2 g

Description

Inositol is a naturally occurring compound that plays a role in cell signaling and neurotransmitter function. It has been studied for its potential in promoting mental health and managing conditions like anxiety and depression when used as a supplement under the guidance of a healthcare professional.

Inositol is a type of sugar that our bodies need to function. It was considered a vitamin (vitamin B8) until it was discovered that our bodies can make it from another common sugar, glucose [\[R\]](#).

[Myo-inositol](#) is the most common form of inositol. It plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart health
- Normal blood sugar levels
- Mental health
- Cognitive function
- Reproductive health

Myo-inositol can convert to [D-chiro-inositol](#) in the body. These two forms of inositol are often combined in supplements. People use them to improve blood sugar control and PCOS [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

A study found that myo-inositol (for 12 weeks) increased the percentage of acrosome-reacted spermatozoa, sperm concentration, total count, and progressive motility in men with idiopathic infertility. It also helped rebalance serum levels of luteinizing hormone, follicle-stimulating hormone, and inhibin B, indicating an overall improvement in reproductive hormonal balance and sperm quality [\[R\]](#).

Myo-inositol has been highlighted for its potential antioxidant properties and its role in enhancing the kinetic parameters of sperm, making it a valuable therapeutic option for treating male infertility, especially in conditions like asthenozoospermia where sperm motility is impaired [\[R\]](#).

In addition to improving conventional sperm parameters, myo-inositol has shown potential in improving bio-functional sperm parameters such as mitochondrial membrane potential and reducing sperm DNA fragmentation, which is crucial for the fertilization capacity of sperm [\[R\]](#).

11



Tomato

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Incorporate fresh or cooked tomatoes into your daily diet. This can be achieved by adding them to salads, sandwiches, pastas, and sauces or simply eating them on their own. Aim for at least one serving (approximately 1 medium-sized tomato or 1/2 cup of chopped or cooked tomatoes) per day.

Description

Tomatoes are a fruit grown widely in numerous varieties, and are rich in vitamins C and K, as well as the antioxidant lycopene, which may contribute to heart health and protect against certain chronic diseases when incorporated into a balanced diet.

Tomato (*Solanum lycopersicum*) is a fruit originally from the Andes in South America. It is usually consumed as a vegetable in juices, sauces, or fresh. Tomato is an important source of [R]:

- [Vitamin C](#)
- Potassium
- Antioxidants (e.g., [lycopene](#))
- Vitamin B9 ([folate](#))

Tomato is traditionally used for [R, R]:

- High cholesterol
- High blood pressure

How it helps

Tomatoes are high in antioxidant lycopene, which can improve sperm viability and motility, directly contributing to male fertility. Regular consumption may help reduce oxidative stress, a key contributor to male infertility.

A [systematic review of 17 studies](#) found an **inverse relationship between lycopene intake or serum levels and male infertility** [R].

12



Aerobic Exercise (Cardio)

IMPACT

2 / 5

EVIDENCE

3 / 5

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

Experts agree that exercise may support male fertility. Aerobic exercise, both alone and combined with resistance training, may help. It may improve sperm quality and the chances of conception [R, R, R, R, R, R, R].

Exercise may help by [R, R, R]:

- Boosting testosterone
- Reducing inflammation
- Protecting sperm from oxidative stress

Please note: *Very intense exercise may reduce sperm quality. Talk to your doctor before taking part in a new exercise program* [R].

13



L-Carnitine

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

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

TYPICAL STARTING DOSE

500 mg

Description

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

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

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

People use L-carnitine for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

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

How it helps

Carnitine may help improve sperm quality and the chance of conception. It may help both healthy people and those with fertility problems [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Helpful forms include:

- **L-carnitine:** 2-3 g/day [\[R\]](#), [\[R\]](#), [\[R\]](#)
- **Acetyl-L-carnitine:** 3 g/day [\[R\]](#)
- A blend of L-carnitine (2 g/day) and acetyl-L-carnitine (1 g/day) [\[R\]](#), [\[R\]](#)

Carnitine may also help in combination with other supplements [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Carnitine may help by providing more energy to sperm and protect them from damage [\[R\]](#), [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your ***PRM1*** gene variant may be linked to infertility. This gene helps make protamine, which reduces sperm damage. L-carnitine may help increase protamine and protect sperm from damage [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
RMI2	rs2301365	GT	

14



Vitamin C

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Take 500-2000 mg of vitamin C supplement daily. It can be taken at any time of the day, with or without food, according to personal preference or tolerance.

TYPICAL STARTING DOSE

500 mg

Description

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Foods rich in Vitamin C include: [\[R\]](#)

- Citrus Fruits
- Peppers
- Brussel sprouts
- Kiwi
- Broccoli
- Tomato
- Cantaloupe
- Cauliflower
- Spinach

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

How it helps

A higher intake of vitamin C is linked to better sperm quality. It is also linked to better outcomes of fertility treatment [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, vitamin C (250-500 mg/day for 3-6 months) may improve sperm quality [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Blends containing vitamin C and other ingredients may also improve sperm quality. However the evidence is mixed [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Vitamin C may support fertility by [\[R\]](#), [\[R\]](#):

- Protecting sperm from oxidative damage
- Helping sperm grow and develop

Please note: *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [\[R\]](#), [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your **PRM1** gene variant may be linked to infertility. This gene helps reduce DNA damage in sperm cells. Vitamin C may increase PRM1 activity and protect sperm cells from damage [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
RMI2	rs2301365	GT	

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Exercise At Least One Hour a Day

IMPACT

2 / 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

Experts agree that exercise may support male fertility. Both aerobic and resistance exercises may help. They may improve sperm quality and the chances of conception [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Exercise may help by [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Boosting testosterone
- Reducing inflammation
- Protecting sperm from oxidative stress

Exercise such as yoga may improve sperm quality. It may also improve the outcomes of fertility treatment [\[R\]](#), [\[R\]](#), [\[R\]](#).

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Omega-3 (Fish Oil)

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

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

TYPICAL STARTING DOSE

500 mg

Description

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

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

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

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

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

How it helps

A low intake of omega-3s may be linked to poor sperm quality [\[R\]](#), [\[R\]](#), [\[R\]](#).

The following omega-3 supplements may improve sperm quality [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- **Fish oil (EPA + DHA):** 1.8 g/day for 8 months
- **DHA:** 0.5-2 g/day for 3 months

Combining omega-3s with [vitamin E](#) may have similar benefits [\[R\]](#).

Omega-3s may help by [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Supporting healthy growth and development of sperm
- Reducing oxidative stress

21



Avoid Cannabis

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Stop any form of cannabis use, including smoking, vaping, edibles, and topical applications. If you currently use cannabis, it's recommended to cease usage immediately and seek support or counseling if necessary for cessation.

Description

Avoiding cannabis is advised in situations where its use is prohibited by law or poses health risks, particularly for individuals with a history of substance abuse or mental health conditions. Responsible use and adherence to local regulations are essential to minimize potential negative consequences.

[Cannabis](#) (marijuana) is a plant used for its medicinal and recreational properties. It contains substances called *cannabinoids*, such as [CBD](#) and THC [\[R\]](#).

Cannabis misuse can have long-term consequences, such as [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lung damage
- Mental health problems
- Cognitive impairment

How it helps

Marijuana use can lead to changes in estradiol, prolactin, sex hormone binding globulin (SHBG) levels, and testosterone-to-estradiol ratios, potentially impairing reproductive conditions [\[R\]](#), [\[R\]](#).

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Dietary Omega-3 Fatty Acids

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

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

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

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

How it helps

A low intake of omega-3s may be linked to poor sperm quality [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with this, men with higher blood and spermatozoa levels of omega-3 fatty acids tend to have better semen quality compared to those with lower levels [\[R\]](#).

Omega-3s may help by [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Supporting healthy growth and development of sperm
- Reducing oxidative stress

24



Alpha-Lipoic Acid

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

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

TYPICAL STARTING DOSE

100 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 (600 mg/day for 11-12 weeks) may improve sperm quality in people with fertility problems [\[R, R, R\]](#).

Combining alpha-lipoic acid and the antioxidant glutathione may improve the outcomes of fertility treatment [\[R\]](#).

Alpha-lipoic acid may support fertility by [\[R, R, R, R\]](#):

- Reducing oxidative damage
- Promoting testicular health
- Helping sperm grow and develop

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N-acetylcysteine (NAC)

IMPACT

2 / 5

EVIDENCE

2 / 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) may help improve sperm quality in people with fertility problems [\[R\]](#).

Combining NAC and other ingredients (e.g. selenium) may have similar effects [\[R\]](#), [\[R\]](#), [\[R\]](#).

NAC may support fertility by [\[R\]](#), [\[R\]](#):

- Protecting sperm from oxidative damage
- Balancing sex hormones
- Helping sperm grow and develop

31



Mucuna Pruriens

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 300 to 500 mg of standardized Mucuna pruriens extract once daily, preferably with water. For consistent benefits, consider taking it at the same time each day.

TYPICAL STARTING DOSE

300 mg

Description

Mucuna pruriens is a tropical legume known for its seeds, which contain L-dopa, a precursor to dopamine. It is used in traditional medicine for its potential to support mood, cognitive function, and overall well-being.

[Mucuna pruriens](#) is an edible legume native to China and India. It is also known as cowhage or the “velvet bean” [\[R\]](#).

An important compound in *Mucuna pruriens* is *L-DOPA*, which helps make the chemical messenger [dopamine](#). Extracts of *Mucuna pruriens* may support fertility and protect the nerves [\[R\]](#).

How it helps

Taking ***Mucuna pruriens* powder (5 g/day for 3 months)** may improve sperm quality in people with fertility problems [\[R, R, R, R\]](#).

Mucuna pruriens may support fertility by [\[R, R, R\]](#):

- Balancing sex hormones
- Reducing oxidative stress
- Helping sperm grow and develop

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Ashwagandha

IMPACT

2 / 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 root powder (675-5,000 mg/day for 3 months) may help improve sperm quality in people with fertility problems [\[R\]](#), [\[R\]](#).

Ashwagandha may help by [\[R\]](#):

- Reducing oxidative stress
- Balancing sex hormone levels

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Dietary Vitamin C

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate foods rich in Vitamin C into your daily diet, such as oranges, strawberries, red peppers, kale, and broccoli. Aim to consume 5 servings of fruits and vegetables per day to meet the recommended dietary allowance of Vitamin C, which is 90 mg for adult men and 75 mg for adult women.

Description

Vitamin C is an antioxidant that supports the immune system, collagen production, and wound healing. It also enhances iron absorption from plant-based foods and contributes to overall health.

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

How it helps

A study showed that men's vitamin C intake was associated with higher fertilization rates in couples undergoing infertility treatment, although it did not translate into higher pregnancy or live birth rates [\[R\]](#).

Another study highlighted that oral supplementation of vitamin C improved sperm count, motility, and morphology in oligospermic, infertile men [\[R\]](#).

