

AST

Biohacker Report

REPORT CATEGORY —



Sample Client

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Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

10 Your recommendations

48 Next Steps

- 48 Your Lab Results

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.



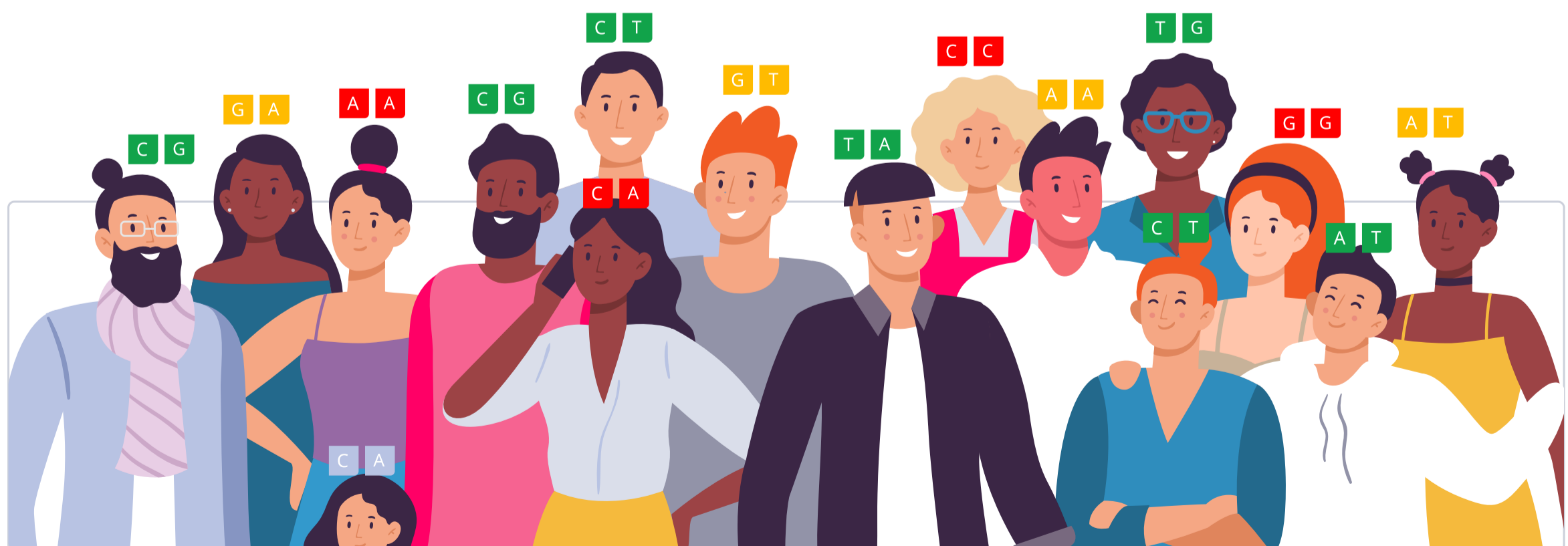
Similarly, our Trait Reports look at how your DNA influences your traits.



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
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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

[AST](#) (aspartate aminotransferase) is an enzyme that breaks down proteins for energy. It is found mainly in the liver, and present in other organs in small amounts [\[R\]](#), [\[R\]](#).

AST and other enzymes like ALT are usually used to measure **liver health** [\[R\]](#).

Factors Affecting AST Levels

When liver tissue is damaged or diseased, AST is released into the blood. Thus, AST levels are often measured to check overall liver health. Common causes of liver damage that may raise AST include [\[R\]](#):

- Alcohol
- Obesity
- Hepatitis
- Gallstones

Up to **10%** of differences in people’s AST levels may be due to genetics [\[R\]](#).

Genetically higher AST levels may be causally associated with an increased risk for type 2 diabetes. [\[R\]](#)



TYPICAL LEVELS

Predisposed to typical AST levels based on 784,046 genetic variants we looked at

38th

PERCENTILE



Your risk is greater than 38% of the population and lower than 62% of the population.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AKNA	rs12002094	GG
APOE	rs584007	GG
WNT3	rs199501	GG
MSRA	rs7816713	CC
WASHC3	rs11111146	AA
MSRA	rs7007562	GG
EYA2	rs6018185	CC
WWC2	rs35075899	AA
MYO7A	rs7927472	TT
PRAG1	rs11996133	TG
SLC39A12	rs7906425	AG
RAB2A	rs11776511	GA
ERI1	rs79503460	CA
MFHAS1	rs3748136	AG
CHEK2	rs738722	TC
MSRA	rs4563888	GA
PPARGC1A	rs2970862	GT
GLI1	rs2228226	CG
STK35	rs7266553	AT
PRAG1	rs12549973	TC
APOC1	rs71352239	TC
ALDH2	rs11066301	GA
/	rs145666097	TDEL(AA)
BIN1	rs13032148	AG

GENE	SNP	GENOTYPE
CFD	rs123698	GC
PLEKHA3	rs34253857	AA
FKRP	rs75206071	GG
GAS6	rs9577924	AA
ERI1	rs35579431	CC
PGS1	rs17642548	GG
SERPINA1	rs4905179	AA
BRCA1	rs1799949	GG
BRCA1	rs16942	TT
KIF27	rs13289566	CC
ERI1	rs56135405	AA
EDEM2	rs6060278	TT
B4GALT1	rs56030777	GG
/	rs36131846	CC
TMEM106A	rs28678167	GG
TBC1D9B	rs155795	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		2	
3	500 mg	4	
5	400 mg	6	1 hour
7		8	
9	200 mg	10	
11	500 mg	12	500 mg
13	1 hour	14	
15	300 mg	16	
17	500 mg	18	1350 mg
19		20	
21	600 mg	22	3 g
23		24	
25		26	
27	10 billion CFU	28	
29	1000 mg	30	10 billion CFU

<p>31 Purple Sweet Potato</p>	<p>32 Fucoidan 300 mg</p>
<p>33 Aloe Vera 50 mg</p>	<p>34 Bifidobacterium Longum 10 billion CFU</p>
<p>35 Avoid Exposure to Heavy Metals</p>	<p>36 Mastic Gum 350 mg</p>
<p>37 Cupping Therapy 15 minutes</p>	<p>38 Chicory</p>
<p>39 Tyrosol 10 mg</p>	<p>40 Theacrine</p>
<p>41 Streptococcus Thermophilus 10 billion CFU</p>	<p>42 Lactobacillus Delbrueckii 10 billion CFU</p>

1




Keto Diet

IMPACT

 3 / 5

EVIDENCE

 3 / 5

How to implement

Adopt a diet that consists of about 70-80% fat, 10-20% protein, and 5-10% carbohydrates. Eliminate or significantly reduce the intake of sugar and starches like bread, pasta, rice, and potatoes, focusing instead on high-fat foods like meats, fatty fish, eggs, butter, and healthy oils, as well as low-carb vegetables like leafy greens. This dietary pattern should be maintained consistently for a period of at least 3-4 weeks to achieve ketosis, after which it can be adjusted based on individual goals and responses.

Description

The keto diet is a high-fat, low-carbohydrate eating plan designed to induce a state of ketosis in the body, where it primarily burns fat for energy. It is often used for weight loss and managing certain medical conditions.

The ketogenic diet, or the 'keto' diet, is rich in fat and restricts carb intake [\[R, R\]](#).

On the ketogenic diet, 50 g of carbs or less are consumed per day. Around 55-80% of the calories come from fat [\[R\]](#).

The ketogenic diet depletes the body of sugars like glucose. When people fast or eat very little carbs, the body makes less insulin. In response, the body starts using fat for energy.

When the body only uses fat for energy, molecules called ketones are formed. This state is called *ketosis*.


The ketogenic diet may help with:


- Seizures [\[R\]](#)
- Excess weight [\[R\]](#)
- Diabetes [\[R, R\]](#)


How it helps

The Keto diet helps in managing AST levels by aiding weight loss and reducing fat accumulation in the liver, which is often the cause of elevated AST. It also enhances liver function, thus balancing the AST levels in the body.

A meta-analysis of 12 studies found that very low-carbohydrate ketogenic diets reduce AST (by 7 U/L) and ALT (by 8 U/L) [\[R\]](#).

2  **Probiotic Yogurt**

IMPACT  3 / 5

EVIDENCE  1 / 5

How to implement

Consume one to two servings of probiotic yogurt each day. Each serving is typically 6 to 8 ounces. Continue this practice daily for at least 1 to 2 weeks to begin noticing benefits to digestive health.


Description


Probiotic yogurt is a dairy product containing live probiotic cultures like *Lactobacillus* and *Bifidobacterium*, which can aid digestion and improve gut health when consumed regularly. It is a good source of calcium, protein, and probiotics, contributing to bone health and digestive well-being.


How it helps

Probiotic yogurt is beneficial for asthma patients as it strengthens the immune system and promotes a healthy gut microbiome. This can help reduce inflammation in the body which is a key component of asthma.

Subjects in the intervention group (n=36) consumed 300 g/d of probiotic yogurt containing *Lactobacillus acidophilus* La5 and *Bifidobacterium lactis* Bb12 and those in the control group (n=36) consumed 300 g/d of conventional yogurt for 8 wk. Probiotic yogurt consumption resulted in reductions in serum levels of alanine aminotransferase, aspartate aminotransferase, total cholesterol, and low-density lipoprotein cholesterol, compared with control group [\[R\]](#).

3  **Curcumin**

IMPACT  2 / 5

EVIDENCE  3 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

[Turmeric](#) is a yellow spice from India. It may reduce inflammation and [oxidative stress](#) [R].

The most important active compound in turmeric is **curcumin**. People use curcumin for [R, R, R, R, R, R]:

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

Curcumin is a known anti-inflammatory and antioxidant which can protect your liver from damage. It can potentially reduce inflammation and oxidative stress in AST (aspartate aminotransferase) liver conditions, improving liver health.


In a meta-analysis of 31 RCTs, turmeric/curcumin supplementation significantly reduced ALT and AST levels (-4.09 U/L and -3.81 U/L, respectively) but not GGT levels. Clinical effectiveness is not guaranteed despite statistical significance [R].

In NAFLD patients, a meta-analysis of six RCTs showed that turmeric/curcumin supplementation reduced ALT and AST levels (-7.31 U/L and -4.68 U/L, respectively) significantly. This reduction was observed in studies lasting less than 12 weeks [R].

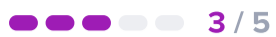
Curcumin supplementation (80-1,000 mg/day for 4-12 weeks) may reduce AST levels. Curcumin was studied in different forms, including [R, R]:

- Nano-curcumin
- Curcumin powder
- Curcumin capsules

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [R, R, R].

4  **Turmeric**

IMPACT  2 / 5

EVIDENCE  3 / 5

How to implement

Incorporate 500-1000 mg of turmeric into your daily diet, either by adding ground turmeric spice to your food, such as in curries, soups, and smoothies, or by taking a dietary turmeric supplement. This should be done daily for at least 8 weeks to observe potential health benefits.

Description

Turmeric is a bright yellow spice derived from the root of the *Curcuma longa* plant. It contains curcumin, a potent antioxidant and anti-inflammatory compound. Turmeric is used for various health conditions, including reducing inflammation, alleviating joint pain, and supporting digestive health.

How it helps

Turmeric contains a chemical called curcumin, which has anti-inflammatory and antioxidant properties that can help reduce the inflammation associated with Asthma. It can also help to relax the airways, making breathing easier for individuals with this condition.

A [meta-analysis of 31 trials](#) concluded that supplementation with turmeric **lowers ALT (by 4.09 U/L) and AST (by 3.81 U/L)** [\[R\]](#).

5

SAM-e

IMPACTEVIDENCE

2 / 5

2 / 5

How to implement

Take 400-1600 mg of SAM-e as a supplement daily, preferably on an empty stomach to enhance absorption. It is often recommended to start with low dosage and observe how your body responds over a few weeks, adjusting as necessary under the guidance of a healthcare provider.

TYPICAL STARTING DOSE

400 mg

Description

SAM-e is a chemical that helps maintain liver and brain health. Your body makes SAM-e from the amino acid *methionine*, but it's also available as a supplement [\[R\]](#).

SAM-e supplementation may help with:

- Joint pain [\[R\]](#)
- Liver disease [\[R\]](#)
- Depression [\[R\]](#)


Please note: SAM-e may not be safe for people with a bipolar disorder. It may also interact with 5-HTP, St. John's wort, and different medications.

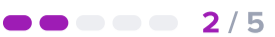
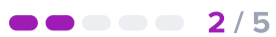
Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

SAM-e, or S-Adenosylmethionine, may help with AST, which is an indicator of liver damage, by improving liver function and reducing inflammation. By aiding in the detoxification process, SAM-e can assist in maintaining a healthier liver and potentially lowering AST levels.

This research included 12 randomized controlled trials (RCTs) involving 705 patients. Results showed significant differences in total bilirubin (TBIL) and aspartate transaminase (AST) levels but not alanine transaminase (ALT). Adverse events and long-term prognosis were similar between SAME and placebo groups [\[R\]](#).

6  **Exercise At Least One Hour a Day**

IMPACT  **EVIDENCE** 

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.**

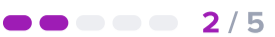
How it helps

Exercise appears to have a beneficial impact on AST levels, among other health benefits, according to several studies. Here are the key findings from the most relevant clinical trials:

- A combined resistance and aerobic exercise program improved muscle mass, strength, and physical function, and reduced C-reactive protein levels in men undergoing androgen suppression therapy, which can indirectly affect AST levels by improving overall health and inflammation markers [\[Galvão et al., 2010\]](#).
- Eight weeks of selected aerobic exercise led to a decrease in AST and ALT levels in men with fatty liver disease, indicating the direct benefits of exercise on liver enzyme levels and liver health [\[R\]](#).

These studies suggest that various forms of exercise, including resistance training, aerobic activities, and combined programs, can have positive effects on liver health and potentially reduce AST levels by improving muscle function, reducing oxidative stress and inflammation, and managing metabolic disorders.

7  **Avoid Organochlorine Pesticide Exposure**

IMPACT
 2 / 5

EVIDENCE
 2 / 5

How to implement

Minimize exposure by choosing organic fruits and vegetables, thoroughly washing produce before consumption, and avoiding areas where organochlorine pesticides are applied. Consider using air purifiers in homes close to agricultural areas to reduce indoor pesticide levels.

Description

Reducing organochlorine pesticide exposure involves minimizing contact with pesticides like DDT, which can accumulate in the body and potentially lead to adverse health effects, including disruption of hormonal functions and carcinogenicity.

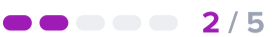
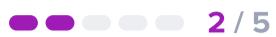
How it helps

Reducing organochlorine pesticide exposure can help with AST (asthma) by minimizing triggers that could potentially irritate the lungs and exacerbate symptoms. These pesticides can increase inflammation and sensitivity in the airways, thereby worsening asthma.

A [study of 1935 participants](#) associated high exposure to organochlorines with **increased levels of AST, ALT, and GGT** [\[R\]](#).

Another [study \(4582 participants\)](#) associated high exposure to organochlorine insecticides with a **3.5-fold higher risk of ALT elevation** [\[R\]](#).

8  **Avoid PCBs**

IMPACT  **EVIDENCE** 

How to implement

To avoid PCBs (Polychlorinated Biphenyls), do not use old electrical equipment manufactured before 1977, avoid consuming fish from contaminated waters, especially larger species such as shark and swordfish which are higher in the food chain, and check for and properly dispose of any old fluorescent lighting fixtures that may contain PCBs. Pay attention to local advisories regarding the safety of locally caught fish and wildlife.

Description

PCBs are toxic chemicals that can cause cancer, reproductive problems, and developmental problems. Avoiding exposure to PCBs is important for protecting your health.

Polychlorinated biphenyls (PCBs) are man-made chemicals. They were used in the industry until their **ban in 1979**. PCBs are considered **persistent organic pollutants** (POPs) due to their slow degradation in the environment. They may also **accumulate** in the food chain and the human body [\[R, R\]](#).

We may be exposed to PCBs through contaminated [\[R, R\]](#):

- **Food** (e.g., fish, meat, rice)
- Soil
- Air

PCBs may have toxic effects on [\[R, R\]](#):

- Immunity
- Nervous system
- Reproductive system
- Hormone levels


They may also increase the risk of cancer and reduce lifespan [\[R, R\]](#).

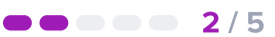
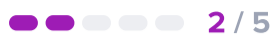
How it helps

By avoiding Polychlorinated Biphenyls (PCBs), you help reduce asthma flare-ups, as these substances can irritate airways and exacerbate such conditions. This step will lessen asthma symptoms and enhance overall respiratory health.

A [study of 1456 participants](#) found a **dose-dependent association between PCB levels and ALT elevation** [\[R\]](#).

A [study of 1935 participants](#) associated high exposure to PCBs with **increased levels of AST, ALT, and GGT** [\[R\]](#).

9  **Garlic Supplement**

IMPACT  **EVIDENCE** 

How to implement

Take a garlic supplement, such as a garlic extract or aged garlic supplement, in a dosage of 600-1,200 mg per day, divided into separate doses. This should be taken with meals to minimize digestive issues. Continue daily for at least 8-12 weeks to evaluate its effects on health markers like blood pressure or cholesterol.

TYPICAL STARTING DOSE

200 mg

Description

Garlic is a pungent herb known for its potential health benefits, including cardiovascular support and immune system enhancement. It contains bioactive compounds that may help reduce the risk of chronic diseases and support overall well-being.


[Garlic](#) is a delicious aromatic herb that adds flavor to your food. But did you know that garlic has been a part of traditional medicine for thousands of years? **From ancient Egypt and Rome to China, people have praised garlic for its many health benefits.** Today, we can trace many of those benefits to sulfur-rich compounds found in garlic. People take garlic to help control their blood pressure and cholesterol [\[R\]](#).

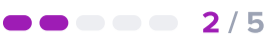
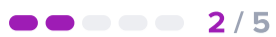
Please note: *Garlic can interact with blood thinners (like aspirin, Plavix, Coumadin). If you are on blood thinners, consult your doctor before supplementing with garlic [\[R\]](#).*

How it helps

A meta-analysis of 6 studies and 301 participants concluded that supplementation with garlic significantly lowers AST [\[R\]](#).

Please note: *Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R,R\]](#).*

10  **Artichoke**

IMPACT  **EVIDENCE** 

How to implement

Incorporate fresh or cooked artichoke into your diet 2-3 times per week. Each serving should include approximately one medium-sized artichoke or about 120 grams if using hearts. This can be included in meals such as salads, pastas, or as a steamed side dish.

Description

Artichokes are a vegetable known for their unique flavor and potential health benefits. They are a good source of fiber, vitamins, and minerals, and may support digestion, liver health, and antioxidant protection.

How it helps

Artichokes are packed with antioxidants and fiber, which can support liver health and help the body rid itself of toxins, two key factors in managing Autoimmune Hepatitis. They can also help lower cholesterol levels and improve overall GI health, both beneficial for this condition.

A [meta-analysis of 8 trials](#) concluded that supplementation with artichokes **lowers ALT and AST, especially in NAFLD patients or those with excess weight** [\[R\]](#).

11



Taurine

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take 1-4 g of taurine supplement daily, divided into two or three doses with meals for optimal absorption. It can be taken continuously, with periodic evaluations of its effects and benefits.

TYPICAL STARTING DOSE

500 mg

Description

Taurine is an amino acid found in various foods and often used in energy drinks and supplements. It plays a role in neurological and cardiovascular health and can help support energy metabolism.

[Taurine](#) is the most abundant free amino acid in humans. It's not essential, which means we can produce it. We can also get it from protein-rich foods, such as [\[R\]](#):

- Seafood
- Meat
- Dairy

Taurine is a popular additive in energy drinks and can also be taken as a supplement [\[R\]](#).

Taurine plays an important role in [\[R\]](#), [\[R\]](#):

- Bile production
- Calcium metabolism

It is also well-known for its antioxidant and anti-inflammatory properties [\[R\]](#).


How it helps

Taurine supplementation has been demonstrated to have potential benefits in reducing AST levels, suggesting its protective effects against liver injury. Studies highlight several mechanisms through which taurine might exert its hepatoprotective effects.

A study found that dietary amino acid taurine could ameliorate liver injury in chronic hepatitis patients by decreasing ALT and AST activities, as well as improving levels of cholesterol, triglyceride, and markers of oxidative stress [\[R\]](#).

In a study, chronic alcoholic patients with elevated AST levels who were supplemented with taurine exhibited a decrease in AST activities, alongside improvements in liver function tests and antioxidative properties [\[R\]](#).

A study explored taurine's effects on muscle and inflammatory markers in 10 volunteers during a 5 km run. Taurine reduced the creatine kinase isoenzyme and AST post-exercise, and decreased IL-6 levels, suggesting its potential to improve running performance by modulating inflammation [\[R\]](#).

12  **L-Carnitine**

IMPACT 1 / 5

EVIDENCE 2 / 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

L-carnitine assists with fatty acid transport into cells, supporting better liver function generally necessary for AST (Aspartate Aminotransferase). Its antioxidant property also protects liver cells from damage, potentially reducing AST levels.

In 18 randomized controlled trials (RCTs) with 1161 participants, L-carnitine supplementation at doses ranging from 500 to 4000 mg/day significantly reduced serum ALT, AST, and GGT levels. Higher doses (≥ 2000 mg/day), longer durations (> 12 weeks), and supplementation in people with liver disease showed more significant effects [\[R\]](#).

In a meta-analysis of 16 studies with 1025 participants, L-carnitine supplementation significantly reduced ALT, AST, and GGT levels. However, this effect was not significant in normal-weight and healthy subjects [\[R\]](#).

In a meta-analysis of 15 studies involving 12,221 participants, L-carnitine supplementation showed significant improvements in fasting blood glucose, insulin, HOMA-IR, triglycerides, total cholesterol, LDL cholesterol, and ALT levels. However, no significant effect was observed on HDL cholesterol or AST levels [\[R\]](#).

13



Aerobic Exercise (Cardio)

IMPACT

1 / 5

EVIDENCE

2 / 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

Exercise appears to have a beneficial impact on AST levels, among other health benefits, according to several studies. Here are the key findings from the most relevant clinical trials:

- A combined resistance and aerobic exercise program improved muscle mass, strength, and physical function, and reduced C-reactive protein levels in men undergoing androgen suppression therapy, which can indirectly affect AST levels by improving overall health and inflammation markers [Galvão et al., 2010].
- Eight weeks of selected aerobic exercise led to a decrease in AST and ALT levels in men with fatty liver disease, indicating the direct benefits of exercise on liver enzyme levels and liver health [R].


These studies suggest that various forms of exercise, including resistance training, aerobic activities, and combined programs, can have positive effects on liver health and potentially reduce AST levels by improving muscle function, reducing oxidative stress and inflammation, and managing metabolic disorders.

14




Intermittent Fasting

IMPACT

 1 / 5

EVIDENCE

 2 / 5

How to implement

Limit your daily eating to a specific window of time, typically within an 8-hour period such as from 12 pm to 8 pm, and fast for the remaining 16 hours of the day. Repeat this daily or for at least 3-4 days per week.

Description

Intermittent fasting is an eating pattern that involves cycling between periods of fasting and eating. It may help with weight management, improve metabolic health, and offer potential benefits for certain health conditions when done under proper guidance.

Intermittent fasting (IF) is a pattern of eating that alternates between periods of eating and fasting. The most popular IF method is called the 16/8 method, where you fast for 16 hours and eat during an 8-hour window.

People mainly practice IF to lose weight. Besides benefits related to weight reduction, IF may help lower the risk of [\[R\]](#):

- Alzheimer's disease
- Joint pain
- Asthma
- Multiple sclerosis
- Stroke


Some types of intermittent fasting, such as Ramadan fasting, are also practiced for religious reasons.

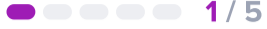
How it helps

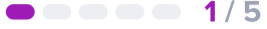
Twenty studies with 601 adult participants found that Ramadan-style intermittent fasting had a significant, albeit small to medium, positive effect on liver function tests (AST, ALP, BLU, GGT), potentially offering short-term protection against fatty liver disease in healthy individuals [\[R\]](#).

Among adults with obesity and NAFLD, time-restricted eating did not produce additional benefits for reducing IHTG content, body fat, and metabolic risk factors compared with daily calorie restriction [\[R\]](#).

Intermittent fasting may help lessen strain on the liver, improving its ability to rid toxins and metabolic waste.

15  **Clostridium Butyricum**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take Clostridium butyricum as a supplement in capsule or powder form, typically ranging from 300 to 450 mg per day. This should be consumed with a glass of water, ideally before meals. Continue daily for at least four weeks to evaluate its benefits.

TYPICAL STARTING DOSE

300 mg

Description

Clostridium butyricum is a probiotic bacterium believed to support digestive health by producing beneficial short-chain fatty acids in the gut. It is used in some probiotic supplements to promote gut microbiome balance and overall well-being.

How it helps

Clostridium Butyricum, a probiotic, may directly combat AST (Aspartate Aminotransferase) levels by improving gut health and reducing inflammation, which indirectly supports liver health. Elevated AST levels often indicate liver damage, so this supplement could potentially contribute to overall liver function and health.

In a [non-placebo-controlled trial of 96 patients with NAFLD](#), supplementation with C butyricum as an add-on to rosuvastatin **improved intestinal flora imbalance, reduced blood lipid (total cholesterol, triglycerides, free fatty acids) levels, and alleviated liver fibrosis and liver function damage markers (bilirubin, AST, ALT)** [R].

16



Pentadecanoic Acid (C15:0)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

While there is no officially recommended daily intake for pentadecanoic acid, research suggests that **20–50 mg per day** may support health benefits such as improved metabolism, reduced inflammation, and enhanced cellular health. You can achieve this through a balanced diet rich in full-fat dairy and fatty fish or by taking supplements as directed. Always consult with a healthcare professional before starting supplementation, especially if you have specific health conditions or dietary restrictions.


Description



Pentadecanoic acid, also known as C15:0, is a 15-carbon saturated fatty acid that belongs to the group of odd-chain fatty acids. It is naturally found in full-fat dairy products (e.g., milk, butter, and cheese), certain fish, and some plant sources. Unlike even-chain fatty acids, pentadecanoic acid has unique biological properties that are being increasingly studied for its potential health benefits.

Supplementation with pentadecanoic acid has shown promise in supporting metabolic health by improving cholesterol levels, enhancing insulin sensitivity, and reducing inflammation. It may also promote cellular health by stabilizing cell membranes and improving mitochondrial function. Additionally, C15:0 has been linked to better immune system regulation, neuroprotection, and potentially reducing the risk of chronic diseases like diabetes and cardiovascular conditions. As an emerging "essential fatty acid," it is gaining attention for its role in promoting long-term health and wellness.

How it helps

In a placebo-controlled trial of 30 overweight and obese participants, achieving a blood pentadecanoic acid concentration of at least 5 $\mu\text{g}/\text{mL}$ through supplementation (200 mg/day for 12 weeks) lowered ALT (by 29 U/L) and AST (by 6 U/L) while increasing hemoglobin (by 0.60 g/dL) [\[R\]](#).

17  **Cordyceps**

IMPACT  **EVIDENCE** 

How to implement

Take 500-1000 mg of Cordyceps extract in supplement form once daily, preferably with a meal to enhance absorption. This dosage is commonly recommended for general wellness and should be continued on a long-term basis, as effects accumulate over time.

TYPICAL STARTING DOSE

500 mg

Description

Cordyceps is a type of medicinal mushroom known for its potential to boost endurance and enhance respiratory function. It's used in traditional medicine and dietary supplements to support physical performance and overall vitality.

[Cordyceps](#) are a group of fungi (mushrooms) that grow on insects. Some species, like *O. sinensis* and *C. militaris*, are used in supplements [\[R\]](#).

O. sinensis grows on a moth caterpillar. Extracts and teas made from the fungus-caterpillar combination are often used in traditional Chinese medicine. They are thought to boost sex drive, reduce fatigue, and support kidney health [\[R, R, R\]](#).

How it helps

In a [non-placebo-controlled trial of 60 patients with chronic hepatitis B](#), supplementation with cordyceps (24x/day for 6 months) **lowered liver fibrosis and inflammation, as well as serum ALT, AST, HA, PC-III, and LN levels** [\[R\]](#).

18

Jiaogulan (Gynostemma Pentaphyllum)

IMPACT

EVIDENCE

How to implement

Take a capsule of jiaogulan (*Gynostemma pentaphyllum*) containing 450 mg to 500 mg, three times a day with meals. Continue this routine daily for best results.

TYPICAL STARTING DOSE

1350 mg

Description

Jiaogulan, often referred to as the "immortality herb," is an herb used in traditional Chinese medicine for its potential adaptogenic and antioxidant properties. Some research suggests it may support overall well-being and longevity, but more studies are needed to confirm these effects.

[Gynostemma](#) (*Gynostemma pentaphyllum*), also called jiaogulan, is a climbing vine native to Southeast Asia. It is used in traditional Chinese medicine for [\[R\]](#):

- High cholesterol
- Diabetes

People call it the "poor man's [ginseng](#)" because it may have similar benefits but cost less than Panax (Asian) ginseng [\[R, R\]](#).

How it helps

According to a [placebo-controlled trial of 56 patients with NAFLD](#), supplementation with *Gynostemma pentaphyllum* (80 mL for 4 months) as an add-on to a controlled diet may **lower BMI, AST, ALP, insulin, and HOMA-IR better than the diet alone** [\[R\]](#).

19

Picrorhiza Kurroa

IMPACT

EVIDENCE


Description

Picrorhiza kurroa, also known as Kutki, is a perennial herb native to the Himalayan region and other parts of Asia. It has a long history of use in traditional Ayurvedic medicine for its various health benefits. Its main active compounds are kutkin, picroside I, and picroside II. These compounds are believed to possess antioxidant, anti-inflammatory, hepatoprotective, and immunomodulatory properties.

In Ayurveda, *P. kurroa* is primarily valued for its ability to support liver health and promote detoxification. It is often used to treat liver disorders such as jaundice, hepatitis, and liver cirrhosis. Alternatively, it can be used to boost digestion, alleviate respiratory conditions like asthma and bronchitis, and support overall immune function.

How it helps

In a placebo-controlled trial of 33 patients with acute viral hepatitis, supplementation with *Picrorhiza kurroa* root powder (375 mg, 3x/day) for 2 weeks lowered bilirubin, AST, and ALT [\[R\]](#).

20  **Almonds**

IMPACT 1 / 5 | **EVIDENCE** 1 / 5

How to implement

Incorporate a handful of almonds (about 23 kernels) into your daily diet. You can eat them as a snack, add them to your breakfast cereals or yogurt, or include them in salads and other dishes. Do this consistently for ongoing health benefits.

Description


Almonds are a good source of omega-6s, protein and vitamins, making for a great snack food. A 1-ounce serving provides 3700 mg of omega-6.

Almonds are nutritious tree nuts that originate from the *Prunus dulcis* tree. They are packed with essential nutrients, including healthy fats, fiber, vitamin E, and magnesium, which collectively contribute to heart health, support weight management, and may help regulate blood sugar levels.

How it helps

Almonds are packed with fibre, proteins, and monounsaturated fats, which improve liver function and aid in the metabolism of fat, beneficial in managing AST (aspartate aminotransferase) levels that can be elevated in liver disease. The nutrients in almonds also support liver regrowth and repair helpful when AST levels are elevated due to liver damage.

Dietary almonds (10g/day) in Pakistani and American varieties reduced liver enzyme levels (AST, ALT, GGT) significantly compared to the control group after 12 weeks [\[R\]](#).

21  **Celery Seed**

IMPACT 1/5 **EVIDENCE** 1/5

How to implement

Take a celery seed supplement capsule of 600-1000 mg daily with a glass of water, preferably with a meal to aid absorption and minimize potential stomach discomfort. Continue this regimen for at least 4-6 weeks to evaluate its effects on your condition.

TYPICAL STARTING DOSE

600 mg


Description


Celery seed extract is a natural supplement derived from the seeds of the celery plant, known scientifically as **Apium graveolens**. This extract is rich in various bioactive compounds, including flavonoids, linoleic acid, and volatile oils like limonene and selinene. These compounds contribute to its potential health benefits, which may include anti-inflammatory properties, support for joint health (often used in treating conditions like arthritis), and assistance in managing blood pressure levels. Celery seed extract is available in various forms, including capsules, tablets, and tinctures, and is often used in traditional medicine for its diuretic and antispasmodic effects.


How it helps

In a placebo-controlled trial of 51 patients with hypertension, supplementation with celery seed extract (1.34 g/day) for 4 weeks reduced AST by 3.03 U/L [R].

Celery seed may help by reducing inflammation and oxidative damage in the liver.

22  **Chlorella**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take 3 to 5 grams of chlorella in tablet or powder form daily, ideally before meals to improve digestion. Continue this supplementation for at least 2 to 3 months to observe benefits.

TYPICAL STARTING DOSE

3 g

Description


Chlorella is a microalga from freshwater. People consume chlorella in rice, pancakes, or tea. It can also be found as a supplement [R, R].

Chlorella is **rich in protein** and several micronutrients. It may be useful to [R, R, R, R, R, R, R, R]:

- Reduce blood sugar
- Lower cholesterol
- Reduce blood pressure
- Improve immunity

How it helps

In 2 placebo-controlled trials of 146 patients with NAFLD, supplementation with chlorella (1200 mg/day), both alone and as an add-on to metformin and vitamin E, for 8 weeks lowered AST levels [R, R].

23 

Avoid Organophosphate Pesticide Exposure

IMPACT 1 / 5 | EVIDENCE 1 / 5

How to implement

To reduce organophosphate pesticide exposure, buy organic produce when possible, thoroughly wash and peel fruits and vegetables, avoid using chemical pesticides in your home and garden, and wear protective clothing and a mask if you must handle pesticides for agricultural or landscaping work.

Description

Reducing organophosphate exposure involves minimizing contact with pesticides and insecticides containing these chemicals, which can protect against potential health risks such as neurotoxicity and respiratory issues, particularly for individuals working in agriculture or pest control.

Organophosphates (OP) are the most widely used pesticides worldwide. They include [\[R\]](#):

- Parathion
- Malathion
- Chlorpyrifos
- Diazinon
- Phosmet

Chronic exposure to OPs has been linked to [\[R\]](#), [\[R\]](#):

- Fertility problems
- Cognitive problems
- Nerve damage
- Cancer and gene damage


How it helps

Reducing organophosphate pesticide exposure can help prevent or limit worsening of AST. This is because these pesticides can cause lung damage and exasperate the disease, increasing symptoms like shortness of breath and wheezing.

A [study](#) associated **urinary DMP, DEP, and DMTP with elevated AST/ALT ratio and FIB-4** [\[R\]](#).

24  **Hydrogen Water**

IMPACT  1 / 5

EVIDENCE  1 / 5

How to implement

Drink 1.5 to 2 liters of hydrogen-rich water daily, spread out over the course of the day. It is best to start with a lower volume and gradually increase it to allow your body to adjust. This practice should be continued daily as a part of your lifestyle to maintain its potential benefits.

Description

Drinking hydrogen-rich water is believed to have antioxidant properties and may help combat oxidative stress in the body. Some studies suggest it could potentially support overall health and well-being.

How it helps

Hydrogen-rich water may help with AST (aspartate aminotransferase) levels by reducing oxidative stress and inflammation in the body. It offers potential benefits in handling liver injury, thus improving AST levels.

In a placebo-controlled trial of 12 overweight participants with mild-to-moderate NAFLD, drinking hydrogen-rich water (1 L/day) for 28 days reduced liver fat accumulation and AST levels (by 10%) [R].

25  **Avoid Lead Exposure**

IMPACT  1 / 5

EVIDENCE  1 / 5

How to implement

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

Description

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


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


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

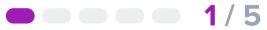
How it helps

A study associated exposure to high levels of metal mixtures with increased AST levels. Lead contributed the most to indicators of liver function [R].

Lead toxicity may damage the liver, potentially increasing AST levels.

26  **Bilberry**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Incorporate bilberry fruits into your diet by eating a small handful, approximately 1/4 to 1/2 cup, daily. You can also consume bilberry in the form of tea, by steeping 1-2 teaspoons of dried bilberries in hot water for about 10 minutes, up to three times a day.

Description

Bilberry is a fruit rich in antioxidants and flavonoids, which may contribute to eye health and circulatory function. It's often used in supplements for its potential to support vision and overall well-being.

How it helps

Bilberry is rich in antioxidants which can protect your cells, including those in your eyes, from damage. This may help slow down the progression of Age-Related Macular Degeneration (AMD).

In a controlled trial with 36 participants, frozen bilberries (150g, 3x/week for 6 weeks) reduced BMI in women, lowered cholesterol, LDL-C, TG, glucose, albumin, γ -glutamyltransferase, and increased HDL-C in both genders. In men, it additionally improved total cholesterol, glucose, albumin, aspartate aminotransferase, and γ -glutamyltransferase. LDL-C increased in men. No changes in blood pressure, magnesium, or antioxidant activity were observed [R].

27

Lactobacillus Paracasei

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing *Lactobacillus paracasei* daily, with a dose of around 10 billion colony-forming units (CFUs). Consume the supplement with or without food, but consistently at the same time each day for at least 4 weeks to observe beneficial effects.

TYPICAL STARTING DOSE
10 billion CFU

Description

Lactobacillus paracasei is a beneficial probiotic strain that can support digestive health and contribute to a balanced gut microbiome. It may help improve gut function, enhance nutrient absorption, and bolster the immune system, promoting overall well-being.

[Lactobacillus paracasei](#) is a type of bacteria naturally found in the intestine. It is considered a [probiotic bacteria](#), which means “good” bacteria that has health benefits when taken in adequate amounts [\[R\]](#).

L. paracasei is used in the production of the following fermented foods [\[R\]](#):


- Yogurt
- Cheese
- Sauerkraut

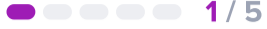
It may help [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

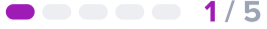
- Improve gut and skin health
- Boost immunity
- Fight allergies

How it helps

In a placebo-controlled trial of 80 healthy volunteers, supplementation with *L. paracasei* IJH-SONE68 for 12 weeks decreased AST and ALT levels, and increased the relative abundance changes within *Anaerostipes*, which has been reported to help suppress hepatic inflammation [\[R\]](#).

28  **Mitoquinone Mesylate (MitoQ)**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take MitoQ supplement by swallowing one capsule each morning with water, preferably on an empty stomach to aid in its absorption. This should be done daily for an extended period, often several months, to notice a significant benefit in conditions related to mitochondrial dysfunction or to support overall mitochondrial health.

Description

Mitoquinone mesylate is a novel antioxidant compound that targets mitochondria, the energy-producing organelles in cells. It has the potential to support cellular health and may have applications in promoting overall well-being.

How it helps

In a placebo-controlled trial of 30 hepatitis C patients, supplementation with mitoQ (40-80 mg/day) for 28 days decreased AST levels [\[R\]](#).

29



Black Seed (Black Cumin)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1000 mg of black seed (black cumin) supplement daily, preferably split into two doses of 500 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

1000 mg

Description

Black seed, also known as black cumin or *Nigella sativa*, has been used for its potential health benefits in traditional medicine. It is believed to have anti-inflammatory, antioxidant, and immune-boosting properties.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):


- Asthma
- Allergies
- High blood sugar
- High blood pressure
- Joint pain

How it helps

In an [uncontrolled trial of 30 patients with hepatitis C](#), supplementation with black seed (450 mg, 3x/day) for 3 months **reduced viral load and TAC, as well as improved total protein, albumin, red blood cell count, platelet count, and fasting glucose** [\[R\]](#).

The combination of black seed (250 mg/day) and ascorbate (1000 mg/day) as an add-on to antivirals for 8 weeks **reduced the levels of AST, ALT, ALP, GGT, bilirubin, and MDA, and increased SOD, TAS, and GSH activity** in a [non-placebo-controlled trial of 30 patients with hepatitis C](#) [\[R\]](#).

30



Lactobacillus Delbrueckii and S. Thermophilus

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a probiotic supplement that contains *Lactobacillus delbrueckii* and *Streptococcus thermophilus*. Follow the dosage instructions on the product label, typically once daily, preferably with meals or as directed by your healthcare provider. Continue this regimen for at least 4 to 8 weeks to evaluate its effects.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus Delbrueckii and *S. Thermophilus* are types of bacteria that are good for your body, especially your gut. These bacteria are usually found in yogurt and other fermented foods. They help digest food, fight off harmful bacteria, and maintain a healthy balance in your digestive system.

How it helps

In a placebo-controlled trial of 28 patients with NAFLD, supplementation with a combination of *S. thermophilus* and *L. delbrueckii* (500 million/day) for 3 months decreased ALT (by 7.3 UI/L), AST (by 5.7 IU/L), and GGT (by 10.5 IU/L) levels [R].

31



Purple Sweet Potato

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

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


Description

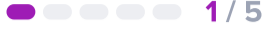
Purple sweet potatoes are a colorful and nutritious variety of sweet potatoes that originated in southeast Asia. They are packed with antioxidants, fiber, and vitamins, especially vitamin A and C, which supports eye health and overall immunity.

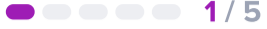
How it helps

In 2 placebo-controlled trials of 78 patients with borderline hepatitis, consuming a purple sweet potato beverage (250 mL/day) for 8 weeks **lowered AST levels** [R, R].

Purple sweet potatoes are high in antioxidants that reduce inflammation and lower oxidative stress, potentially lowering AST.

32  **Fucoidan**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take 300 mg of fucoidan supplement once daily, preferably with a meal to aid absorption. Continue this regimen for a minimum of four weeks to evaluate its effects on your health.

TYPICAL STARTING DOSE

300 mg


Description

Fucoidan is a compound found in certain brown seaweeds and marine plants, and it is consumed for its immune system support and anti-inflammatory effects.

How it helps

In a placebo-controlled trial of 42 patients with NAFLD, supplementation with low-molecular-weight fucoidan and high-stability fucoxanthin (275 mg LMF and 275 mg HSFx, 3x/day) for 24 weeks reduced liver fibrosis and steatosis, AST, ALT, total cholesterol, triglycerides, fasting glucose, HbA1c, IL-6, and IFN-gamma [\[R\]](#).

Fucoidan may help by reducing inflammation in the liver.

33  **Aloe Vera**

IMPACT 1/5

EVIDENCE 1/5

How to implement

Take a 50 mg Aloe vera supplement daily, with a glass of water, preferably at the same time each day to maintain consistency.

TYPICAL STARTING DOSE

50 mg

Description

Aloe vera is a succulent plant native to arid regions and contains a gel-like substance in its leaves that is rich in vitamins, minerals, and antioxidants, making it beneficial for soothing skin irritations, promoting wound healing, and providing relief from conditions such as sunburn and minor burns. The primary active compounds in aloe vera gel include polysaccharides, vitamins like vitamin C and E, and minerals such as zinc, which contribute to its healing and anti-inflammatory effects.

[Aloe vera](#) lives in the desert, and its thick leaves store water in the form of a gel [\[R\]](#).


People use aloe gel to help soften the skin and soothe burns [\[R\]](#).

Oral aloe supplements may help with blood sugar and gut health [\[R\]](#).

How it helps

In a placebo-controlled trial of 40 patients with liver fibrosis and 15 healthy controls, supplementation with *Aloe vera* high molecular weight fractions (0.15 g/day) for 12 weeks reduced AST and other markers of liver damage [\[R\]](#).

Aloe vera can help with liver detoxification, promoting an overall healthier liver and potentially reducing AST levels.

34  **Bifidobacterium Longum**

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a Bifidobacterium longum supplement daily, with a typical dosage around 10 billion colony-forming units (CFUs). It can be consumed any time of day, but taking it with a meal might improve its absorption and effectiveness. Continue this regimen for at least 4 weeks to assess its benefits on digestive health.

TYPICAL STARTING DOSE
10 billion CFU

Description


Bifidobacterium longum is a beneficial probiotic strain known for its potential to support digestive health and boost the immune system.


[Bifidobacterium longum](#) is a [probiotic](#) bacterium naturally present in the human gastrointestinal tract. Its subspecies *B. longum subsp. infantis* is one of the earliest bacteria to colonize the infant gut [\[R\]](#).


People take *B. longum* to enhance immunity against infections and support gut health [\[R, R, R\]](#).

How it helps

A total of 66 NASH patients were randomly and equally divided into two groups receiving Bifidobacterium longum with FOS and lifestyle modification (i.e., diet and exercise) versus lifestyle modification alone. Bifidobacterium longum with Fos and lifestyle modification, when compared to lifestyle modification alone, significantly reduces TNF, CRP, serum AST levels, insulin resistance, and fatty liver [\[R\]](#).

35  **Avoid Exposure to Heavy Metals**

IMPACT  1 / 5

EVIDENCE  1 / 5

How to implement

To avoid exposure to heavy metals, ensure you're not using cosmetic products with heavy metals, opt for organic foods to minimize pesticide exposure, and use filters for drinking water to remove possible contaminants. Check for lead-based paints in older homes and avoid cooking or storing food in uncoated metal containers. When possible, choose glass or BPA-free plastics instead.

Description

Heavy metals are elements naturally found in the environment. They are also used for agricultural, industrial, and medicinal purposes. Some can even be found in small amounts in your body [\[R, R\]](#).

Long-term exposure to high amounts of heavy metals can be harmful to your health [\[R, R\]](#).


Heavy metals that are most often linked to health problems include [\[R, R\]](#):


- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury


How it helps

A study associated exposure to high concentrations of metal mixtures with increased AST and bilirubin, with lead contributing the most [\[R\]](#).

Heavy metals may raise AST levels by causing liver damage.

36  **Mastic Gum**

IMPACT  1/5

EVIDENCE  1/5

How to implement

Take 350-1000 mg of mastic gum in capsule form daily, usually divided into two doses - morning and evening, with a glass of water. Follow these instructions for at least two weeks to see improvements in digestive health.

TYPICAL STARTING DOSE

350 mg

Description

Mastic gum is a natural resin with potential digestive health benefits. It's believed to support gastrointestinal comfort and may help alleviate symptoms of conditions like indigestion and acid reflux.

[Mastic](#) is a resin from the mastic tree. The mastic tree is native to the Greek island of Chios [\[R\]](#), [\[R\]](#).


Mastic is consumed as a chewing gum, used in cosmetics, and added to foods and drinks as a sweetener. People also take it to potentially help with gut problems [\[R\]](#).

How it helps

In a study of 133 subjects aged over 50, those in the high-dose group consuming 5 g of mastic powder daily experienced significant reductions in serum total cholesterol, LDL, total cholesterol/HDL ratio, lipoprotein (a), apolipoprotein A-1, apolipoprotein B, ALT, AST, and GGT levels [\[R\]](#).

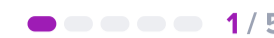
Mastic gum may help by protecting the liver from damage.

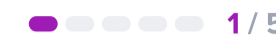
37



Cupping Therapy

IMPACT
EVIDENCE





How to implement

To practice cupping therapy as part of your lifestyle, schedule sessions with a qualified therapist once or twice a month to address specific concerns or for general wellness. Each session usually lasts between 5 to 15 minutes. Consistent treatment over several months may yield the best results.

TYPICAL STARTING DOSE
15 minutes

Description

Cupping therapy is an alternative therapy that involves placing cups on the skin to create suction. Some believe it may help with pain relief and muscle tension.

How it helps

Cupping therapy can increase blood flow and promote cell repair, potentially reducing inflammation in the airways often found in AST (Asthma). However, it should not replace traditional treatments for asthma, such as inhalers or medication.

In a non-placebo-controlled trial of 120 patients with NAFLD, receiving wet cupping therapy (3 sessions over 1 month) decreased insulin resistance, ALT, and AST, and improved ultrasound images of the liver in 23% of the patients (compared to 10% in the control group) [\[R\]](#).

38



Chicory

IMPACT
EVIDENCE





Description

Chicory is a nutrient-rich vegetable that has been shown to have a number of health benefits. It is a good source of fiber, vitamin K, and antioxidants. Chicory may also help to improve digestion, lower blood sugar levels, and boost the immune system.

How it helps

In a placebo-controlled trial of 46 patients with type 2 diabetes mellitus, enriched chicory inulin supplementation led to significant reductions in fasting serum glucose, HbA1C, AST, and ALP concentrations. It also improved systolic and diastolic blood pressures and increased serum calcium [\[R\]](#).

39

Tyrosol

IMPACT
EVIDENCE

0 / 5

1 / 5

How to implement

Take a tyrosol supplement of approximately 10 to 50 milligrams per day, ideally with a meal to enhance absorption. Continuous daily intake is recommended for at least 8 to 12 weeks to evaluate benefits.

TYPICAL STARTING DOSE

10 mg

Description

Tyrosol is a phenolic compound found in olive oil and is known for its antioxidant properties. It is used for its potential to protect cells from oxidative damage and support cardiovascular health.

How it helps

A nutraceutical with red yeast rice (10 mg), phytosterols (800 mg), and L-tyrosol (5 mg) taken for 8 weeks improved AST in a placebo-controlled trial of 60 patients with hypercholesterolemia [R].

Tyrosol has beneficial antioxidant properties that can reduce liver inflammation and damage, potentially reducing AST levels.

40

Theacrine

IMPACT
EVIDENCE

0 / 5

1 / 5

How to implement

Take a theacrine supplement, commonly found in doses ranging from 50mg to 300mg, daily in the morning. It's advisable to start with a lower dose to assess tolerance before gradually increasing to a more effective dose. Theacrine is typically taken for periods of up to eight weeks followed by a break to prevent habituation.

Description

Theacrine is a natural compound found in certain tea leaves and kucha tea. It is structurally similar to caffeine but has a smoother, longer-lasting effect without the typical jitters or crashes, making it a potential stimulant and cognitive enhancer.

How it helps

Theacrine is a compound known to enhance mental focus and decrease feelings of fatigue. While it doesn't treat amyotrophic lateral sclerosis (ALS) directly, it may help alleviate fatigue, one of the symptoms of ALS.

A [randomized clinical trial with 125 people](#) found that Methylliberine (Dynamine®; DYM) with theacrine (Teacrine®; TCR) (low-dose DYM with TCR: 100 mg + 50 mg and high-dose DYM with TCR: 150 mg + 25 mg) **slightly changed heart rate, systolic blood pressure, and QTc, high-density lipoproteins, mean corpuscular hemoglobin, basophils, absolute eosinophils, creatinine, estimated glomerular filtration rate, chloride, carbon dioxide, bilirubin, and alanine aminotransferase**, among others. Similar results were found in a randomized clinical trial with 60 healthy men and TeaCrine® (theacrine supplement, 200 or 300 mg, 1x/day for 8 weeks) [R, R].

41



Streptococcus Thermophilus

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a supplement containing *Streptococcus thermophilus* according to the product's label, typically once or twice daily with a glass of water. It is commonly found in probiotic supplements and the exact dosage can vary, so following the manufacturer's guidelines is essential. Continue use as part of your daily routine or as directed by a health professional.

TYPICAL STARTING DOSE

10 billion CFU

Description

Streptococcus thermophilus is a probiotic bacterium used in the fermentation of dairy products like yogurt. It contributes to improved gut health by aiding in the digestion of lactose and promoting the growth of beneficial gut bacteria.

How it helps

In a placebo-controlled trial of 28 patients with NAFLD, supplementation with a combination of *S. thermophilus* and *L. delbrueckii* (500 million/day) for 3 months decreased ALT (by 7.3 UI/L), AST (by 5.7 IU/L), and GGT (by 10.5 IU/L) levels [R].

42



Lactobacillus Delbrueckii

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a supplement containing *Lactobacillus delbrueckii* at a dosage as advised on the product packaging, usually once daily. It is typically found in probiotic supplements or dairy products enriched with probiotics. Consistency is key, so take it at the same time each day, preferably with a meal for the best absorption and efficacy.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus delbrueckii is a beneficial probiotic strain that can support digestive health and contribute to a balanced gut microbiome. It may help improve gut function, enhance nutrient absorption, and bolster the immune system, promoting overall well-being.

[Lactobacillus delbrueckii](#) is a bacterium widely used in the production of yogurt and other fermented dairy products [R].

As a [probiotic](#), people mainly take *L. delbrueckii* to boost the immune system. This helps fight and prevent infections [R, R, R].

How it helps

Lactobacillus Delbrueckii is a type of probiotic that supports digestive health by helping to break down food and absorb nutrients, which can be beneficial in improving the health of someone with AST (Aspartate Aminotransferase levels). It doesn't directly treat AST, but a healthier gut may lessen liver stress, potentially impacting AST levels.

In a placebo-controlled trial of 28 patients with NAFLD, supplementation with a combination of *S. thermophilus* and *L. delbrueckii* (500 million/day) for 3 months decreased ALT (by 7.3 UI/L), AST (by 5.7 IU/L), and GGT (by 10.5 IU/L) levels [R].

Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

