

Liver Cancer

Disease Report

REPORT CATEGORIES —



CANCER



LIVER HEALTH

Sample Client

Report date: 15 January 2026

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



How this works

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



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



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

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



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Liver cancer, also known as hepatic cancer, occurs when malignant cells form in the liver. It can be primary, originating in the liver itself, or secondary (metastatic), meaning it has spread from another part of the body [\[R\]](#).

Types of primary liver cancer include:

- Hepatocellular carcinoma (HCC): The most common type, originating in the liver cells (hepatocytes).
- Cholangiocarcinoma (bile duct cancer): Starts in the bile ducts, which are the tubes that carry bile from the liver to the small intestine.
- Hepatoblastoma: A rare type, primarily affecting children.
- Angiosarcoma and Hemangiosarcoma: Rare cancers originating in the blood vessels of the liver.

Secondary liver cancer starts elsewhere (e.g., colon, breast, lung) and spreads to the liver. This is in fact more common than primary liver cancer.

Most people don't have signs and symptoms in the early stages of primary liver cancer. When signs and symptoms do appear, they may include [\[R\]](#):

- Losing weight without trying
- Loss of appetite
- Upper abdominal pain
- Nausea and vomiting
- General weakness and fatigue
- Abdominal swelling
- Yellow discoloration of the skin and the whites of the eyes (jaundice)
- White, chalky stools

Risk Factors and Treatment

Several factors can increase the risk of liver cancer [\[R\]](#):

- Chronic hepatitis B or C infection: long-term infection with these viruses can lead to liver damage and increase cancer risk.
- Cirrhosis: scarring of the liver from various causes, including alcohol use, nonalcoholic fatty liver disease (NAFLD), or chronic hepatitis.
- Alcohol abuse
- Nonalcoholic fatty liver disease (NAFLD)
- Aflatoxin exposure: this substance is produced by certain molds found on crops like peanuts and grains.
- Family history

Treatment options depend on the stage of the cancer, the liver’s overall condition, and the patient’s health. Common treatments include [\[R\]](#):

- Partial hepatectomy: removal of the tumor and a portion of the liver.
- Liver transplant: replacing the diseased liver with a healthy one from a donor, often used for early-stage liver cancer.
- Ablation therapy: Methods like radiofrequency ablation (RFA) or microwave ablation use heat to destroy cancer cells.
- Transarterial chemoembolization (TACE): A procedure that delivers chemotherapy directly to the liver tumor and blocks its blood supply.
- Radiation therapy: Using high-energy rays to target and kill cancer cells, though it's less commonly used for liver cancer.
- Targeted Therapy: Drugs that specifically target cancer cells with certain genetic changes or growth pathways.
- Immunotherapy: Treatments that help the immune system recognize and attack cancer cells, though it’s still under investigation for liver cancer.

The prognosis for liver cancer varies widely based on factors such as the cancer's stage, the patient's overall health, and how well the cancer responds to treatment. Early-stage liver cancer often has a better prognosis, while advanced stages may require more complex management.



TYPICAL LIKELIHOOD

Typical likelihood of liver cancer based on 276,371 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
AGA	rs117413665	CC
SAMM50	rs2896019	GG
KIF1B	rs17401966	AG
HS3ST1	rs35523062	CT
SAMM50	rs2294915	TT
ETV3L	rs4661093	AG
CYP26B1	rs17007417	CT
SAMM50	rs2143571	GA
HLA-DQA2	rs9275319	AA
AEN	rs4932397	GC
PNPLA3	rs738409	GG
HLA-DQA2	rs9275572	AG
TERT	rs2242652	GA
MRPL55	rs708113	AT
GRIK1	rs455804	AC
GTPBP10	rs10272859	GC
STAT4	rs7574865	GT
DLC1	rs77236434	CC
/	rs9272105	GG
TCP10L	rs2833856	CC
PAK4	rs8107030	AA
MAU2	rs58542926	CC
MICA	rs2596542	TC
MAU2	rs58489806	CC

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

Please note: This report is not diagnostic and can't be used to make any medical decisions. Most cancers are uncommon and have a strong environmental component. Even if your genetic predisposition is high, you will most likely not develop the disease. This report doesn't test for hereditary cancer syndromes or 'cancer genes'. These are usually caused by rare mutations that can't be analyzed by our test. If you're concerned about your risk of hereditary cancer, consider getting a specialized test at a reference laboratory.

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 Secondhand Smoke	2	Mediterranean Diet
3	Avoid Mycotoxin	4	Green Tea400 mg
5	Avoid Air Pollution	6	Aerobic Exercise (Cardio)1 hour
7	Maintain Optimal Vitamin D Levels1000 iu	8	Avoid PFAS Exposure
9	BCAAs (Branched-Chain Amino Acids)5 g	10	AHCC
11	Chlorophyll100 mg	12	Turkey Tail Mushroom1000 mg
13	Avoid PCBs	14	Vitamin C2000 mg
15	Molybdenum	16	Dietary Omega-3 Fatty Acids
17	Curcumin500 mg	18	Soy
19	Cruciferous Vegetables	20	Milk Thistle (Silymarin)300 mg
21	Avoid Iron Supplements (Unless Deficient)	22	Vegetables

1



Avoid Secondhand Smoke

IMPACT

3 / 5

EVIDENCE

4 / 5

How to implement

Implementing a smoke-free lifestyle involves communicating your needs to family, friends, and coworkers, requesting they respect your choice by smoking away from you. At home, establish strict no-smoking policies indoors. When out, choose smoke-free venues and accommodations. Advocate for smoke-free environments in your community and support legislation that promotes public health by reducing exposure to secondhand smoke. Utilize air purifiers at home to reduce any residual particles.

Description

Avoiding secondhand smoke is crucial for maintaining good health. Exposure to secondhand smoke can lead to respiratory problems, cardiovascular disease, and an increased risk of lung cancer, even in non-smokers. Protecting oneself from secondhand smoke involves staying away from smoking areas, ensuring smoke-free environments at home and work, and advocating for smoke-free policies in public spaces.

How it helps

Smoking is a well-known risk factor for many types of cancer, including liver cancer. Avoiding smoking can reduce the risk of developing liver cancer and other health complications.

2



Mediterranean Diet

IMPACT3 / 5

EVIDENCE3 / 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

Adherence to a Mediterranean diet may reduce the risk of liver cancer [\[R, R, R, R, R\]](#).

The Mediterranean diet may help by reducing inflammation and improving metabolic health.

3



Avoid Mycotoxin

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

To avoid mycotoxins, store grains and nuts in a dry, cool place, check for mold on foods before eating, and avoid consuming products with visible mold. Prefer buying whole foods over processed ones, and if possible, opt for foods tested for mycotoxin contamination. Discard any food that smells musty or shows signs of spoilage.

Description

Avoiding mycotoxin exposure, which can occur in contaminated foods, is crucial to prevent potential health risks such as liver damage and cancer. Being cautious about food quality and storage conditions can help minimize the risk of mycotoxin ingestion.

How it helps

Consuming foods contaminated with mycotoxins such as aflatoxins increases the risk of cancer, especially liver cancer. Aflatoxins may also increase the risk of liver cancer linked to the hepatitis B virus [\[R, R\]](#).

4



Green Tea

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Consume 400 mg of green tea extract daily. This can be taken in the form of capsules or tablets available that specify the amount of green tea extract. Ensure the supplement is taken according to the product's specific instructions, usually once a day with water.

TYPICAL STARTING DOSE

400 mg

Description

Tea is a beverage made by steeping the leaves of the *Camellia sinensis* plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to antioxidants and other bioactive compounds.

[Green](#) and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [\[R\]](#), [\[R\]](#).

Tea contains antioxidants called **flavonoids**, which may help prevent [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart disease
- Cancer
- Diabetes

How it helps

Four meta-analyses (the largest one with 32 studies) associated green tea intake with 13-61% lower risk of liver cancer, especially in women, people drinking up to 4 cups/day, or those drinking it for over 20 years [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Green tea is rich in catechins, powerful antioxidants that can protect liver cells from damage and may reduce the risk of liver cancer. It helps by inhibiting the growth of cancer cells and promoting their death.

Please note: polyphenols from green tea may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using green tea [\[R\]](#).

5



Avoid Air Pollution

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Stay indoors on days when air quality indexes (AQI) indicate high pollution levels, which are often reported by weather services or government environmental agencies. **Install air purifiers** in your home, especially in bedrooms, to reduce indoor pollutants. Limit outdoor exercise when air pollution warnings are issued, opting for indoor activities instead.

Description

Avoiding air pollution by reducing exposure to pollutants in the environment is essential for respiratory and overall health. It can help lower the risk of respiratory diseases, cardiovascular conditions, and other health issues associated with poor air quality.

While city life is convenient in a lot of ways, it comes with some health hazards. Cars, factories, and other sources increase air [pollution](#) ^[R].

Air pollution plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lung disease
- Heart disease
- Diabetes
- Asthma
- Skin conditions

How it helps

Long-term exposure to air pollutants, specifically NO2, PM2.5, and PM10, is linked to an increased risk of non-lung cancer, particularly liver cancer. Specific cancer associations require caution due to limitations [\[R\]](#).

Similarly, a meta-analysis of 20 studies from 14 countries found an association between PM2.5 exposure and gastrointestinal cancers, particularly liver and colorectal cancers. Evidence is moderate but limited due to the small number of studies [\[R\]](#).

6



Aerobic Exercise (Cardio)

IMPACT

2 / 5

EVIDENCE

4 / 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

Aerobic exercise can improve overall health, enhance immune function, and reduce fatigue, which can be beneficial for cancer patients, including those with liver cancer.

7



Maintain Optimal Vitamin D Levels

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE
1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs [vitamin D](#) for strong bones. Vitamin D also plays a role in [\[R\]](#):

- Mood
- Immunity
- Heart health
- Blood sugar control

[Sunlight](#) is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R, R\]](#).

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [\[R\]](#).

How it helps

Vitamin D has been linked to protective effects against certain types of cancers, including liver cancer. It can potentially regulate cell growth and reduce the progression of cancerous cells.

8



Avoid PFAS Exposure

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

To avoid PFAS exposure, choose products that are labeled PFAS-free, especially when selecting cookware, cosmetics, and clothing. Reduce the consumption of packaged and fast foods since the packaging often contains PFAS. Use a water filter that is certified to remove PFAS compounds for your drinking and cooking water.

Description

Avoiding per- and polyfluoroalkyl substances (PFAS) exposure means avoiding products and environments contaminated with these chemicals, which can help prevent potential health issues like hormonal disruption and adverse effects on liver and immune function.

How it helps

A study of 100 participants associated high exposure to PFOS with a 4.5-fold increased risk of hepatocellular carcinoma. Another study (110 participants) found higher PFAS levels in the livers of those with liver cancer [\[R, R\]](#).

9



BCAAs (Branched-Chain Amino Acids)

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take a BCAA supplement that provides about 5-10 grams of branched-chain amino acids, divided into 2-3 doses per day, preferably around your workout times or between meals. This regimen can be followed daily, especially on training days for muscle support and recovery.

TYPICAL STARTING DOSE

5 g

Description

[BCAAs](#), or **branched-chain amino acids**, are a group of three essential amino acids: [leucine](#), **isoleucine**, and **valine**. They are found in dietary protein sources, especially meat, dairy, and legumes.

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BCAAs play a vital role in protein synthesis, muscle growth, and energy production. People use BCAA supplements to support exercise and muscle performance, liver health, and more [\[R\]](#), [\[R\]](#).

How it helps

In liver cancer patients, supplementation with BCAAs may slightly improve liver function and quality of life. However, it may not reduce recurrence rates and its effects on survival are mixed [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: *There is not enough safety data for long-term BCAA supplementation at doses above **12 g/day**. Increased BCAA intake may be linked to type 2 diabetes [\[R\]](#).*

10



AHCC

IMPACT

1 / 5

EVIDENCE

1 / 5

Description

AHCC, or active hexose correlated compound, is a water-soluble extract of the fungus Agaricus blazei Murill. It has been shown to have a number of health benefits, including boosting the immune system, fighting cancer, and improving liver function.

How it helps

The study involved administering AHCC orally to HCC patients post-hepatectomy. Recurrence-free survival rates were promising, with no observed toxicity. Further randomized trials to validate AHCC's efficacy are recommended [\[R\]](#).

11



Chlorophyll

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take chlorophyll supplements once daily, with a dose ranging from 100 to 300 milligrams. Consume it with a glass of water, preferably in the morning to coincide with your digestive cycle. It's advisable to continue this regimen daily for at least 3 to 4 weeks to assess its benefits.

TYPICAL STARTING DOSE

100 mg

Description

Chlorophyll is a pigment found in plants that may have antioxidant and anti-inflammatory properties. Some proponents suggest that consuming chlorophyll supplements or chlorophyll-rich foods may support detoxification and overall health

How it helps

In a randomized, double-blind, placebo-controlled trial, 180 adults ingested either 100 mg of chlorophyllin or a placebo thrice daily for 4 months. Chlorophyllin intake led to a significant 55% reduction in aflatoxin-N7-guanine adducts in urine, suggesting its potential in preventing liver cancer [\[R\]](#).

12



Turkey Tail Mushroom

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a turkey tail mushroom supplement in capsule or powder form, usually ranging between 1,000 to 3,000 mg per day. Divide this dosage into two to three separate doses to be taken with meals throughout the day. Continue this regimen daily for immune support or as directed by a healthcare provider.

TYPICAL STARTING DOSE

1000 mg

Description

Turkey tail mushrooms (*Trametes versicolor*) are a type of mushroom that grows on decaying wood in various parts of the world. They are valued for their potential health benefits due to the presence of compounds like polysaccharopeptide (PSP) and polysaccharide-K (PSK), which have been studied for their immune-boosting properties and potential use in supporting cancer treatment.

How it helps

In a randomized trial with 15 cases, *Coriolus versicolor* (CV) didn't show a significant difference in median time to progression (TTP) compared to placebo. However, CV improved quality of life. Further investigation is needed for its palliative use [\[R\]](#).

13



Avoid PCBs

IMPACT

1 / 5

EVIDENCE

1 / 5

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

A study of 38,613 residents in PCB-contaminated areas in Copenhagen found no overall cancer risk associated with PCB exposure in indoor air. However, higher exposure is linked to liver cancer and meningiomas. Possible associations with pancreatic and testis cancers were observed [\[R\]](#).

14



Vitamin C

IMPACT

0 / 5

EVIDENCE

1 / 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

2000 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

In a non-placebo-controlled trial of 29450 initially healthy adults followed up for 5.25 years, supplementation with molybdenum and vitamin C slightly reduced liver cancer death, but only in men [\[R\]](#).

15



Molybdenum

IMPACT

0 / 5

EVIDENCE

1 / 5

How to implement

Adults should get about **45 micrograms** of molybdenum each day [R].

Foods rich in molybdenum include [R]:

- Black-eyed peas (288 mcg per serving)
- Beef liver (104 mcg per serving)
- Lima beans (104 mcg per serving)
- Yogurt (26 mcg per serving)
- Baked potato (16 mcg per serving)
- Wheat cereals (15 mcg per serving)

Description

[Molybdenum](#) (Mo) is a mineral that we need in very small amounts (trace mineral) [R].

Molybdenum helps process sulfur-containing amino acids such as [methionine](#) and [cysteine](#). It also helps make [uric acid](#) and is part of the tooth enamel [R, R].

Adults should get about **45 micrograms** of molybdenum each day [R].

Foods rich in molybdenum include [R]:

- Black-eyed peas (288 mcg per serving)
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- Lima beans (104 mcg per serving)
- Yogurt (26 mcg per serving)
- Baked potato (16 mcg per serving)
- Wheat cereals (15 mcg per serving)

Water also contains some molybdenum, although the exact amount can vary greatly depending on the region [R].

People easily get all the molybdenum they need through food and water, so [molybdenum deficiency is extremely rare](#) [R].

How it helps

In a non-placebo-controlled trial of 29450 initially healthy adults followed up for 5.25 years, supplementation with molybdenum and vitamin C slightly reduced liver cancer death, but only in men [R].

16



Dietary Omega-3 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 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 two-sample Mendelian randomization study investigated the association between fatty acids (FAs) and primary liver cancer (PLC). Results suggest a negative causal link between omega-3 FAs and PLC risk, with no significant association found for other FAs [\[R\]](#).

17



Curcumin

IMPACT

0 / 5

EVIDENCE

0 / 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, found in turmeric, has been shown in studies to have anti-cancer properties. It can help reduce cancer cell growth and suppress tumor formation by inhibiting cell signaling pathways.

18



Soy

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate soy-based products such as tofu, soy milk, and edamame into your daily diet. Aim for at least one serving per day, equivalent to about a cup of soy milk, a half-cup of cooked soybeans, or a 3-ounce piece of tofu.

Description

Soy is a legume native to East Asia, and its health benefits include being a source of plant-based protein, fiber, and various vitamins and minerals. It is known for its potential to support heart health, reduce cholesterol levels, and provide essential nutrients in vegetarian and vegan diets.

Soy is a common food in many cuisines around the world, especially Asian cuisines [\[R\]](#).

It’s a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Soy beverages
- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

Soy contains compounds like isoflavones, which have been shown to inhibit cancer cell growth and promote apoptosis (programmed cell death) in liver cancer.

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Cruciferous Vegetables

IMPACT

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EVIDENCE

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How to implement

Incorporate a serving of cruciferous vegetables, such as broccoli, cauliflower, Brussels sprouts, kale, or cabbage, into at least one meal each day. A serving size is about a half cup cooked or one cup raw. Try to maintain this habit consistently over time for the best health outcomes.

Description

Cruciferous vegetables like broccoli, cauliflower, and kale are rich in vitamins, fiber, and antioxidants. Including them in your diet can promote overall health and may offer cancer-protective properties.

Cruciferous vegetables are a group of vegetables that belong to the Brassicaceae family. They are rich in fiber, vitamins, minerals, and other nutrients.

Some common cruciferous vegetables include broccoli, cauliflower, cabbage, kale, and brussels sprouts.

How it helps

Vegetables like broccoli and cauliflower contain compounds that support liver health and may reduce the risk of liver cancer by enhancing the elimination of carcinogens and reducing oxidative stress.

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Milk Thistle (Silymarin)

IMPACT

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EVIDENCE

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How to implement

Take a 300 mg milk thistle (silymarin) supplement daily with water, preferably with a meal for better absorption. Continue this regimen as advised by your healthcare provider.

TYPICAL STARTING DOSE

300 mg

Description

Silymarin is a natural plant extract derived from the milk thistle plant (*Silybum marianum*). It has been traditionally used for its potential anti-inflammatory and liver-protective properties. Silymarin consists of several flavonolignans, including silybin, silydianin, and silychristin.

Milk thistle (*Silybum marianum*) is a purple flowering plant in the daisy family. Traditionally, it has been used for liver problems. Some people also eat the leaves in salads [\[R, R\]](#).

The extract of milk thistle is called *silymarin* [\[R, R, R\]](#).

People use milk thistle to help with [\[R, R, R\]](#):

- Liver problems
- Blood sugar control
- Indigestion
- Skin problems

How it helps

Milk Thistle (Silymarin) has been shown to have potential anti-cancer effects, including slowing the spread of cancer cells and promoting apoptosis (cell death) in cancerous cells. It's believed to protect liver cells from damage and may help in recovering from liver disease.

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Avoid Iron Supplements (Unless Deficient)

IMPACT

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EVIDENCE

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How to implement

Only take iron supplements if a blood test shows you are iron deficient. If not deficient, do not use iron supplements. For those diagnosed with iron deficiency, follow your healthcare provider's instructions on the type and dosage of iron supplement to take.

Description

Iron (Fe) is an essential mineral. It helps make [hemoglobin](#), a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Avoiding unnecessary iron supplements, particularly without a confirmed deficiency, can prevent the risk of iron overload, which can lead to health issues like hemochromatosis and oxidative stress.

However, too much iron can be bad for the body. It can deposit into organs, such as the liver, heart and the pancreas. This can cause issues such as liver disease, heart problems and diabetes [\[R\]](#), [\[R\]](#).

How it helps

Genetically higher iron levels may be causally associated with liver cancer [\[R\]](#).

Please note: *Some people deficient in iron may need to take iron supplements. Your doctor should help you make that decision based on your actual iron levels.*

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Vegetables

IMPACT

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EVIDENCE

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How to implement

Incorporate at least 2-3 cups of various vegetables into your daily diet, ensuring a mix of colors like greens, reds, and yellows to maximize nutrient intake. Aim to include vegetables in most meals, either as a side, part of the main dish, or snacks.

Description

Vegetables are edible parts of plants that offer various health benefits due to their rich nutrient content, including vitamins, minerals, fiber, and antioxidants. They are essential components of a balanced diet and contribute to overall health, supporting various bodily functions.

How it helps

Vegetables are high in vitamins, minerals, and antioxidants that protect cells from damage. Regular consumption of vegetables can decrease the risk of liver cancer and support overall liver health.

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.

	ALT	26 IU/L		9 Nov 2025
	AST	17 IU/L		9 Nov 2025
	ALP	68 IU/L		9 Nov 2025
	GGT	9 IU/L		9 Nov 2025
	Albumin	4.3 g/dL		9 Nov 2025
	Bilirubin, Total	1 mg/dL		9 Nov 2025