SelfDecode™

Liver Failure

Disease Report

REPORT CATEGORY

LIVER HEALTH

Sample Client

Report date: 15 January 2026

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Personal information

NAME

Sample Client

SEX AT BIRTH

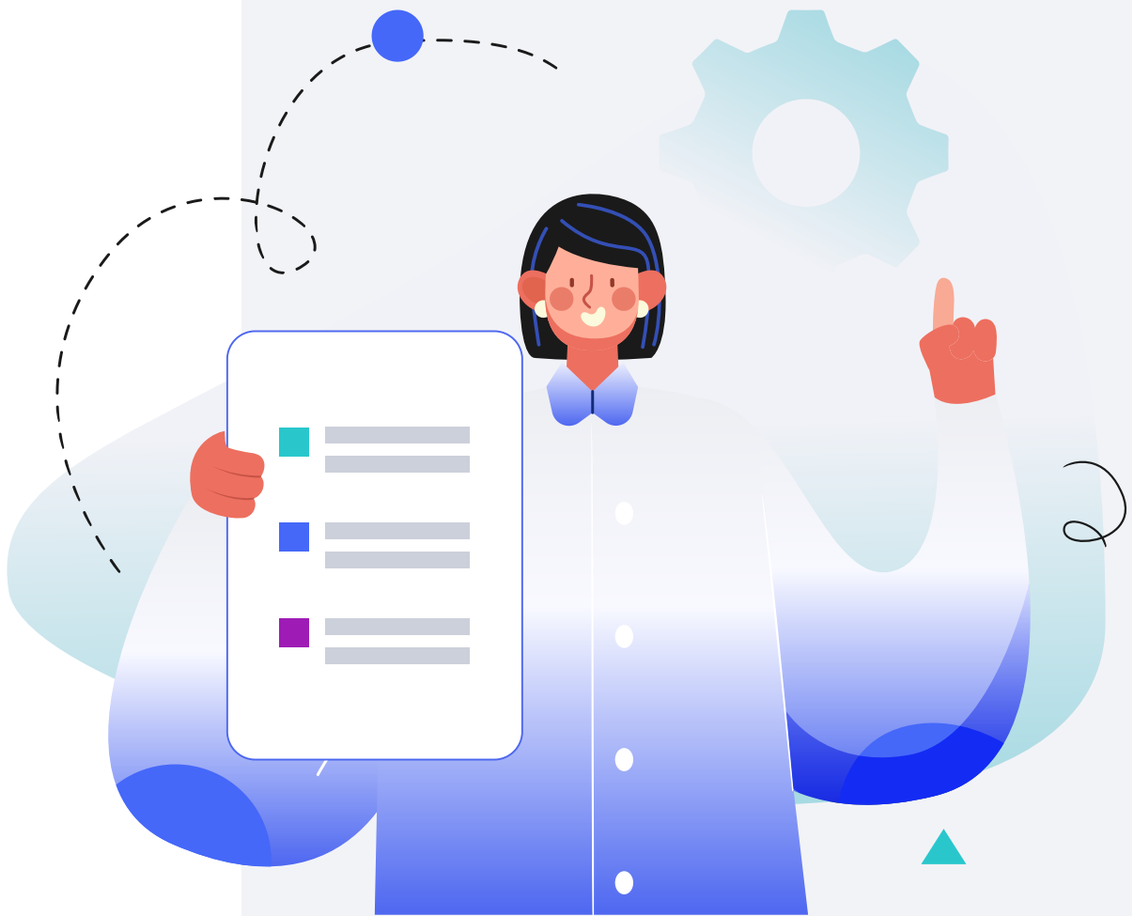
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

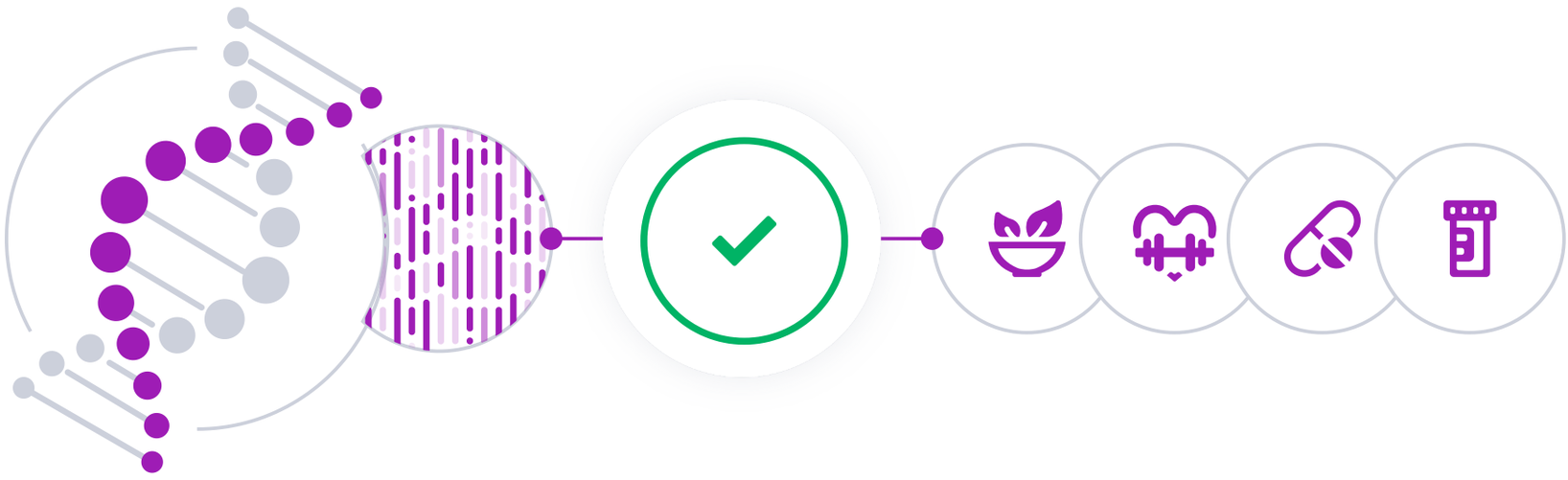


DISCLAIMER

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

How this works

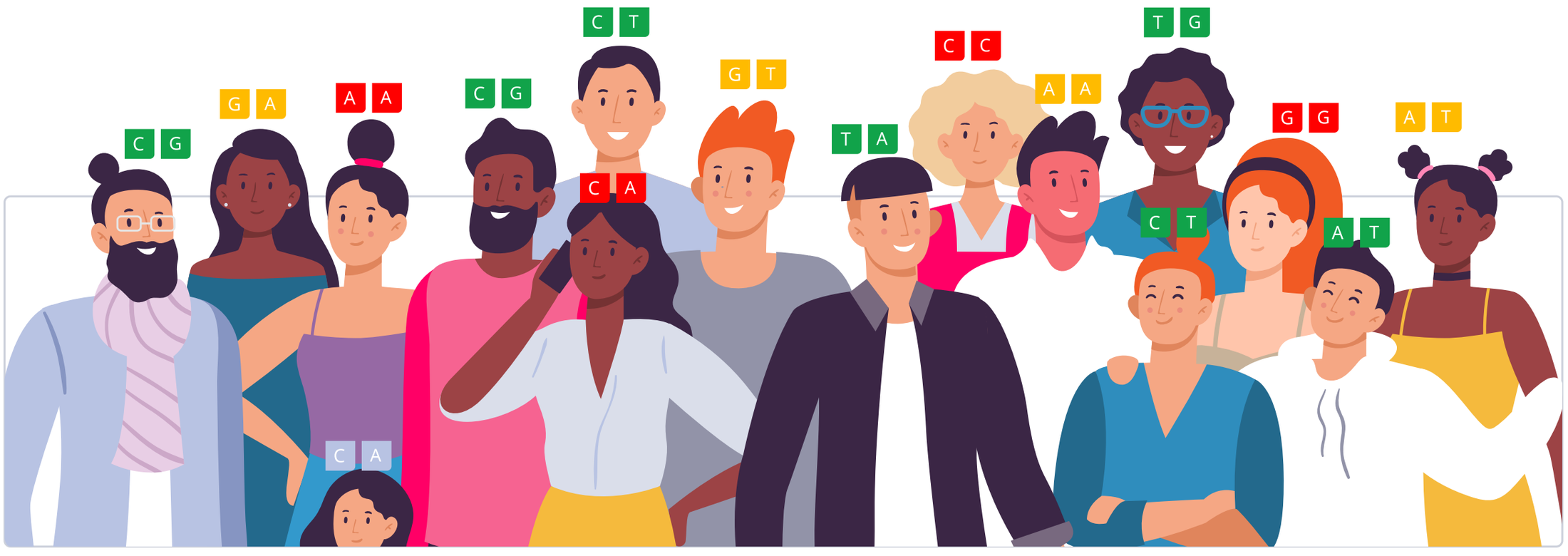
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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

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

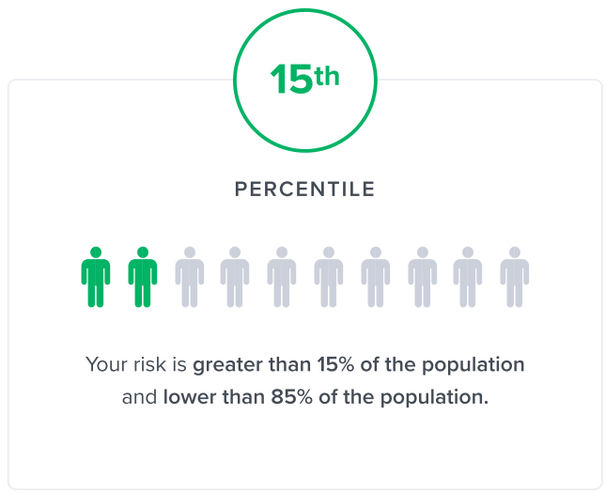
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

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

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



Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

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

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

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

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

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

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

Impact

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

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

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

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

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, afew large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

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

Introduction

Liver failure occurs when large parts of the liver become damaged beyond repair and the liver can no longer function properly. It is a life-threatening condition that demands urgent medical care. Liver failure can develop rapidly (acute liver failure) or over a long period (chronic liver failure).

Symptoms may vary based on the severity and stage of liver failure but can include:

- Yellowing of the skin and eyes (jaundice)
- Abdominal pain and swelling
- Swelling in the legs and ankles
- Itchy skin
- Dark urine color
- Pale stool color
- Chronic fatigue
- Nausea or vomiting
- Loss of appetite
- Tendency to bruise easily

Risk Factors

Liver failure can result from various factors:

- Viral infections: Hepatitis B, C, and other viruses can lead to liver inflammation and deterioration.
- Chronic alcohol consumption: Excessive alcohol use is a leading cause of liver damage and failure.
- Fatty liver disease: Associated with obesity and diabetes, it can lead to non-alcoholic fatty liver disease (NAFLD) or non-alcoholic steatohepatitis (NASH).
- Autoimmune diseases: Conditions where the immune system attacks liver cells, such as autoimmune hepatitis.
- Toxins: Acute liver failure can occur due to exposure to toxic substances, like overdose of medications (e.g., acetaminophen overdose), or ingestion of poisonous wild mushrooms.
- Genetic disorders: Diseases like Wilson’s disease and hemochromatosis disrupt the body's ability to process certain minerals, leading to liver damage.

Treatment for liver failure depends on the cause and extent of liver damage:

- Addressing the underlying cause: Such as antiviral drugs for hepatitis, corticosteroids for autoimmune diseases, or ceasing alcohol intake.
- Medications to flush toxins: For instance, lactulose can help flush ammonia (produced by the liver) from the body.
- Liver transplant: In cases of severe liver failure, a transplant might be the only option.
- Supportive care: In a hospital setting to manage symptoms and monitor liver function continuously.

LESS LIKELY

Less likely to have liver failure based on 87 genetic variants we looked at

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

		DOSAGE
1	N-acetylcysteine (NAC)	1200 mg
2	Avoid Processed High Phosphate Foods	
3	Avoid Aflatoxins	
4	Dietary Omega-3 Fatty Acids	
5	TUDCA (Tauroursodeoxycholic Acid)	250 mg
6	Avoid Acrylamide	
7	Milk Thistle (Silymarin)	300 mg
8	Whole Grains	
9	Limit Salt Intake	
10	Limit Trans Fats	
11	Vegetables	
12	Fruits	

1

N-acetylcysteine (NAC)

IMPACT 2 / 5

EVIDENCE 3 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

1200 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

N-acetylcysteine (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [R].

People take NAC to potentially support [R, R]:

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

A review of randomized trials and a meta-analysis found NAC beneficial for patients in Coma Grade I-II, improving transplant-free survival but not overall survival. NAC benefits were limited to specific groups, and liver transplantation remains essential in severe cases. [R]

Analyzing 11 studies, this meta-analysis found that N-acetylcysteine (NAC) reduced mortality and hepatic encephalopathy in non-acetaminophen acute liver injury (ALI) compared to standard care. However, it increased the risks of nausea, vomiting, and mechanical ventilation needs. NAC proved effective in reducing specific ALI complications. [R]

A meta-analysis of four clinical trials assessed N-acetylcysteine (NAC) in non-acetaminophen acute liver failure (ALF). It revealed no overall survival improvement but noted better survival rates with native liver and post-transplantation. Side effects included nausea and vomiting. [R]

In two randomized clinical trials involving 183 adults and 174 children, N-acetylcysteine did not show a significant effect on all-cause mortality at 21 days or one year in adults. In children, evidence was inconclusive for all-cause mortality, serious adverse events, and liver transplantation outcomes. [R]

2

Avoid Processed High Phosphate Foods

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

To follow this recommendation, remove or significantly reduce processed foods such as sodas, packaged snacks, processed meats, and canned foods from your daily diet. Instead, opt for fresh fruits, vegetables, whole grains, and lean proteins. It's helpful to read nutrition labels, aiming to keep your daily phosphate intake below 700 mg if possible.

Description

Processed foods often have high levels of phosphate. These include fast foods and soda. Extra phosphate can make bones brittle and damage your blood vessels over time. So, it's healthier to choose fresh foods over processed ones.

How it helps

Processed foods high in phosphates can tax an already compromised liver. Reducing intake aids in managing liver workload and may help in mitigating the risk of further liver damage.

3

Avoid Aflatoxins

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Store grains and nuts in a dry, cool place to prevent mold growth. Check for moldy smells or discoloration in foods before eating, especially in peanuts, corn, and grains. Avoid purchasing damaged or discolored grains and nuts.

Description

Aflatoxins are toxic substances produced by molds that can contaminate various food products, particularly nuts and grains. Avoiding foods contaminated with aflatoxins is crucial to prevent potential health risks, including liver damage and cancer.

How it helps

Aflatoxins, produced by certain molds found on agricultural crops, can cause liver damage and contribute to liver failure. By avoiding exposure to aflatoxins, individuals can help protect their liver from significant harm.

4

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

Omega-3 fatty acids found in fish and some plant oils can have protective effects on the liver by reducing inflammation and potentially minimizing the accumulation of fat in the liver.

5

TUDCA (Tauroursodeoxycholic Acid)

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take 250 to 1500 mg of TUDCA (tauroursodeoxycholic acid) per day, divided into two or three doses with meals. This recommendation is based on general guidelines from clinical studies; for specific conditions or as directed by a healthcare professional, dosages may vary.

TYPICAL STARTING DOSE

250 mg

Description

TUDCA is a bile acid derivative naturally produced in small quantities in the human body and also found in the bile of bears. It is often used as a supplement due to its potential to support liver health, reduce inflammation, and protect against bile acid buildup, making it valuable in managing liver conditions like cholestasis and certain liver diseases.

TUDCA, short for tauroursodeoxycholic acid, is a bile acid that naturally occurs in the body. It consists of ursodeoxycholic acid (UDCA) and taurine [R].

TUDCA is known for its liver-protective effects. People often use it as a dietary supplement to support liver health and promote overall well-being [R].

How it helps

TUDCA is a bile acid that has been found to reduce liver enzymes and improve liver function tests in people with liver disease. It helps by protecting liver cells from bile acid toxicity and improving the function of the endoplasmic reticulum in liver cells.

6

Avoid Acrylamide

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Reduce your intake of fried, baked, or roasted high-carbohydrate foods, such as potato chips, fries, and toast, to minimal levels. Opt for boiling, steaming, or microwaving these foods instead. When cooking at high temperatures, aim to keep the temperature below 248 degrees Fahrenheit (120 degrees Celsius) to prevent the formation of acrylamide.

Description

Avoiding acrylamide involves minimizing exposure to this chemical compound, which can form in certain foods when cooked at high temperatures. Reducing acrylamide intake may lower the risk of potential health concerns associated with its consumption.

How it helps

Acrylamide, a chemical formed in some foods during high-temperature cooking processes, has been studied for its potential toxicity to the liver. Avoiding foods high in acrylamide can help reduce liver stress and support overall liver health.

7

Milk Thistle (Silymarin)

IMPACT 0 / 5

EVIDENCE 0 / 5

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 contains Silymarin, which is a group of compounds known to have antioxidant and anti-inflammatory effects. Studies suggest that Silymarin may help to protect liver cells by preventing the entry of harmful toxins and supporting the liver's repair mechanisms. It has been widely studied for its potential to support liver health in conditions like liver failure.

8

Whole Grains

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate at least three servings of whole grains into your daily diet. This can include consuming foods such as whole grain bread, brown rice, whole grain pasta, and oats. Aim to replace refined grains with whole grains at each meal for optimal benefits.

Description

Whole grains encompass a variety of grains like wheat, oats, and quinoa, where the entire grain kernel is intact. They are rich in fiber, vitamins, minerals, and antioxidants, supporting heart health and reducing the risk of chronic diseases.

Unlike refined grains, whole grains contain nutritious parts of the grain like bran and germ.

Whole grains provide many crucial nutrients, including:

- Fiber
- B-vitamins
- Iron
- Magnesium
- Phosphorus

Due to their high fiber content, whole grains don’t tend to spike blood sugar like refined grains do.

How it helps

Whole grains improve liver health by providing fiber that helps regulate blood sugar levels and reduce fat accumulation in the liver, potentially lowering the risk of liver failure.

9

Limit Salt Intake

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Reduce your daily salt intake to less than 2,300 milligrams (mg), equivalent to about one teaspoon of table salt. This includes all salt consumed, whether added during cooking, at the table, or present in processed and ready-to-eat foods.

Description

Limiting salt intake involves lowering the amount of sodium in the diet, which can help lower blood pressure and reduce the risk of heart disease. It often involves avoiding processed and other high-sodium foods such as cured meats, soups and sauces, and various pickled foods.

Your body needs a certain amount of sodium to function. For example, it helps support your blood pressure. This sodium usually comes from salt. However, eating too much salt is linked to an increased risk of stroke and heart disease [R, R].

Foods higher in salt include [R, R, R]:

- Prepared soups, broths, gravies, and sauces
- Fermented or pickled foods (such as pickles, soy sauce, olives, and capers)
- Cured meats and sausages (such as bacon, salt pork, and salami)
- Cheese (such as Roquefort and Parmesan)

Try to limit your daily intake to 1 teaspoon of salt (2,400 mg of sodium) [R].

How it helps

High salt intake can lead to water retention, worsening swelling (edema) and ascites in liver failure. Reducing salt intake helps manage these symptoms and supports overall liver function.

10

Limit Trans Fats

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

To limit trans fats, read food labels and choose products with 0 grams of trans fat. Avoid fried foods, packaged snacks, baked goods, and fast foods, which are common sources of trans fats. Aim to eliminate trans fats from your diet completely.

Description

Limiting trans fat intake is vital for heart health and reducing the risk of cardiovascular diseases. Avoiding foods high in trans fats and opting for healthier alternatives promotes better cardiovascular well-being.

Based on their structure, the fats in our diet can be broadly divided into *saturated* and *unsaturated* fat. Trans fat is a type of unsaturated fat [R, R, R].

In large amounts, trans fat and saturated fat may have a negative impact on your heart. Processed foods and animal products like red meat and dairy are rich in these fats [R, R, R].

How it helps

Trans fats can exacerbate liver damage by promoting inflammation and accumulating fat in the liver. Avoiding foods with trans fats supports liver health by reducing the risk of further liver injury.

11

Vegetables

IMPACT 0 / 5

EVIDENCE 0 / 5

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, rich in fiber and antioxidants, support liver health by reducing oxidative stress and inflammation, which are critical factors in the progression of liver diseases to liver failure.

12

Fruits

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate at least two servings of fresh, frozen, or canned fruits into your daily diet, aiming for a variety of colors and types to ensure a broad intake of vitamins, minerals, and antioxidants. One serving is equivalent to one medium-sized fruit, such as an apple or banana, or one-half cup of chopped fruit.

Description

Fruits are rich in vitamins, minerals, fiber, and antioxidants, making them essential for a balanced diet. Regular fruit consumption is associated with various health benefits, including better heart health, improved digestion, and reduced risk of chronic diseases.

Fruits are tasty and healthy foods high in vitamins, minerals, and antioxidants. They help reduce inflammation and support health in different ways.

Common examples include:

- Apples
- Oranges
- Bananas
- Grapes
- Watermelons

How it helps

Fruits are high in essential nutrients and antioxidants which help protect the liver from damage, support liver detoxification processes, and may reduce the risk of liver failure.

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 20 35 46	9 Nov 2025
AST	17 IU/L	5 17 30 40	9 Nov 2025
ALP	68 IU/L	30 60 130	9 Nov 2025
Phosphorus	2 mg/dL	1 2.5 3.5 4.5	9 Nov 2025
Vitamin B12	687 pg/mL	200 400 1000 1100	9 Nov 2025
Vitamin D, 25-Hydroxy, Total	58.59 ng/mL	10 20 30 75 150	9 Nov 2025
Albumin	4.3 g/dL	3.4 4.4 5.5	9 Nov 2025
Bilirubin, Total	1 mg/dL	0.2 0.8 1.3 15	9 Nov 2025