CONDITION

Nonalcoholic fatty liver disease

A condition in which excess fat builds up in the liver, usually alongside metabolic health problems.

WHAT IT IS
Excess fat buildup in the liver

BODY SYSTEM
Liver and digestive system

MAIN SYMPTOMS
Often none, tiredness, right upper abdominal discomfort

WHAT CAUSES IT
Metabolic dysfunction influenced by health, environment, and genes

HOW IT IS DIAGNOSED
Liver imaging; sometimes biopsy to assess damage

MAIN TREATMENT
Lifestyle changes and management of metabolic health

CAN IT BE CURED?
Sometimes - liver fat and inflammation can reverse

IS IT AN EMERGENCY?
Sometimes - vomiting blood, black stools, or severe confusion

LONG-TERM OUTLOOK
Often stable or reversible; advanced scarring can become serious

Overview

Nonalcoholic fatty liver disease is a condition in which excess fat builds up in the liver. This happens in people who drink little or no alcohol, although alcohol can still affect liver health.

The condition is now often called metabolic dysfunction-associated steatotic liver disease , or MASLD . "Steatotic" means containing excess fat. The newer name reflects its close connection with metabolic health, including blood sugar, cholesterol, blood pressure, and body weight.

Many people have liver fat without inflammation or lasting damage. In some people, however, the liver becomes inflamed and liver cells are injured. This form was called nonalcoholic steatohepatitis, or NASH. It is now often called metabolic dysfunction-associated steatohepatitis , or MASH .

Ongoing inflammation can lead to fibrosis, meaning scar tissue. Severe fibrosis may progress to cirrhosis, in which extensive scarring changes the liver's structure and function.

The condition matters for more than liver health. It is strongly linked with type 2 diabetes and heart and blood vessel disease. For many people, reducing these wider health risks is as important as monitoring the liver.

Symptoms

Most people with fatty liver have no clear symptoms. It is often discovered after a blood test or scan done for another reason.

When symptoms occur, they may include:

These symptoms have many possible causes and do not confirm fatty liver.

Symptoms such as yellow skin or eyes, abdominal swelling, confusion, easy bleeding, or swollen legs are not typical of early fatty liver. They may develop when there is advanced scarring or another liver problem and need medical assessment.

- Ongoing tiredness
- A dull ache or feeling of fullness under the right ribs
- A general sense of not feeling well

Causes and risk factors

Fat builds up when the liver receives or makes more fat than it can safely process. This is closely linked with insulin resistance , which means the body does not respond normally to insulin. Insulin is the hormone that helps move glucose from the blood into cells for energy.

Factors associated with a higher chance of fatty liver include:

Genes can affect how easily liver fat and scarring develop. This helps explain why people with similar lifestyles may have very different liver health. Fatty liver can also occur in people whose weight falls within a standard healthy range.

The condition is not simply caused by eating fat, and it should not be treated as a personal failure. Biology, medicines, sleep, income, food access, physical activity, other health conditions, and genetics can all play a part.

Alcohol-related liver disease is a separate diagnosis, but the conditions can overlap. Some medicines and medical problems can also cause liver fat, so these possibilities may need to be

considered during diagnosis.

- Type 2 diabetes or prediabetes
- Higher body weight, especially around the waist
- High triglycerides or unhealthy cholesterol levels
- High blood pressure
- Obstructive sleep apnea
- Polycystic ovary syndrome
- A family history of fatty liver, cirrhosis, or related metabolic conditions

Diagnosis

There is no single routine test that answers every question about fatty liver. Assessment usually combines your health history, blood tests, and liver imaging.

You may be asked about alcohol use, medicines, supplements, family history, and conditions such as diabetes or high blood pressure. Honest information about alcohol helps distinguish between possible causes and guides safer care.

Blood tests may measure liver enzymes, including ALT and AST. Raised levels can suggest liver irritation, but they do not show how much scarring is present. Normal liver enzyme levels do not rule out fatty liver or fibrosis.

Other blood tests may check blood sugar, cholesterol, blood cell counts, and liver function. Tests may also look for viral hepatitis or other causes of liver damage. Results can be combined into a fibrosis score that estimates the chance of advanced scarring.

An ultrasound can show fat in the liver, although it may miss smaller amounts. A test called transient elastography , sometimes known by a brand name such as FibroScan, estimates liver stiffness. A stiffer liver may have more fibrosis, although inflammation and other factors can affect the result. MRI-based scans can provide more detailed measurements when needed.

A liver biopsy involves removing a small tissue sample with a needle. It can show inflammation and the stage of fibrosis, but it is invasive and is not needed for everyone. It is generally considered when the diagnosis remains uncertain or when the result could change treatment.

Treatment and management

Management focuses on reducing liver fat and inflammation, slowing or reversing fibrosis

where possible, and lowering the risk of diabetes and cardiovascular disease.

Regular physical activity can reduce liver fat even without major weight loss. A mixture of aerobic activity, such as brisk walking or cycling, and muscle-strengthening activity may help. The most useful plan is one that is safe, realistic, and sustainable for you.

If you have excess body weight, gradual and sustained weight loss can improve liver fat. Greater loss may also improve inflammation and fibrosis. Rapid or extreme diets are usually difficult to maintain and can sometimes cause harm.

There is no single required "fatty liver diet." Eating patterns that emphasize vegetables, fruit, whole grains, beans, nuts, fish, and unsaturated fats can support liver and heart health. Reducing sugary drinks, heavily processed foods, and excess saturated fat may also help.

Diabetes, blood pressure, cholesterol, and sleep apnea should be identified and managed. Statins like atorvastatin or simvastatin , which lower cholesterol, are generally considered safe for people with fatty liver when medically appropriate. They reduce cardiovascular risk but are not a direct treatment for liver inflammation.

Some people with MASH and significant fibrosis may be eligible for liver-directed medicine. Eligibility depends on the amount of scarring, whether cirrhosis is present, other health conditions, and local approval or access. These medicines are used alongside nutrition, activity, and metabolic risk management rather than replacing them.

Weight-management medicines or metabolic surgery may be considered for some people who meet the usual criteria. Their potential benefits and risks extend beyond the liver and require individual assessment.

Do not start herbal products or "liver detox" supplements without checking their safety. Some do not have good evidence of benefit, and some can injure the liver.

Complications

Most people with fatty liver do not develop severe liver disease. The risk is higher when inflammation and fibrosis are present, particularly when fibrosis is advanced.

Possible complications include:

Cirrhosis can remain stable for years, but it can also become decompensated . This means the scarred liver is no longer managing its normal functions well. Signs can include jaundice, abdominal fluid, internal bleeding, or confusion.

Heart and blood vessel disease is a major long-term concern for people with fatty liver. Managing smoking, blood pressure, cholesterol, blood sugar, physical activity, and sleep

therefore remains important even when liver tests are only mildly abnormal.

- Increasing fibrosis and cirrhosis
- Portal hypertension, meaning high pressure in blood vessels around the liver
- Fluid buildup in the abdomen or legs
- Bleeding from enlarged veins in the digestive tract
- Reduced liver function
- Liver cancer
- Type 2 diabetes, kidney disease, and cardiovascular disease

Prevention

Fatty liver cannot always be prevented. Genetic risk, some medical conditions, and certain medicines are outside your control.

You may be able to lower the chance of developing it, or reduce further liver fat, by staying physically active, following a balanced eating pattern, and managing blood sugar, cholesterol, blood pressure, and body weight.

Avoiding smoking supports heart and blood vessel health. Alcohol can add to liver injury, particularly when fibrosis is present. The safest amount is not the same for everyone, so advice may take account of your liver findings and general health.

These measures reduce risk but cannot guarantee prevention. People can develop fatty liver even when they follow health recommendations.

Living with it and what to expect

Fatty liver often changes slowly over months or years. Liver fat can decrease, especially when metabolic health improves. Inflammation and some fibrosis may also improve, but advanced scarring can be harder to reverse.

Follow-up is based mainly on the risk of fibrosis rather than liver fat alone. You may have repeat blood tests and periodic fibrosis assessment. People at lower risk may need routine monitoring in primary care, while those with significant or uncertain scarring may be referred to a liver specialist.

Normal liver enzymes do not always mean the condition has gone away. Likewise, a mildly abnormal result does not necessarily mean damage is progressing. Results are most useful

when viewed as a pattern over time.

Most people continue their usual work, relationships, travel, and daily activities. Long-term care often focuses on manageable changes rather than a short course of treatment. Progress may be uneven, and improvements in fitness, blood sugar, or cholesterol still matter even when weight changes little.

If cirrhosis develops, follow-up becomes more intensive. It may include monitoring for liver cancer and complications of portal hypertension. People with advanced liver failure may eventually be assessed for transplantation, but this is not the expected course for most people with fatty liver.

When to get medical help

Arrange a routine appointment if you have unexplained abnormal liver tests, ongoing right upper abdominal discomfort, or risk factors such as type 2 diabetes and have concerns about liver health. Routine follow-up is also important if you have already been told you have fatty liver, even when you feel well.

Seek prompt medical advice if you develop new jaundice, increasing abdominal swelling, marked leg swelling, unusual bruising, or a noticeable decline in alertness.

Get emergency help for:

These symptoms can have causes other than fatty liver, but they need urgent assessment.

- Vomiting blood or material that looks like coffee grounds
- Black, tar-like stools
- Severe confusion, unusual drowsiness, or difficulty waking
- Fainting or signs of major bleeding
- Sudden severe breathing difficulty with marked abdominal swelling

Common questions

Can fatty liver go away?

Liver fat can return to a healthier level, particularly when weight, blood sugar, physical activity, or other metabolic factors improve. Inflammation and early fibrosis may also improve. Established cirrhosis may not fully reverse and still requires long-term monitoring.

Does fatty liver cause pain?

Most people have no pain. Some report a dull ache or fullness under the right ribs, where the liver sits. Sharp or severe pain is not typical and may have another cause.

Can I drink alcohol if I have fatty liver?

Alcohol can add to liver injury. The risk is greater when you have inflammation, fibrosis, or cirrhosis. Advice should reflect your liver findings, drinking pattern, medicines, and other health conditions. People with cirrhosis are generally advised to avoid alcohol.

What should I eat for fatty liver?

There is no single special diet. A pattern rich in vegetables, whole grains, beans, fruit, nuts, fish, and unsaturated fats can support liver and heart health. Sugary drinks and heavily processed foods are useful targets to reduce.

Are NAFLD, MASLD, NASH, and MASH the same thing?

NAFLD is the older name for fatty liver not mainly caused by alcohol. MASLD is the newer name that emphasizes metabolic risk. NASH and MASH refer to the form involving liver-cell injury and inflammation, not fat alone.

Will I need a liver biopsy?

Most people do not. Blood-based fibrosis scores and liver-stiffness scans often provide enough information. A biopsy may be considered when the diagnosis is unclear or when knowing the exact inflammation and fibrosis stage could change care.

Sources

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