

Diet and liver disease



Advice about nutrition
for patients and
families

Who is this booklet for?

This booklet is for people who have been diagnosed with liver disease, their family members or carers. It provides information on diet for people with cirrhosis, plus additional dietary advice for specific liver conditions where appropriate.

- If you have been diagnosed with metabolic dysfunction-associated steatotic liver disease (MASLD) or have been advised to lose weight because you have a fatty liver, you may also find it helpful to read our booklet '**Treating MASLD with a healthy diet and physical activity**'.
- If you have not been diagnosed with liver disease but would like to learn more about how to eat well to reduce your risk of preventable liver disease, take a look at our factsheet '**Eating well for a healthy liver**'.



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Liver UK publishes a range of factsheets and booklets about liver conditions. They provide information on symptoms, diagnosis and treatment, as well as advice about how to look after yourself.

Download digital copies of our publications from www.liveruk.org/publications or call us on 0300 1311 292 to order a copy

About the liver and liver disease

The liver is your body's 'factory' carrying out hundreds of jobs that are essential to life. Your liver:

- Produces bile to help break down food in the gut
- Processes food once it has been digested
- Stores carbohydrates, fat, vitamins and minerals, including iron
- Controls energy balance
- Filters and removes chemicals, toxins and drugs from the blood
- Produces proteins such as albumin and clotting factors
- Activates a number of other important processes such as water balance and hormones.

Your liver can be damaged in a number of different ways. It can be harmed by unhealthy habits such as drinking excess alcohol or eating an unhealthy diet; by certain viruses; or as a result of inherited genes. Your liver responds to harm by becoming inflamed. Any inflammation of the liver is known as 'hepatitis', whatever its cause. Sudden inflammation of the liver is known as acute hepatitis. When inflammation of the liver lasts longer than six months, it is known as chronic hepatitis.

Inflammation is part of the process of repairing damaged tissue. In a similar way to a scab forming over a skin wound, a temporary fibrous 'scaffold' forms while new liver cells regenerate. If your liver is repeatedly harmed, new liver cells cannot regenerate fast enough and the fibrous scaffold remains as a scar. This is called 'fibrosis'.

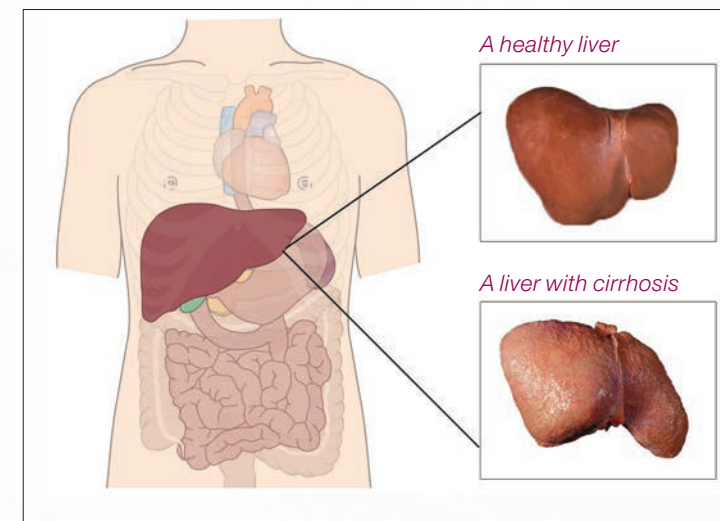
When fibrosis first develops, your liver may be able to keep functioning well and there may be no signs or symptoms of liver damage. At this stage, removing or treating the cause of the inflammation can reverse some, or all, of the fibrosis and prevent further liver damage.

However, if the underlying harm continues, the inflammation and fibrosis can become more extensive. The liver tries to balance the effects of the inflammation by replacing damaged liver cells with new ones but because the fibrosis distorts the shape of the liver, the new tissue forms as nodules. The presence of fibrosis together with these regenerating nodules is the hallmark of cirrhosis.

The presence of cirrhosis may not cause any signs or symptoms, and if this is the case it is referred to as 'compensated cirrhosis'. However, over time complications may develop such as jaundice, accumulation of fluid in the abdomen (ascites) and lower limbs, bleeding from the gut and easy bruising. There may also be changes in concentration, memory, attention and even level of consciousness (hepatic encephalopathy). When these complications arise, the cirrhosis is referred to as 'decompensated cirrhosis' (also sometimes referred to as advanced liver disease).

Even in advanced liver disease, significant improvement can be achieved if the underlying cause of the inflammation is removed.

People with cirrhosis, whether compensated or decompensated, are at risk of developing liver cancer (hepatocellular carcinoma or HCC).



For more information on how liver disease develops, visit www.liveruk.org

Why is diet important for people with liver disease?

The food you eat can have a significant impact on your liver.

If your liver is healthy, a well-balanced diet can reduce your risk of developing certain types of liver disease in the future, by preventing a damaging build-up of fat (see our factsheet on **'Eating well for a healthy liver'** for more about this).

If you have liver disease, there are additional dietary considerations that may need to be taken into account. Some of these relate to the type of liver disease you have; others relate to the stage of your liver damage.

People with liver disease may need to increase or decrease their intake of particular types of food because of their condition; others might suffer from loss of appetite, nausea or abdominal pain/discomfort, making it difficult for them to eat well or follow dietary advice. These and other issues, particularly those associated with decompensated cirrhosis, require specialist dietary advice from a registered dietitian.

This booklet provides guidance based on the best evidence available, to help people with liver disease improve their diet. If you have already been given dietary advice by your liver specialist or a registered dietitian, it is important that you do not make any changes without discussing them first.

Do not take herbal remedies or supplements without consulting your medical team, and be wary of diets publicised on the internet such as 'detox diets' or 'liver cleansing diets' as these can be dangerous for people with liver disease.

The NHS Live Well website (www.nhs.uk/live-well/eat-well) provides general information on achieving a well-balanced diet, but specific guidance may apply to you if you have liver disease.



Dietary advice for people with cirrhosis

Cirrhosis is the result of long-term, continuous damage to the liver and can be due to many different causes (see page 4 for more on this).

When cirrhosis develops, the liver is no longer able to store glycogen, a form of carbohydrate which it needs to meet the body's energy demands. A number of changes occur within the liver to make up for this lack of glycogen but as a result, more energy (calories) and protein are often needed in your diet. If these demands are not met then malnutrition and muscle wasting can occur.

It is estimated that approximately 20% of people with compensated cirrhosis are malnourished, but this increases to more than 50% in those with decompensated cirrhosis.

If you have cirrhosis, you may have already seen a dietitian. If you haven't seen a dietitian and you have specific questions about your diet, ask your doctor to refer you. When you see a dietitian, the advice you receive will be specific for you. The guidance here is more general and you shouldn't make any changes without first discussing them with the professionals looking after you.

General advice

Your overall diet should be well balanced to ensure you are getting enough carbohydrate, protein, fat, vitamins and minerals. However, you may be advised to make certain adjustments.

Increasing energy and protein intake

If you have cirrhosis, you may be advised to consume more energy (calories) and protein than a healthy person of the same age and weight. In particular, you may be advised to increase the amount of protein you eat, as your body needs more protein to maintain your muscle mass and prevent you from becoming weaker. The table opposite shows how much protein you may be advised to eat each day.

Example daily protein intake for healthy people and people with compensated and decompensated cirrhosis:

	Recommended intake (g/kg body weight/day)*	Daily intake (g)
Man weighing 70kg**		
Healthy	0.75	53
Compensated cirrhosis	1-1.2	70-84
Decompensated cirrhosis	1.5	105
Woman weighing 60kg**		
Healthy	0.75	45
Compensated cirrhosis	1-1.2	60-72
Decompensated cirrhosis	1.5	90

* If your weight is different to the examples in the table (which are 70kg for a man and 60kg for a woman) you will need to multiply your weight in kilograms (kg) by the number in the 'recommended intake' column

** This is dry body weight only - any fluid weight caused by ascites/oedema will need to be subtracted from the overall total body weight if you have decompensated cirrhosis. Your dietitian or specialist will guide you on this.

You can increase the amount of protein in your diet by eating more eggs, chicken, turkey, lean beef, cheese and other dairy products, plus nuts and pulses such as beans, lentils and almonds (see page 28 for a guide to the protein content in different foods).

If you are underweight/malnourished then you will need to increase your energy and protein intake further. Snacking between meals can top up your calories and protein (see overleaf for some ideas for snacks).

If you have cirrhosis and are underweight, suitable snacks include:

- Teacake with butter
- 3 x crackers with butter and cheese
- Breakfast cereal with full cream milk
- Fruit scone with butter and jam
- 2 x slices toast with jam
- Milky drinks
- 2 x slices fruit loaf
- Hot chocolate and a banana

There are also a number of high protein supplements that your dietitian may recommend and your doctor can prescribe.

If you are overweight you may be advised to lose weight. This should be done by reducing your fat and carbohydrate intake, but keeping your protein intake high and increasing physical activity levels to ensure you do not compromise your muscle mass.

Changing how often you eat

You may be advised to eat 'little and often' rather than eating three main meals a day if you have cirrhosis. This is because your liver is not able to store sufficient energy so if you leave long gaps without food, your body will start to break down the protein in your muscles for energy. This style of eating is called grazing and it is common to find that people with cirrhosis have already adopted this way of eating. Aim to eat something every two-three hours and eat a snack before bedtime, preferably something high in starchy carbohydrates such as cereal, porridge, rice pudding or shortbread.

Specific dietary measures for complications of cirrhosis

People with decompensated cirrhosis may develop complications such as fluid retention and hepatic encephalopathy, which need specific dietary advice in addition to any general advice they may receive. Your diet should be regularly reviewed by a registered dietitian with experience in advising liver disease patients, to ensure you are given the right advice based on your individual needs.

Snacks can help to increase your energy intake if you are underweight

Fluid retention

The liver plays a major role in regulating the balance of water and sodium (salt) in your body. When cirrhosis develops, the liver may lose this ability, leading to 'fluid retention'. This can result in swelling of the feet and legs (oedema) and in a build-up of fluid in the abdomen (ascites). The presence of ascites may cause abdominal discomfort and make it difficult to eat without feeling bloated and uncomfortable; this will make it hard for you to eat the food you need.

Fluid retention is generally managed with diuretics (water pills) and in certain circumstances, by the drainage of fluid from your abdomen (paracentesis). You may also be advised to reduce your salt intake. In general, people are advised to avoid adding salt to their food at the table and to avoid eating very salty food (see below).

If you are cutting down on salt, it is very important that you receive advice from a registered dietitian about the foods you can eat and those you should avoid. Foods you may think are low in salt can surprise you, and products that are labelled 'low-salt' may contain other electrolytes that it may not be advisable for you to have in excess – for example, potassium, which can cause heart problems.

Ideas for reducing your salt intake

The following ideas might help you to reduce your salt intake if you are advised to follow a 'no added salt' diet by your dietitian:

- Do not add salt to meals at the table. A small amount can be added during cooking if need be.
- Avoid very salty foods such as ham, bacon, sausages, frankfurters, salami and other cold cuts, Bovril, Marmite, other yeast extracts, sardines and anchovies.
- Avoid smoked fish and tinned fish in brine, including salmon, tuna and pilchards. Look for fish tinned in oil or water.
- Processed foods such as packet and tinned soups, tinned vegetables, including baked beans, ready meals and sauces may be high in salt but it does vary. You can check quite easily by looking at the information on the salt content on the package label. If there is more than 1.5g salt per 100g (or 0.6g sodium) then it is high in salt, anything with 0.3g salt or less per 100g (or 0.1g sodium) is low in salt.
- Certain bottled waters are high in sodium – check the labels carefully.

If you are struggling for how to add flavour to your food without salt then ground pepper, vinegar, herbs and spices can work well. Alternatively, try:

- Lemon juice on fish or meat
- Olive oil and vinegar with salad and vegetables
- Mustard powder or nutmeg with mashed potato
- Fresh herbs, lime, garlic, chilli and ginger with pasta, vegetables and meat dishes

It is also important to be aware that some prescription and over the counter medications have a high salt content. If the sodium content on the labelling of your medication is not clear, or you are unsure if it is suitable, your pharmacist or doctor should be able to advise you.

Hepatic encephalopathy

The liver is responsible for filtering and neutralising toxic materials that come from the gut. When cirrhosis develops this toxic material is no longer filtered effectively; it enters the blood circulation and can affect the brain, resulting in 'brain fog' or hepatic encephalopathy (sometimes referred to as 'HE').

Hepatic encephalopathy can result in loss of attention and concentration, and then confusion and loss of consciousness. These changes may occur in episodes, particularly when there is added stress on the liver caused, for example, by dehydration, constipation, infection, bleeding from the gut or not taking the prescribed medication. In some people with decompensated cirrhosis, features of hepatic encephalopathy may be present all the time.

Hepatic encephalopathy is treated with lactulose, which is taken as a syrup. This helps reduce the amount of toxin produced in the gut and increases the excretion of the toxin in the stools. The dose is varied to ensure passage of two semi-soft stools per day. Use of lactulose is associated with some abdominal bloating and wind but this does settle. It is extremely important that this medication is taken as prescribed; not taking the medication is one of the most common reasons for development of an episode of hepatic encephalopathy. If lactulose does not control the symptoms then an antibiotic called rifaximin may be added.

Historically, people with hepatic encephalopathy were advised to follow a low protein diet. It is now recognised that this is entirely the wrong approach and that a high protein diet is needed to help improve liver function. Many websites still wrongly suggest that people with hepatic encephalopathy should restrict dietary protein and some healthcare professionals working outside of specialist liver units may also not know about this change in management.

Patients with hepatic encephalopathy should follow the general guidance provided for patients with decompensated cirrhosis to eat a high protein, high calorie diet made up of four to five smaller meals throughout the waking hours, and to add a late night or bedtime snack.

Patients with hepatic encephalopathy may also receive the following advice:

- Avoid taking large amounts of protein in any one meal; spread your protein intake out over the day.
- Try to take as much of your daily protein allowance from vegetable sources as possible, as vegetable protein is better tolerated than dairy or meat. Try lentils, beans, peas, nuts, oatmeal, wild rice, soybean products such as soy milk, tofu and edamame.
- Protein from dairy sources such as eggs and cheese can be better tolerated than protein from meat sources; fish and poultry are better sources than red meat.

See page 29 for a list of protein foods and portion sizes.

Hyperglycaemia (high blood sugar) and diabetes

The liver plays a major role in controlling blood sugar levels. People with cirrhosis may develop high blood sugar levels or hyperglycaemia. In addition, many people with cirrhosis have underlying type 2 diabetes mellitus. Blood sugar levels may be particularly difficult to control in people with cirrhosis. It is important that you have regular monitoring with your specialist diabetes team if you have fluctuating blood glucose levels.

In addition to the general dietary advice given to all patients with cirrhosis you may also be advised to eat a diet that is high in complex carbohydrates, low in red meat and high in monounsaturated fats, with less than 10% of your energy intake from saturated fats. Careful monitoring of body weight is essential.

Bone disease

People with cirrhosis, particularly those undergoing liver transplantation, are at risk of developing osteopaenia/osteoporosis and are at high risk of bone fractures. People with cholestatic liver disease such as primary biliary cholangitis and primary sclerosing cholangitis and people with autoimmune hepatitis on long term steroid treatment are also at risk, even if they don't have cirrhosis. The diagnosis is made by bone density scanning (DXA scan).

If you have established osteoporosis or are at risk, you should be given calcium and vitamin D supplements. Factors that contribute to bone loss need to be minimised, including alcohol and tobacco use. Steroid medication should be reduced whenever possible.

Dietary advice for specific liver conditions

Alcohol-related liver disease

Drinking too much alcohol over a period of time can cause alcohol-related liver disease (sometimes referred to as 'ARLD'). The first stage of damage is the build-up of fatty deposits within the liver. If you continue to drink then the damage can progress, with one in five people who continue to drink excessively developing alcohol-related liver disease and then cirrhosis.

Abstinence from alcohol can result in complete reversal of liver damage for some people and is the single most important 'dietary' change that needs to be made. Even if the damage is extensive and can't be entirely reversed, stopping drinking is still beneficial and can prolong life. Some people may find it relatively easy to stop drinking but for others, it might be very difficult, and you may need support or medical assistance. Speak to your doctor or specialist for advice about this.

Alcohol provides 7 kcal/g, meaning that a bottle of spirit can provide 1,500 kcal. If you have been regularly consuming very large amounts of alcohol you may be advised to follow a high-protein, high-calorie diet to compensate for the energy lost when you stop drinking alcohol. You will also need to be given a high dose of thiamine (vitamin B1) as you will be prone to thiamine deficiency. Unless corrected, this can lead to the development of the Wernicke-Korsakoff syndrome, which has devastating effects on neurological and memory function.

Some people with alcohol-related liver damage may neglect their diet or eat a very unbalanced diet. As a result, they may lose weight and become malnourished. If this is the case, you will be advised to follow a well-balanced diet and may be given multivitamin supplements.

Some people with alcohol-related liver disease are overweight, as they continue to eat as normal whilst also drinking large amounts of alcohol. If this is the case, you will usually be advised to eat a calorie-restricted, high-protein diet, and should also receive multivitamin supplements.

Approximately 15-20% of people drinking excessively will develop cirrhosis, and should follow the advice on pages 8-10.

Autoimmune hepatitis

Autoimmune hepatitis (sometimes referred to as AIH) occurs when the body's immune system develops antibodies against its own liver cells. This causes inflammation within the liver and may eventually result in cirrhosis. If you have autoimmune hepatitis, you should eat a well-balanced diet and may need to increase your energy and protein intake if the disease progresses.

Steroids are used to damp down the inflammation within the liver and generally provide good control of the disease. The use of steroids can result in an increase in appetite and lead to weight gain. If this is a problem then your doctor may suggest specialist help from a registered dietitian.

If unplanned weight gain becomes a problem then calorie-rich foods – including sugar, sweets, cakes, biscuits, fried food, pasties and pies, crisps and chocolate – should be avoided or minimised. Low fat milk and spreads should be used instead of higher fat options, and protein levels should be kept high to prevent muscle wasting by choosing fish, chicken, other lean meats, legumes, beans and pulses.

The use of steroids, particularly if long-term, is a risk factor for osteoporosis. Other immune suppressant drugs may be added in order to reduce the dose of steroids used, and supplements of calcium and vitamin D may be provided.

Gilbert's syndrome

Gilbert's syndrome is a common benign condition found in up to one in ten men, in which the amount of bilirubin (a chemical compound) in the blood is raised. It is also less commonly found in women. Avoid crash diets or fasting as this may cause your bilirubin levels to rise. Dehydration can also have the same affect. It is important to eat regularly and healthily, and drink plenty of water.

Generally people with this condition have no specific dietary difficulties or requirements.

Haemochromatosis

This is a genetic condition which results in excess accumulation of iron in several organs in the body, including the liver. Treatment with regular removal of blood

by venesection is a very effective means of removing the excess iron and is the only treatment needed.

In general people with haemochromatosis do not need specific dietary advice, although you may be cautioned to:

- Avoid taking supplements or multi-vitamins which contain iron
- Avoid taking supplements which contain vitamin C as this may increase iron absorption
- Keep alcohol intake to a minimum as this may also affect iron absorption and can accelerate liver damage.

Approximately 10% of people with haemochromatosis will develop cirrhosis and should follow the general dietary advice given on pages 8-10.

Metabolic dysfunction-associated steatotic liver disease (MASLD)

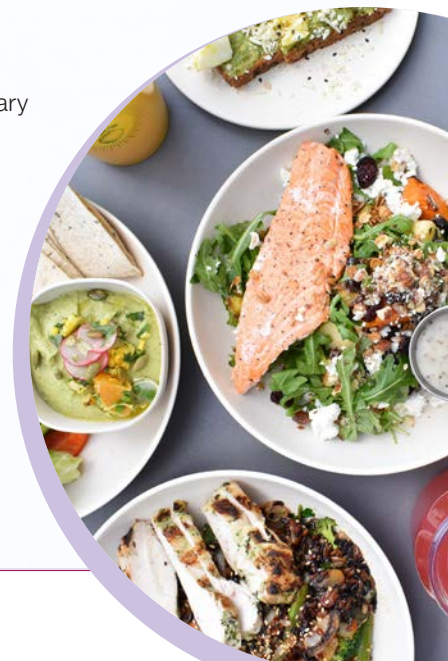
Metabolic dysfunction-associated steatotic liver disease (MASLD) is a term used when excess fat is present in the liver of someone who does not drink alcohol excessively.

There are a number of risk factors for developing MASLD including:

- Obesity
- High blood lipids
- Diabetes
- Insulin resistance – for example, polycystic ovary syndrome
- Underactive thyroid.

In approximately 10% of people, MASLD will progress to metabolic dysfunction-associated steatohepatitis (MASH) and eventually cirrhosis.

As many people with MASLD are overweight, weight loss is often key to improving the disease. Even 5-10% weight loss can make a big difference. You may benefit from advice from a registered dietitian, who will be able to help you not only with your diet but also lifestyle changes.



If you are diagnosed with MASLD and need to lose weight, you may be advised to:

- Reduce portion sizes at mealtimes – try using a smaller plate
- Eat slow-release starchy foods at each meal, choose wholegrain options such as wholemeal bread, pasta and rice but watch your portion sizes
- Limit refined sugars – for example, in chocolate, cakes and biscuits
- Limit saturated fats – for example, in bacon, pastries, butter, pork pies
- Eat plenty of fruit and vegetables – aim for five different portions daily
- Cut out or down on alcohol (remember, alcoholic drinks are often high in calories)
- Take regular exercise, such as walking or swimming.

If you have any other risk factors such as diabetes or high blood lipids, you may need additional dietary advice for these alongside any necessary medication.

For more information on sustainable weight loss for people with MASLD, read our booklet '[Treating MASLD with a healthy diet and physical activity](#)'.

Primary biliary cholangitis and primary sclerosing cholangitis

Primary biliary cholangitis (PBC) and primary sclerosing cholangitis (PSC) are autoimmune conditions in which the immune system attacks the biliary system, which is responsible for conveying bile into the intestine. Impaired flow of bile to the small intestine results in poor absorption of fat and the fat soluble vitamins A, D, K and E, which are needed for a variety of important functions.

People with these conditions may not have any symptoms associated with fat malabsorption, while others develop symptoms of fat intolerance such as nausea, bloating and abdominal discomfort if they eat even moderate amounts of dietary fat. As the disease advances, the amount of fat excreted in the stools increases (steatorrhoea) and they become bulky, pale and have a tendency to float in the toilet pan.

People with PBC/PSC vary in the amount of fat they can tolerate. Most find they are able to work out their tolerance level through 'trial and error' by reducing their intake of higher fat foods.

Stools become less frequent, darker and easier to flush away. If, however, steatorrhoea is still troublesome then specialist dietary advice will be needed in

order to reduce dietary fat intake while keeping energy and protein levels relatively high. Fats contain the fat-soluble vitamins A, D, K and E, and these may need to be supplemented. Oral supplements can be given but as the disease progresses it may be necessary to provide the supplements monthly by intramuscular injection.

As people with PBC and PSC are prone to bone disease, calcium supplements will usually be given alongside vitamin D.

People with PBC and PSC may develop cirrhosis, in which case the dietary recommendations for cirrhosis on pages 8-10 should be followed.

Viral hepatitis

Acute viral hepatitis

If you have a short-term (acute) hepatitis infection, for example hepatitis A, you should try to eat a normal diet. However, some people may need extra nutrition to prevent unplanned weight loss, and may benefit from a high-energy and high-protein diet. A dietitian can advise on this.

If you develop nausea and vomiting, the advice on page 21 about coping with eating difficulties may help.

Some people with acute hepatitis develop an aversion to alcohol in the acute phase. Previously people with this condition were told to avoid alcohol for six months following the illness. This advice is no longer thought necessary.

Chronic hepatitis B or C

If you have a long-term hepatitis infection (when infection lasts longer than six months) caused by a virus such as hepatitis B or hepatitis C, you can eat a



normal, well-balanced diet. Avoid drinking alcohol in more than small amounts, as this can increase your risk of developing more severe hepatitis-related liver disease, and interfere with the effectiveness of treatment.

Try to maintain a body weight appropriate for your height and build. Maintaining a healthy weight is important, as obesity can also increase your risk of developing more severe hepatitis-related liver disease, and have an impact on how well you respond to treatment.

Some people develop a poor appetite, nausea and vomiting and unintended weight loss during treatment with anti-viral agents. See the section on 'Coping with eating difficulties' opposite for advice on how this can be managed.

Approximately 10% of people with chronic viral hepatitis develop cirrhosis, and should follow the dietary advice provided on pages 8-10.

If you have hepatitis C, there are now safe treatments available that can successfully eliminate the virus.

Wilson's disease

Wilson's disease is a genetic condition which results in the accumulation of excess copper in several organs in the body, including the liver. The condition is treated using a copper-chelating agent such as D-penicillamine, to bind copper in the tissues and remove it in the urine. It can also be treated using zinc supplements to block the absorption of copper from food in the intestine.

Most foods contain copper, and some foods contain large amounts – for example, chocolate, nuts, mushrooms, shellfish and offal. When you are diagnosed you will probably need to follow a low copper diet while your treatment starts to work.

D-penicillamine can increase your body's requirement for pyridoxine (vitamin B6) so people being treated with D-penicillamine may need additional supplements.

The proportion of people with Wilson's disease who develop cirrhosis varies, as it very much depends on age at diagnosis and response to treatment. Those who develop cirrhosis should follow the dietary advice provided on pages 8-10.

Coping with eating difficulties

Some people with liver disease find eating the right diet difficult, especially if they have been seriously ill. This may be because of a loss of appetite, nausea, vomiting, abdominal discomfort/pain, fatigue or even anxiety and depression. However, it's important that you eat as well as possible.

Loss of appetite

If you are finding it difficult to eat enough, the following may help:

- Eat small but frequent meals – little and often
- Nutritious snacks may be better than one big meal
- Try to eat something every two hours, however small
- Tempt yourself with foods you like; you don't have to have a 'proper meal', snacks are often easier to eat
- Don't force yourself to eat food you don't like
- Try to relax before and after you eat
- Take your time over eating – chew well and breathe steadily
- If you don't feel like solid food, try a nourishing drink
- Cold dry foods may be easier to take, such as biscuits or sandwiches.

Nourishing drinks including homemade fruit milkshakes or smoothies and oral nutritional supplements may help, but it is a good idea to check with your doctor or dietitian first to see if they are suitable for you. Milkshakes and smoothies can be made by blending fresh fruits with milk, fruit juice, ice cream or yoghurt. You can also include honey and two to three teaspoons of powdered drink supplement.

Alternatively, aim to have one pint of full cream milk over the course of the day (eg three glasses daily). You can add a few scoops of dried skimmed milk powder to increase the calorie and protein content without altering the taste. Use the milk in tea, coffee, hot chocolate, smoothies, sauces and puddings.





Nutritional supplements are also available in sweet or savoury flavoured powder form and can be mixed with milk or water.

Your doctor or dietitian may prescribe these. They can be taken in-between meals and before bed – this is especially helpful if you are only eating small amounts. You can purchase some options over the counter such as Complan milkshakes and Meritene soups.

Non-flavoured high-energy or protein powders can also be prescribed. These powders are virtually tasteless and can be added to drinks, soups, sauces, gravies, casseroles and other foods.

Nausea

If you feel nauseous, the following may help:

- If some smells make you feel sick, try a breath of fresh air before you eat
- Keep your mouth fresh by brushing your teeth, using a mouthwash or sucking mints
- Don't let yourself get too hungry – hunger makes nausea worse
- Try to eat something every two hours, even if it's only a small amount
- Cold snacks may be easier to cope with than a hot main meal
- Likewise, dry foods can be easier to face, so nibbling on crackers or plain biscuits may help
- Is there a pattern? Do you always feel sick at the same time of day? If so, try eating at other times
- Avoid eating when you are very tired – rest and relax first
- Try sipping cold drinks slowly through a straw.

Looking after yourself: Q&A

I do not have alcohol-related liver disease so can I drink alcohol?

People with alcohol-related liver disease should stop drinking alcohol for life.

If your liver disease is not alcohol-related, and you are concerned about whether you can drink alcohol, discuss it with your doctor. If your doctor says you can drink alcohol, stick to government guidelines and drink no more than 14 units a week, with 3 consecutive alcohol-free days each week. However, the lower your alcohol intake the better.

Remember that alcohol is a significant source of calories. For example, a 330ml can of 5% beer contains around 129 calories and a 175ml glass of wine (12%) has about 158 calories (for comparison, a Cadbury Mini Roll contains 115 calories and a 330ml can of Coca-Cola contains 139 calories). These are 'empty calories' and can cause unhealthy weight gain.

Alcohol can worsen the liver damage caused by other rarer genetic or autoimmune liver diseases, non-alcohol related liver disease, chronic viral hepatitis or haemochromatosis. It can also increase the risk of bone disease and may interfere with a number of commonly prescribed medications.

What is a 'fad' diet and are they safe?

Fad diets are usually weight loss diets that promise you can lose weight quickly. These diets usually involve crash dieting; calorie intakes may be drastically reduced or certain food groups such as carbohydrates removed almost entirely. These diets tend to provide a short-term fix but are difficult and potentially dangerous to maintain in the longer term. They are generally not recommended for people with liver disease.

I have read about diets that 'detox' your liver – should I try one?

There are diets that recommend certain foods to help your liver 'detox' or promote 'liver cleansing'. However, you cannot physically detox your liver. There is no evidence that toxins build up in the liver and some of these diets can be dangerous for people with liver disease.

Should I take dietary supplements?

Dietary supplements are not an alternative to eating a well-balanced diet. Your body needs a wide range of vitamins and minerals to be able to function correctly, and the best way to ensure an adequate supply of these is to eat a variety of foods. You should always consult your doctor or dietitian before considering taking supplements. If you are prescribed supplements, you should always take them.

Can I take complementary and alternative medicines?

A great deal of information is available online and in the media about complementary and alternative treatments for liver disease. **It is important to seek advice from your doctor before considering use of these products.** Many are based on herbal preparations which may themselves cause liver damage in susceptible people, so at present healthcare professionals do not believe that they have a place in the management of people with liver disease. More research is needed on the use of such therapies.

As the majority of these products are not classified as medicines they are not licensed. This means that their production is not controlled and there is no requirement for them to undergo rigorous testing for quality or effectiveness. It is possible that these often-expensive products may either have no effect or even be harmful.

Does milk thistle help the symptoms of liver disease?

Milk thistle is an over-the-counter supplement which is advertised as a natural treatment for jaundice, hepatitis, cirrhosis and gallbladder disease. The active ingredient of milk thistle is silymarin, which is believed to have antioxidant properties. The evidence that milk thistle is an effective treatment for liver disease is conflicting, with no strong evidence to support its use. In addition, it could result in low blood sugar levels.

It might also interfere with the actions of drugs such as diazepam (sedative), warfarin (anticoagulant) and metronidazole (antibiotic). Of particular concern is the fact that taking milk thistle might change the way the body processes sirolimus, an immunosuppressant used following liver transplantation. **Do not use milk thistle without discussing it with your doctor.**

Useful terms

Amino acids – the compounds that make up proteins. Proteins in the human body are made of 20 different amino acids that are either manufactured by the body or absorbed from your diet.

Bile – a yellow-green fluid produced by the liver, which passes into the small intestine. It contains bile acids which are critical for digestion and absorption of fats and fat-soluble vitamins. It also contains waste products such as bilirubin.

Bowel – another name for the intestine or gut; it runs from the stomach to the anus. It is split into two main sections, the small intestine (where food is broken down and absorbed) and the large intestine (which receives the processed food, absorbs water and salt, and forms solid waste).

Calories – units of energy, measured as kilocalories (kcal) or kilojoules (kJ).

Carbohydrates – a substance that provides energy or fuel for your body. ‘Simple’ carbohydrates are sugars, as found in fruit, honey and jam. ‘Complex’ carbohydrates are starches, and are found in bread, rice and potatoes.

Compensated cirrhosis

– a stage of cirrhosis at which the liver is scarred with nodules but there are enough healthy cells for the liver to perform its functions adequately.



Useful terms (continued)

Decompensated cirrhosis – where the liver is not capable of performing all of its normal functions. People may experience a variety of symptoms, including ascites, bleeding varices, jaundice and hepatic encephalopathy.

Glucose – a simple sugar and main source of 'quick' energy for the body (it is the sole source of energy for the brain).

Glycogen – a form of carbohydrate stored in the liver and the muscles, It is easily changed back to glucose when the body needs energy quickly.

Hepatic – anything to do with the liver.

Intestine – another name for the gut or bowel.

Malnourished – a serious condition that happens when your diet does not contain the right amount of nutrients. It means "poor nutrition".

Nutrients – a substance required from our diet for growth and energy production. Nutrients can be 'organic', such as carbohydrates, fats, proteins and vitamins, or 'inorganic', such as water and minerals.

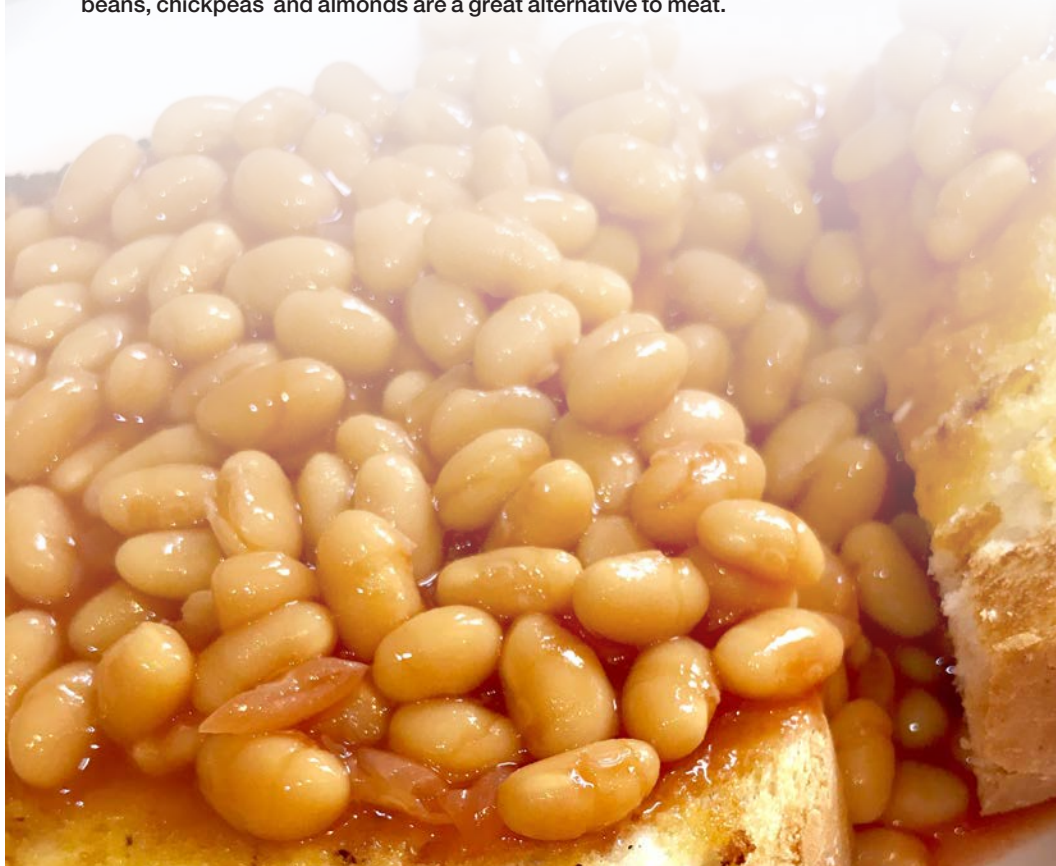


Protein content in foods

The list opposite may help you to plan meals if you have been advised to increase your protein intake because you have cirrhosis. See page 8 for more information on this.

Good sources of protein

Foods such as beans, pulses, nuts, fish, eggs and meat are good sources of protein, vitamins and minerals. Plant-based sources of protein such as baked beans, chickpeas and almonds are a great alternative to meat.



Approximate protein content:

Food	Approximate serving	What does this look like?	Protein (g)
Chickpeas	120g	6 tablespoons or half a can drained	8
Kidney beans	120g	6 tablespoons or half a can drained	9
Baked beans	200g	Half a can	10
Walnuts	20g	Amount that fits in your palm	4
Whole almonds	20g	Amount that fits in your palm	6
Cashew nuts	20g	Amount that fits in your palm	5
Chicken	100-145g	1 chicken breast	34
White fish eg cod	100-140g	1 small fish fillet	23
Oily fish eg salmon	100-140g	1 small fish fillet	25
Canned tuna	120g	Medium sized can	27
Prawns	80g	25 prawns	14
Minced Beef	125g	Half the size of your hand eg 1 beef burger	26
Pork	100g	Half the size of your hand eg 2 sausages	17
Lamb	100g	Half the size of your hand eg 1 lamb chop	18
Milk	200ml	1 glass	7
Yoghurt	120-150g	1 yoghurt	5-7
Cheddar cheese	30g	About the size of two thumbs eg 1 slice	8
Cottage cheese	100g	About 3 tablespoons	9
Eggs	60g	1 medium egg	7
Hummus	55g	3 tablespoons	3.5
Tofu	80g	Use the size of the pack as a guide	6.5
Quorn mince	100g	Use the size of the pack as a guide	14
Soya milk	200ml	1 glass	6
Oat milk	200ml	1 glass	1-2

Further reading

NHS website (www.nhs.uk)

Government website with an A-Z of health conditions and medications, plus how to access NHS services in your area.

British Dietetic Association (www.bda.uk.com)

The British Dietetic Association publishes a range of useful food factsheets and dietary information on its website.

Further information

Liver UK publishes a large range of leaflets about the liver and liver conditions. Find these at www.liveruk.org/publications. Leaflets that you may find particularly helpful include:

- Treating MASLD with a healthy diet and physical activity
- Metabolic dysfunction-associated steatotic liver disease (MASLD)
- Alcohol-related liver disease
- Living with liver disease

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This leaflet is for information only. Professional, medical or other advice should be obtained before acting on anything contained in the leaflet as no responsibility can be accepted by the Liver UK as a result of action taken because of its contents.

**For a list of references for this booklet, please contact the Liver UK.
Call 0300 1311 292 or email info@liveruk.org**

We hope you have found this publication helpful

All our publications are reviewed by medical experts and people living with liver disease. If you have any feedback on this publication please email us at info@liveruk.org.

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Liver UK is the UK's leading charity dedicated to supporting adults, children and young people affected by liver disease or liver cancer. Our mission is to transform liver health by raising awareness, promoting prevention, and improving care and support for everyone affected.



liveruk.org
info@liveruk.org
0300 1311 292

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