

Diet and liver disease

High energy, high protein, low salt

Information for patients

**This booklet is designed to be used alongside
personalised advice from your dietitian.**

Your liver has lots of roles and when you have liver disease it can become less effective. One of those roles is metabolism:

- Converting food into energy.
- Storing that energy.
- Slow releasing the energy to your body.

When your liver is not able to do this, the energy from the food you eat only lasts about two to three hours. If you have not eaten for more than two to three hours, your body will start to make the energy it needs by breaking down your muscles.

Signs your body might be breaking down your muscles include:

- Feeling weak/loss of strength.
- Fatigue.
- Difficulty recovering from illnesses or recurrent illness.

To prevent this from happening, it is important to eat regularly – aiming for every two to three hours.

Carbohydrate

When you eat carbohydrate, it is broken down into glucose (sugar). This is your body's main available energy source.

Your liver changes some of this glucose into glycogen, which is the stored version of glucose. The stored glycogen is slowly released when it is needed, especially if glucose availability is low. For example, between meals or overnight.

When you have liver disease, this storage and slow release of energy do not happen in the same way. Energy from the food you eat only lasts for about two to three hours. When it runs out, your body will start breaking down your muscles for energy instead (known as catabolism).

To prevent this from happening, you need to top up your energy regularly by eating meals and snacks containing carbohydrate every two to three hours.

Starchy carbohydrate foods:

- Breakfast cereal.
- Bread, rolls, pitta, chapati or roti and naan.
- Pasta, rice, noodles and couscous.
- Potatoes, yam and plantain.

Choose higher fibre versions, such as brown or wholegrain varieties, where possible.

What if you have diabetes?

When you eat carbohydrate, it is broken down into a sugar called glucose. Glucose is released into your blood stream – your body needs the hormone insulin to use this glucose for energy.

When you have diabetes, you may not produce enough insulin or the insulin you do produce does not work as it should. This means your blood glucose level becomes too high. It is important to control your blood glucose for overall health.

When you have liver disease, you need to have regular carbohydrate for energy. Your diabetes team may be concerned about you having meals and snacks this frequently as it may lead to your blood glucose levels increasing. However, it is important that you work with them to manage this medically – **do not avoid carbohydrates to control your diabetes** when you have advanced liver disease.

All foods that contain carbohydrate will affect your blood glucose, but the type of carbohydrate and amount you have makes a difference.

Carbohydrates can be split into ‘starchy carbohydrates’ and ‘simple sugars’. To prevent your blood glucose level becoming too high, avoid large servings of carbohydrate and reduce foods containing simple sugars.

Protein

When you eat protein, it is broken down into amino acids. These are the building blocks of your body. Your body uses amino acids to build and repair body tissues.

When your liver is not working properly, your body needs more protein than usual. Extra protein in your diet can help to prevent muscle breakdown and rebuild lost muscle.

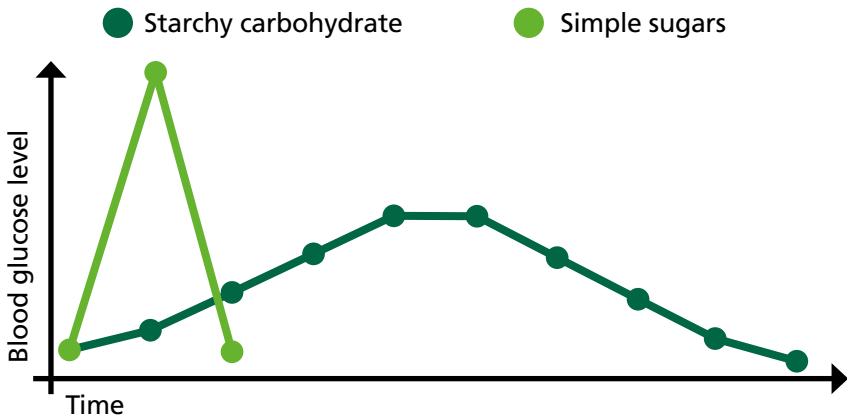
Protein foods:

- Meat, poultry and fish.
- Milk, cheese and yogurt.
- Eggs.
- Pulses – peas, beans and lentils and daal.
- Soya products – tofu, soya milk or cheese.
- Some other meat alternatives – Quorn, seitan and tempeh.

Your body uses protein better if the amino acids are topped up frequently. Try to include a good source of protein at each meal and alongside your carbohydrate source with snacks.

Carbohydrate type and blood glucose

The diagram below shows the effect the two different types of carbohydrate have on blood glucose levels. Simple sugars and foods containing them are often digested quickly and can cause a rapid rise in blood glucose. Starchy carbohydrate is broken down more slowly, releasing a steady supply of glucose into the blood.



Simple sugars:

- Fizzy drinks, squash.
- Sugar, including in drinks.
- Cakes and biscuits with sugar or jam.
- Sweets.

Lower sugars alternatives:

- Sugar-free, diet or no added sugar fizzy drinks and squash.
- Try artificial sweeteners instead.
- Plain biscuits or cakes. For example, rich tea, digestive, ginger nut, fruit cake, plain sponge cake.
- Try sugar free sweets but remember too many sweets may cause diarrhoea. A snack could be a better option.

Fruits and vegetables

Fruits and vegetables are important for vitamins, minerals, and fibre. But some are not a good source of carbohydrate, or they do not contain protein.

Because they are high in fibre, fruits and vegetables can fill you up. If you are finding it hard to eat enough food, losing weight, or feeling less strong, try not to fill yourself up in this way. Focus instead on foods with more carbohydrate and protein.

Try to include a couple of portions of fruit, vegetables, and salad every day. If you are eating well, aim for five portions per day.

Examples of one portion of fruit or vegetable:

- One medium fruit – apple, orange, banana.
- Two small fruits: plums, satsumas, apricots.
- One handful of grapes or berries.
- One dessert-size bowl of salad.
- Two to three tablespoons of vegetables.

Between meal snacks

It is important to have snacks between meals to protect your muscles by topping up your energy every two to three hours.

Try to include snacks that contain carbohydrate and protein. However, if your appetite is low, you may find it easier to focus on carbohydrate snacks. This will ensure that your body is getting a regular supply of energy.

Below are some ideas for convenient items that are quick to grab or prepare; purchased pre-prepared items can contain similar nutrition – just be mindful of salt content.

Carbohydrate snacks:

- Bread (including rolls, bagels, pittas and crumpets).
- Biscuits (including crackers, oat and rice cakes).
- Cakes (including scones, muffins and sponges).
- Cereals (including oats, muesli and bars).
- Snacks (ensure low salt; including Bombay mix, corn and rice).
- Grains (rice, quinoa and couscous).
- Potatoes and vegetables (for example, carrot batons or potato salad).

Additional protein:

- A tub of yogurt.
- Nuts and nut butters.
- Hummus.
- Cheese.
- Sliced cold meat or chicken.
- Tuna.
- Beans and lentils.
- Falafels.
- Boiled egg.
- A glass of milk.
- Ready to drink milkshakes.

Bedtime snacks

The longest time you are likely to go without eating is overnight while you are sleeping. During this time, you will not be able to eat every two to three hours. To provide your body with the energy it needs overnight and protect your muscles, you need a bedtime snack.

Similar to between meals, this can be a combination of carbohydrate and protein. Or, if your appetite is low, focus on just carbohydrate. Below are some ideas. If you are confident reading food labels, aim for 50g of carbohydrate.

Snack suggestions containing 50g of carbohydrate

- Two thick slices of bread or toast, crumpets or pitta breads.
 - Add protein by including a filling or topping, for example, egg, tuna, meat, cheese or hummus.
- Four rice or oat cakes topped with peanut butter and banana.
- A large bowl of cereal or porridge with milk and a banana.
- A 300 ml glass of milk with four large or six small biscuits.
- An individual serve sponge pudding with custard.
- A large bowl of yogurt and fruits.*
- A cereal bar or slice of cake and a bowl of fruit.*
- A supplement drink, as recommended by your dietitian.

*Some fruits contain more carbohydrate than others. Consider choosing higher carbohydrate options, such as banana, pineapple, mango, kiwi, grapes, pears and cherries. Tinned and frozen varieties can be easy to store and ready prepped.

Favourite snacks

Please use this page to document snacks that you like / combinations that you have found fit well into your dietary pattern.

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Nutrition support

When appetite is low and malnutrition is a concern, nutrient dense foods and drinks can boost nutrition without requiring large portions.

If large meals feel overwhelming, try eating smaller amounts more often – about six to eight times a day. This ‘little and often’ approach is especially helpful in liver disease, where eating every two to three hours supports muscle retention. It can also help overcome other barriers, such as pressure on the stomach from fluid build-up.

A simple way to identify nutrient-dense foods is to ask yourself if it was designed by nature to support new life? Examples include eggs, milk, seeds and nuts.

Examples of nutrient dense foods:

- Cheese – grate and add to soup or potatoes or eat as a snack with crackers.
- Yogurt – add to desserts or cereal or top with fruit for a snack.
- Dried skimmed milk powder – mix into milk to increase nutrition and use as normal or add directly into puddings, soups, or potato dishes.
- Egg – cook however you like and add to snacks or meals.
- Nuts, seeds and nut butters – add to sweet or savoury dishes, mixed in or as a topping.

Supplement drinks

If you can't eat enough to meet your requirements for energy and protein through diet, you may be prescribed nutritional supplement drinks. These products are designed to deliver energy and protein in a small volume.

There are many types and brands of supplement drinks:

- Milky, smoothie or juice styles.
- Powdered or ready-to-drink.
- Larger volume, compact or shot-style.
- Higher-protein, energy or lower-fat.

Your dietitian can discuss which type may best meet your needs and may be able to send you samples to find a product that you prefer.

If you have diabetes, be aware that some ready-to-drink products, particularly juice-based supplements, may cause your blood sugar to rise quickly, so should only be taken following your dietitian's advice.

Supplement tips:

- Take supplement drinks between meals so that you do not spoil your appetite for food.
- Keep supplements in the fridge, or serve with ice, as they generally taste better chilled.
- Supplements can be frozen, blended with other ingredients (for example, fruit or ice cream), or mixed into food items (for example, porridge), to make them easier to drink or eat.

Fluid shifts

Ascites and weight

Ascites is fluid collection around your middle. This fluid gain can cause your weight to increase a lot. Some people can hold more than 20kg (3 stones) of fluid in ascites.

Oedema and weight

Oedema is fluid collection in body tissues and often occurs in the feet, ankles and legs. This can also increase your body weight and hide loss of muscle or fat.

If your weight changes very quickly, this is more likely to be due to fluid shifts than changes in muscle or fat. Muscle and fat change much more slowly. However, changes in ascites and oedema often hide the loss of muscle or fat.

Monitoring changes to your body shape, and how strong you feel, are more reliable measures of muscle and fat loss. Muscle loss tends to be more visible on the upper body – arms, back, chest and shoulders.

Speak to your dietitian or doctors if you notice that you are losing muscle and/or fat.

How do I reduce ascites and oedema?

Reducing the salt in your diet can help to decrease the ascites and oedema.

Reducing salt

Where does salt come from in a normal diet?

- 10% of salt is naturally found in foods.
- 20% of salt is what we add to foods during cooking or at the table.
- 70% is present in processed or convenience foods. For example, tinned foods, ready meals and savoury snacks.

How much is too much salt?

- Aim for no more than 5g of salt per day.
- Check food labels to see how much salt foods contain.
- Some food labels will have a traffic light system to indicate salt content.

	High per 100g (red)	Medium per 100g (orange)	Low per 100g (green)
Salt	More than 1.5g	0.3 to 1.5g	Less than 0.3g
Sodium	More than 0.6g	0.1 to 0.6g	Less than 0.1g

Likely higher in salt:

- Tinned and packet soups.
- Jar and packet sauces.
- Stock cubes.
- Salted or cheese flavoured snacks.
- Chilled, frozen or microwave meals.

Lower salt alternatives:

- Homemade soups and sauces with alternative flavourings (see next page).
- Unsalted snacks, nuts, rice cakes and crackers.
- Healthy eating options often have less salt – check labels.

Tips for reducing the salt in your diet:

- Don't add salt to food at the table.
- Avoid salt substitutes like LoSalt or Pansalt.
- Use only a small pinch of salt in cooking and try other flavourings instead (see below).
- Gravy and sauces often contain salt – they're okay to use if no other salt is added to the meal.
- Check labels on ready-made foods (for example, pizza, pasties, quiche, breaded fish or chicken) and choose lower-salt options.

Alternative flavourings

Herbs (dried or fresh): Mint, parsley, bay leaf, chives, dill, rosemary, marjoram, tarragon, coriander, basil, oregano.

Spices*: Nutmeg, cardamon, peppercorns, turmeric, all spice, cloves, paprika, fennel seed, cayenne pepper, ginger.

*Ensure spice mixes do not include salt as an ingredient.

Fruits: Lemon, lime, orange, apricots, pineapple.

Other: Garlic, chilli, chopped spring onion, mustard.

Notes and questions

Please use this page to write down any notes or questions that you would like to ask your dietitian or medical team.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

Additional resources and condition-specific support:

- British Liver Trust: www.britishlivertrust.org.uk
- AIH Support: www.aihsupport.org.uk
- AMMF The Cholangiocarcinoma Charity: www.ammf.org.uk
- Cancer Research UK: www.cancerresearchuk.org/about-cancer/liver-cancer
- Liver4Life: www.liver4life.org.uk
- PBC Foundation: www.pbcfoundation.org.uk
- PSC Support: www.pscsupport.org.uk
- Wilson's Disease Support Group UK: www.wilsons-disease.org.uk

Further sources of information

NHS Choices: www.nhs.uk/conditions

Our website: www.sfh-tr.nhs.uk

Patient Experience Team (PET)

PET is available to help with any of your compliments, concerns or complaints, and will ensure a prompt and efficient service.

King's Mill Hospital: 01623 672222

Newark Hospital: 01636 685692

Email: sfh-tr.PET@nhs.net

If you would like this information in an alternative format, for example large print or easy read, or if you need help with communicating with us, for example because you use British Sign Language, please let us know. You can call the Patient Experience Team on 01623 672222 or email sfh-tr.PET@nhs.net.

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