



Diet and Liver disease high protein, high energy diabetes

Introduction

When you have liver disease, your body needs extra protein and energy. The energy from food you eat only lasts for two to three hours. Some of the energy from food and drink is broken down into a sugar called 'glucose'. Glucose is released into your blood stream. The body uses a hormone called insulin to use this glucose for energy.

The rest of the energy is converted into glycogen. Glycogen is an energy store kept in the liver and muscles. This is a back-up energy store for use when needed between meals or overnight. In liver disease, glycogen storage is reduced.

When living with **diabetes** and **liver disease**, you may be unable to use the insulin your body produces, and you have reduced energy stores (glycogen). This can worsen blood sugar control and increase muscle breakdown for energy.

If this continues, it can lead to:

- Malnutrition – muscle wasting and weight loss
- Frailty – difficulty recovering from illness

Malnutrition and frailty can happen because of several reasons, such as:

- Not eating enough nutrients in your diet
- Losing your appetite and not feeling like eating
- Feeling sick with nausea and vomiting
- Getting full easily, so you can't eat enough
- Following unnecessary or inappropriate dietary restrictions

Eating the right food is essential to help you feel better. Appropriate nutrition will help to do the following for you:

- Stop your muscles from wasting away and make you feel stronger
- Keep strength and mobility
- Reduce the number of times you may need to go to the hospital
- Help your body heal wounds faster. Speed up your recovery from operations and infections
- Manage symptoms like ascites (build-up of fluid in the abdomen)
- and encephalopathy (confusion caused by liver disease) and support your recovery
- Maintain steady blood sugar levels

You must work with your diabetes team and specialist dietitian to find the balance between giving you enough energy to stop your body using muscle for energy and keep your blood sugar levels well controlled.

The advice over the following pages will help you understand how to include foods that give you the protein and energy you need, whilst helping to manage blood glucose and limiting the risk of blood glucose spikes.

Carbohydrates

When you have liver disease, you need to have regular carbohydrate for energy.

Carbohydrates will affect your blood glucose but the timing, amount and type you have had make a difference.

It is important not to avoid carbohydrates to control your diabetes when you have advanced liver disease.

Timing

With liver disease it is important to have meal or snack every two to three hours.

Amount

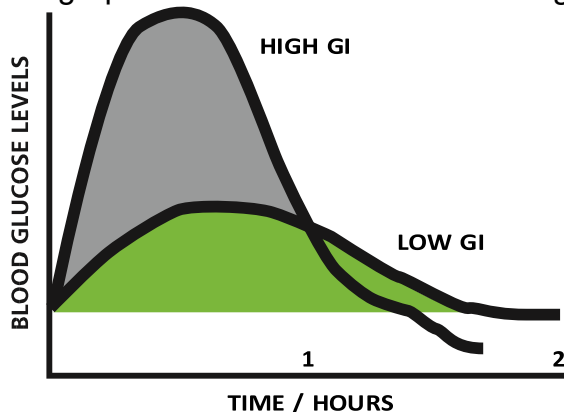
This is the amount of carbohydrate within the snack (gram). Try to eat regular, consistent portions of carbohydrate at mealtimes. Eating similar portions of carbohydrate at each mealtime helps to keep your blood glucose level more stable.

Type

Choose carbohydrate foods that are broken down slowly by the body. The glycaemic index (GI) describes how quickly the body breaks down carbohydrate into glucose and absorbs it into the body. Food containing carbohydrate is given a GI value. • Low GI foods raise blood glucose slowly

- High GI foods raise blood glucose quickly

The graph below shows how low and high GI foods affect blood glucose over time.



Your diabetes team may be concerned about you having meals and snacks this often as it may lead to your blood glucose levels increasing. However, it is important that you work with them to manage this.

Use the suggestions on the following pages to choose meals and snacks that have slower release carbohydrate. Remember to monitor your portion size as this has a greater effect on blood glucose than the type of carbohydrate.

Each meal should include a reliable source of starchy carbohydrate for slow-release energy. Choose higher fibre versions, such as brown or wholegrain varieties, where possible.

Starchy carbohydrate foods include:

- Wholemeal, granary or seeded bread, rolls, pitta, chapati/roti, and naan
- Potatoes, sweet potato, and yams
- Porridge oats, low-sugar breakfast cereal, for example Bran Flakes, Weetabix, All Bran
- Rice, couscous quinoa and bulgur wheat
- Wholegrain or lentil pastas

Lower sugar alternatives

Food and drinks high in sugar	Lower sugar alternatives
Fizzy drinks, squash	Sugar-free, diet or no-added sugar fizzy drinks and squash (pure and fresh fruit juice are best taken with a meal)
Sugar, sugar in drinks	Try artificial sweeteners instead
Sweets	Try sugar-free sweets but remember too many may cause diarrhea! Snacks on pages 7 are a better choice
Cakes, doughnuts, pastries, and biscuits with sugar, icing or jam	Plain biscuits or cakes, for example rich tea, digestive, plain sponge cake

Protein

Protein is essential to build and repair body tissue.

When your liver is not working properly your body needs more protein than usual. Snacks are a good opportunity to include more protein in your diet and help towards your daily target. Protein snacks are less likely to increase your blood glucose levels, so they may be better tolerated if you are struggling to control your blood glucose level. Please discuss this with your specialist dietitian first who will be able to advise.

Extra protein in your diet can help to prevent further muscle breakdown and re-build lost muscle.

Examples include:

- Lean meat and poultry
- Fish
- Cheese, yoghurt, milk, and milk alternatives (try to choose soya milk/yoghurt as it contains more protein than other plant-based options)
- Eggs
- Pulses such as peas, beans (including baked beans) and lentils/dhal
- Meat alternatives such as tofu, soya, seitan, tempeh and Quorn

Fruit and vegetables

Fruit and vegetables are important for vitamins, minerals, and fibre, but they are not a reliable source of carbohydrate or protein.

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

If your appetite and food intake are poor or you need to gain weight or muscle, try not to fill yourself up on these foods.

Examples of 1 portion of fruit or vegetables include:

- 1 medium fruit, for example apple, orange, banana
- 2 small fruits, for example plums, satsumas, apricots
- 1 dessert-size bowl of salad
- 2–3 tablespoons of vegetables
- A handful of grapes or berries

Between meal and bedtime snacks

At bedtime, you need a snack to provide your body with the energy it needs overnight and to protect your muscle.

Based on your appetite and weight, your dietitian will advise on whether this snack should have a higher amount of carbohydrate, or a combination of protein and carbohydrate. Here are some suggestions.

Snacks containing protein and carbohydrate include:	Approximate carbohydrate
A small tub of high-protein yoghurt	5–10g (depending on size)
Cheese or cooked meat and 3-4 crackers or 1 mini pitta	15g

A boiled egg with a slice of bread or 3 crackers	15g
A small sandwich (1 slice of bread) with meat, fish, egg or cheese	15g
2 tablespoons of hummus and 3 breadsticks or vegetable sticks	20g
2 tablespoons of peanut butter on toast	25g
A protein supplement drink as recommended by your dietitian*	

Snacks containing carbohydrate include:	Approximate carbohydrate
2 slices of bread or toast, or 2 mini pittas	30g
200ml glass of milk and 1 digestive biscuit	25g
A bowl of cereal or porridge with milk	25g
1 toasted teacake or 2 Scotch pancakes	30g
1 plain scone or English muffin	25g
1–2 slices of malt loaf (pre-sliced)	15–30g
1 crumpet	20g
A protein supplement drink as recommended by your dietitian*	

***Note:** Discuss suitable brands for your needs and tastes with your dietitian.

Dietary fats

When you have diabetes, it is important you choose healthier types of fats such as olive oil, rapeseed oil, margarine and olive oil based spreads.

If you are eating well and your appetite is good, the following tips will help you reduce the unhealthy fat in your diet:

- Use reduced-fat alternatives, for example semi-skimmed milk, reduced-fat margarines, low-fat yoghurts, reduced-fat mayonnaise
- Avoid takeaways, for example fish and chips, creamy curry. Only have these occasionally
- Grill, bake or steam instead of frying
- Cut down on the amount of oil you use in your cooking
- Cut off visible fat and skin on meat
- Choose plain biscuits and cakes instead of chocolate or cream varieties
- Cut down on pies and pastries
- Choose healthier unsaturated instead of saturated oils and spreads. For example, choose olive or rapeseed oil and olive oil spread instead of butter or coconut oil

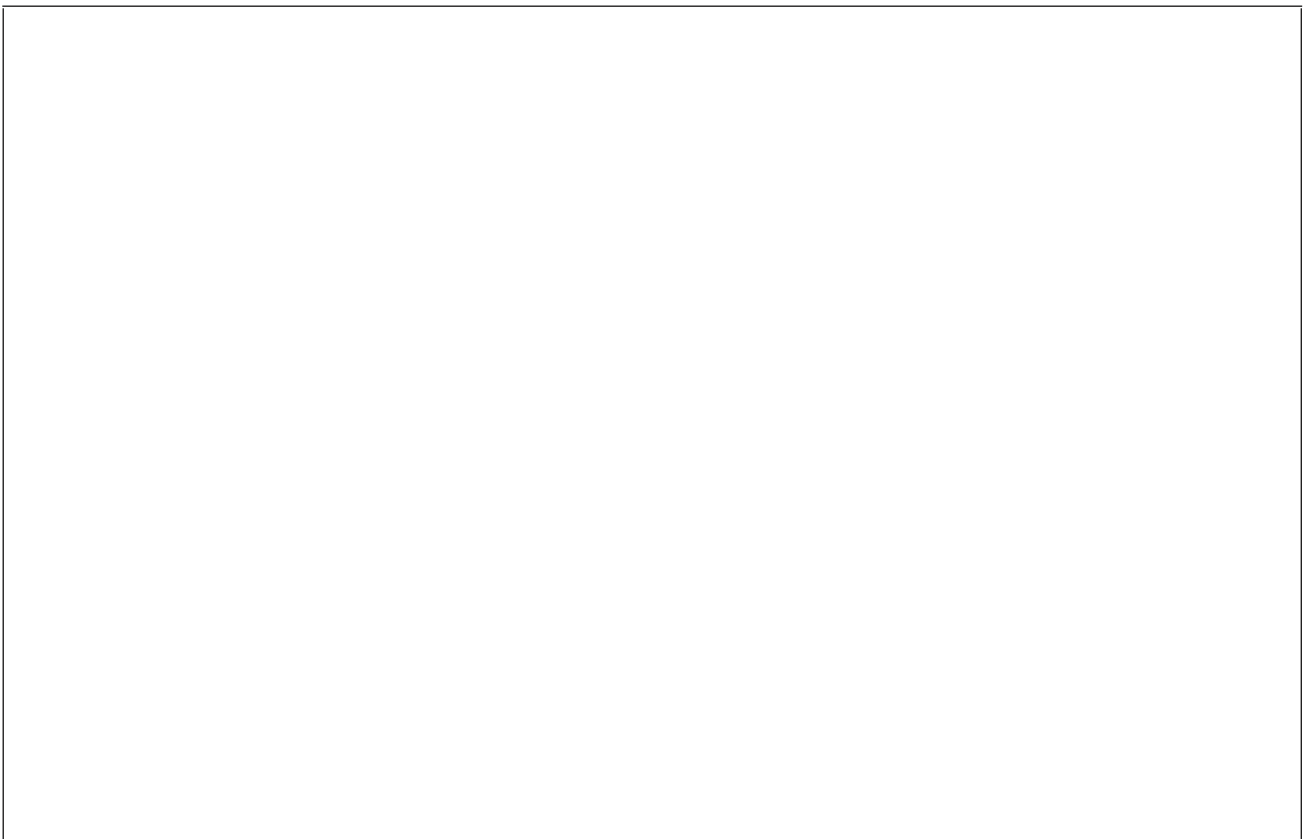
Supplement drinks

Sometimes you may not be able to meet your protein and/or energy requirements through diet alone. You may need to take nutritional supplement drinks to keep you well-nourished or help you build up muscle and gain weight. Taking a supplement drink between meals is better than going for long periods of time without food. This will help protect your muscle mass.

There are many types and brands of supplement drinks – speak to your dietitian about which ones work best for your needs. Protein only supplements are available – they have less sugar and will not affect your blood glucose level. Examples include:

- Renapro Shot
- Renapro Powder
- Prosource Gels
- Prosource Jelly

Your dietitian suggests:



Supplement tips

- Take supplement drinks between meals so that you do not spoil your appetite for your meals
- Keep supplements in the fridge or serve with ice as they taste better when served chilled

Suggested meal plan

The list below gives some helpful meal ideas. Try some of the suggestions or choose your own.

Breakfast

- Breakfast cereal and milk
- Toast and peanut butter or jam
- Baked beans on toast
- Egg with/on toast
- High-protein yoghurt and fruit

Mid-morning snack (serve with a glass of milk/supplement)

- A piece of plain cake or malt loaf
- Scone or tea cake
- Toast
- Crumpet or pikelet
- Hummus with crackers, breadsticks or vegetables sticks
- A small piece of cheese on crackers
- High-protein yoghurt and fruit

Lunch

Choose meat, fish, egg, cheese or baked beans and use:

- in a sandwich or on toast
- to fill a baked potato
- to make a salad with pasta, noodles, potatoes or bread

Dessert

- High-protein yoghurt or reduced-sugar rice pudding
- A pot of reduced-fat, reduced-sugar custard

Mid afternoon snack

- A piece of plain cake
- Scone or tea cake
- Toast, crumpet or pikelet
- Malt loaf
- High protein or Greek yoghurt
- Oatcake with peanut butter
- Falafel
- A small portion of cheese or hummus and crackers

Evening meal

- Meat or fish with potatoes and vegetables
- Pasta, sauce and meat, fish, beans, or cheese
- Meat, fish, tofu or lentil curry and rice, small naan, or chapati
- Meat or bean stew and rice
- Spaghetti Bolognese made with beef or soya mince
- Chicken, beef, bean, or lentil enchiladas
- Kidney bean or chickpea tagine with couscous

Dessert (if desired)

- Cheese and crackers
- Fruit and high protein yoghurt
- Rice pudding

Bedtime snack

- Snacks as per earlier pages, as recommended by your dietitian

Contact your dietitian for further guidance if your symptoms become worse, or your appetite significantly improve.

When to contact your dietitian, diabetes team and doctor:

1. You are noticing more **high blood sugar levels**
2. You are noticing more **low blood sugars**
3. You become **unwell** and **unable** to eat
4. You notice **unintended weight loss**

Further information

For more information on diabetes, visit www.diabetes.org.uk/diabetes-the-basics

Liver Dietitians

Queen Elizabeth Hospital Birmingham
Mindelsohn Way, Edgbaston
Birmingham, B15 2GW
Telephone: 0121 371 3485

Accessibility

To view this information in a different language or use text-to-speech reader visit **www.uhb.nhs.uk**, click the yellow and black circular icon in the bottom right of the web page to open the ReachDeck toolbar and then use the search bar to search by the name of the leaflet. If you require this information in another format such as braille, please email **interpreting.service@uhb.nhs.uk**.



How did we do? 😊 😐 😞

If you have recently used our services we'd love to hear about your experience. Please scan the QR code or follow the link to share your feedback to help us improve our services. **Thank you. www.uhb.nhs.uk/fft**

