



Diet and liver disease – high protein, high energy

When you have liver disease, your body needs extra protein and energy (calories). This is because your body is unable to store and use energy from food properly.

The energy from food you eat only lasts two to three hours. When you have liver disease and have not eaten in two to three, your body will start breaking down muscle for energy. If this continues, it can lead to loss of muscle strength, fatigue, and your symptoms may get worse. To prevent this, it is important to have regular meals and snacks. The guidance in this booklet will help.

People with liver disease often experience two things:

- Malnutrition – which means your muscles waste away, and you might lose weight
- Frailty – which makes it hard for your body to recover from illnesses

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

Carbohydrate and protein

When you eat carbohydrate, it is broken down into sugar (glucose). This is your body's main energy source. Some of this energy is stored in your muscles and liver as glycogen. This is a back-up energy store to be used when it is needed for example, between meals, if you have missed a meal or overnight.

Protein is essential to build and repair body tissue. When your liver is not working properly your body needs more protein than usual. Extra protein in your diet can help to prevent further muscle breakdown and re-build lost muscle.

To prevent muscle being used for energy, it is important to refuel your body regularly. This will help you to feel better and keep your body strong. Each meal or snack should include a reliable source of starchy carbohydrate for slow-release energy and protein to help prevent muscle breakdown. Here are some examples of carbohydrates and protein.

Starchy carbohydrate foods include:

- Bread, rolls, pitta, chapatii/roti and naan, ciabatta, paratha
- Potatoes (baked / mashed / boiled)
- Yam, plantain, taco shells, tortilla wraps
- Breakfast cereal, muesli, granola, porridge oats
- Pasta, gnocchi, rice, noodles, couscous

Protein foods include:

- Chicken, turkey, lean mince, pork, beef
- Fish, including white fish, tuna, sardines, salmon
- Cheese, yoghurt, milk and milk alternatives (try to choose soya milk/ yoghurt as it has 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

Snack ideas

Try to include snacks containing carbohydrate and protein. However, if your appetite has reduced, you may find it easier to include snacks containing more carbohydrate to ensure your body is getting a regular supply of energy. Here are some ideas.

Snacks containing protein and carbohydrate include:	Snacks containing carbohydrate include:
• A small tub of high-protein or Greek yoghurt with fruit and nuts • 2–3 crackers or oatcakes with cheese, hummus or peanut butter • A small sandwich (1 slice of bread) filled with cold meat, cheese, egg, tuna or peanut butter • A mixed bean salad (100g) • A glass of milk (250ml) • A boiled egg (protein only) • A small handful (30g) of unsalted nuts (protein only)	• 1–2 biscuits • 2–3 crackers • 1 slice of toast or bread • ½–1 bagel • 1 tea cake • 1 scone • 1 hot cross bun • 1–2 slices of malt loaf • 1 Scotch pancake • 1 slice of plain cake If you are trying to gain weight or have a small appetite, you can add butter, jam, cream, cheese or peanut butter to the ideas above.

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 with meals if you can. 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 item, 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

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:

- A small tub of high-protein or Greek yoghurt and fruit
 - Cheese or cooked meat and 3–4 crackers, 1 mini pitta or a slice of bread
 - A boiled egg with a slice of toast
 - A small sandwich with meat, fish, egg or cheese
 - 2 tablespoons hummus with breadsticks or vegetable sticks
 - 2 tablespoons peanut butter on toast
 - A protein supplement drink as recommended by your dietitian
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Snacks containing carbohydrate include:

- 2 slices of bread or toast e.g. sourdough, rye, 2 mini pittas
 - A large glass of milk and 2 biscuits
 - A bowl of cereal or porridge with milk
 - 1 English muffin, toasted teacake, scone or 2 Scotch pancakes
 - 1–2 slices of malt loaf
 - 1 crumpet
 - A supplement drink as recommended by your dietitian
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Supplement drinks

Sometimes you may not be able to meet your protein and/or energy needs 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 to protect your muscle mass.

Speak to your dietitian about supplements – you will be able to discuss which ones you prefer and work best for your needs.

*If you have diabetes, be aware that some ready-made supplements, particularly juice-based supplements, may cause your blood glucose 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 your meals
- Keep supplements in the fridge or serve with ice as they may taste better when served chilled
- Try freezing supplements to eat them as an ice cream, sorbet or ice lolly

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)

- Scone or tea cake
- Toast, crumpet or pancake
- Hummus with crackers, breadsticks or vegetable sticks
- A small piece of cheese and unsalted crackers
- High-protein yoghurt and fruit

Lunch

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

- In a sandwich / wrap/ pitta
- To fill a baked potato / side to chips
- Pasta or noodles or rice
- Salad

Dessert

- High-protein yoghurt
- Rice pudding
- Cake and cream
- Fruit and custard

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

- Scone or tea cake
- Toast, crumpet or pancake
- Crackers
- Malt loaf
- High-protein or Greek yoghurt
- Oatcake with peanut butter
- Falafel
- A small portion of cheese or hummus with 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 chapatti
- 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):

- Fruit crumble or pie with cream or custard
- Sponge pudding with ice cream or custard
- A small portion of cheese and crackers
- Fruit and high-protein or Greek yoghurt
- Ice cream
- Rice pudding

Bedtime snack

- Bedtime snacks on page 5, as recommended by your dietitian

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

Liver Dietitians

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