

Information

High Protein, High Energy Diet

For advanced liver disease

Rationale

In chronic liver disease, there are additional considerations you will need to make in your diet to support your liver and health.

It is common for people with advanced liver disease to develop 'protein-energy' malnutrition.

Advanced liver disease stops the liver working properly and affects its ability to store and release glycogen, a chemical that is used to provide energy when the body needs it. When this happens, the body uses up its fat stores and breaks down its own muscle tissue for energy.

This can lead to muscle wasting, a loss of strength and unhealthy weight loss. If left untreated, it can result in serious health complications.

To counteract this, people with advanced liver disease need to take in more energy (kcal) and almost double the amount of protein compared to healthy people of the same weight.

The symptoms may be easy to miss. The bathroom scales may not pick up any muscle loss because of fluid retention. Sometimes the loss of weight around the face, upper body, arms and thighs may be noticeable.

All people with advanced liver disease should consult with an accredited practising dietitian (APD) to create a personal high protein, high energy eating plan.



An information leaflet for patients and interested members of the general public prepared by the Digestive Health Foundation

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Reviewed by:
Joanne Heyman PhD, APD, RD (USA)
Liver Clinic Dietitian, Dept of Nutrition & Dietetics,
Royal Prince Alfred Hospital, NSW

Helen Vidot APD
Liver Disease and Transplantation Dietitian
Royal Prince Alfred Hospital, NSW

Health benefits

A high protein, high energy diet is important for people with chronic liver disease as the protein and fat is used to maintain muscle and body tissue (including the liver) and to keep the body working normally.

Research shows a high protein, high energy eating plan may improve health outcomes, and help reduce the number of times people with chronic liver disease develop an infection or have to go to hospital.



To help prevent muscle and fat loss, eat foods high in protein and energy.

What is a High Protein, High Energy Diet?

A high protein, high energy diet provides 1.2-1.5 grams of protein/kilogram of body weight/day and adequate energy to maintain fat stores (35-40 kcals/kg body weight/day).

It is important to have a well-balanced diet to ensure you are getting enough carbohydrate, protein, fat, vitamins and minerals.

To increase your protein and energy intake, include at least one food from each of the following columns at each meal or snack. Also see the sample eating plan at the end.

Protein Foods	Energy Foods
<ul style="list-style-type: none"> • Milk and milk powder • Yoghurt • Cheese • Custard • Meat, fish, chicken • Eggs • Nuts and seeds (including pastes) • Legumes (baked beans, lentils, chickpeas) • Tofu 	<ul style="list-style-type: none"> • Bread and bread products • Breakfast cereals • Pasta, rice, noodles • Cakes, biscuits • Potato, sweet potato, corn • Butter/margarine, oil • Cream/mayonnaise • Jam, honey, golden syrup

Some of these foods may be high in salt. If you have been advised to follow a low-salt diet, refer to the low-salt information below.

Replace tea, coffee or water with fluids that provide energy (such as milk, juice, cordial or soft drink), especially if you are on a fluid restriction.

Milk is a great base for nourishing drinks as it is high in protein and energy. Full-cream milk contains more kilojoules than low-fat milks, so is preferable to use. Fortified soy milk (e.g. So Good®) is also suitable. To make your milk higher in protein and calories, other ingredients may be added, such as ice-cream and a variety of flavourings.

Additional considerations

Overweight

Your doctor may recommend a high protein, reduced fat, moderate carbohydrate diet. Try to limit fatty and sweet foods. Talk to your dietitian about your eating plan.

Diabetes and glucose intolerance

Follow a high protein, high energy diet and include a moderate amount of carbohydrate sources to assist in controlling blood sugar levels. If the restricted diet is leading to muscle wasting and/or weight loss, consult a dietitian for additional advice on meeting your individual protein and energy needs in advanced liver disease.

Vegetarian or lactose intolerance

Adequate protein can be obtained from legumes, nuts and seeds and foods made from these. Soy milk and soy products are a suitable high protein substitute for cow's milk and milk products if dairy product tolerance is a concern.

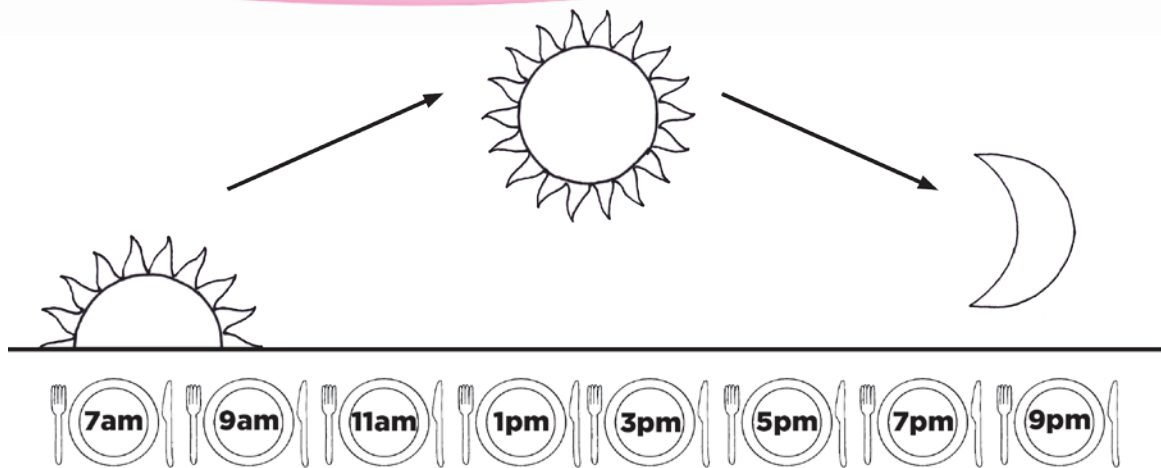
Changes in sense of taste

Many people with advanced liver disease describe an altered sense of taste and a heightened sense of smell that can reduce their ability to eat. Mineral deficiencies can lead to a changed sense of taste. This can be easily identified by a blood test and corrected with oral supplements. Discuss this with your doctor and dietitian.

Additional stress

Diarrhoea, vomiting, dehydration, constipation, infection or bleeding can place additional stress on the liver. Treatment includes tackling the underlying medical problem and paying careful attention to diet, particularly to eating enough protein.





Eat small meals often and have a snack of energy protein-rich food before bed. This is very helpful for people with liver disease. If you are awake during the night try to have a high protein drink or snack to reduce the time you spend fasting overnight.

Eat frequently

Eat six to eight smaller meals and snacks throughout the day. Aim to eat every two to three hours. Small, frequent meals can boost your nutrition intake and can be useful if you feel full quickly or if your appetite has decreased.

Vitamins and minerals

The changes that occur in chronic liver disease can lead to vitamin and/or mineral deficiencies. Problems such as excessive bleeding, osteoporosis, anaemia, and night blindness can result if vitamin and/or mineral levels are too low.

Common vitamin deficiencies include the fat soluble vitamins – A and D. Identification and correction of these deficiencies is essential in patients with chronic liver disease.

Eating a variety of foods can help to avoid the issue of vitamin deficiencies.

Supplements

A number of special nutrition supplements may be able to help increase your calorie, protein, energy, vitamin and mineral intake. Avoid taking any supplements or following diets that are not recommended by your doctor or an accredited practising dietitian (APD).

Fluid reduction

As liver disease progresses, a build-up of fluid in the stomach area (ascites) and swelling of the feet and legs (oedema) may occur.

You may also be asked to limit the amount of fluids you drink through the day. This includes all beverages and watery foods such as soup. Half of your fluid intake should be high in protein (e.g. milk).

No added salt

If you have fluid retention, your doctor and dietitian will recommend you follow a no added salt, high protein diet.

Salt acts like a sponge with fluid in your body. By reducing the amount of salt you eat and increasing your protein intake you can limit the amount of fluid that stays in your body.



Salt is not the only way to add flavour, instead add:

- Freshly ground black pepper
- Lemon, lime and citrus fruits, vinegar
- Oil or butter
- Fresh herbs
- Chillies
- Ginger, garlic, shallots and spring onions
- Spices such as mustard powder, nutmeg, cinnamon, cardamom, ginger, cumin
- Toasted and ground sesame seeds

Hints to reduce salt intake:

- Eat fresh whole foods
- Avoid salty canned or processed foods
- Use low-salt or no added salt versions – frozen vegetables have less salt than canned vegetables
- Do not add salt to your meal at the table
- Make your own stock and do not add salt – stock cubes, bouillon cubes and gravy granules can be high in salt
- Eat cold, cooked fresh meat, poultry or eggs instead of deli meats or cured foods
- Choose unsalted butter
- Certain bottled waters are high in sodium – check the labels carefully

High Protein, High Energy sample eating plan

Breakfast

- Cereal and full-cream milk/or porridge
- Eggs (cooked to your liking) with unsalted butter and toast (or reduced salt spread)
- 1 cup yoghurt or custard with fruit
- Hot chocolate or coffee made with milk, or a glass of milk

Snacks

- Ricotta or Swiss cream cheese on toast
- Cheese and crackers
- Milkshake made with full-cream milk

Lunch

- Sandwich with roast meat, chicken, fish, egg or cheese
- Baked beans (low-salt variety), eggs or grilled cheese on buttered toast
- Meat, fish or poultry with buttered vegetables or salad
- Dessert if desired
- Glass of full-cream milk

Snacks

- Custard or yoghurt with fruit
- Hard-boiled egg
- Handful of unsalted nuts, or dried fruit and nut mix (low-salt version)
- Custard tart
- Yoghurt
- Milo
- Omelette
- Teacake, muesli bars or fruit bread and a glass of milk

Dinner

- Meat, fish or poultry with buttered vegetables or salad
- Pasta with meat sauce and salad
- Toasted cheese sandwich
- Dessert

Bedtime Snacks

- Milkshake or hot milk with honey or other flavourings
- 1 cup yoghurt or custard with fruit
- Hot chocolate made with milk
- Crackers and cheese

Take home points

- To help prevent muscle and fat loss, eat foods high in energy and protein
- Eat small meals often
- Have a snack of energy rich food before bed
- Work with a dietitian to develop a personal eating plan

Digestive Health Foundation

This information leaflet has been designed by the Digestive Health Foundation (DHF) as an aid for people with advanced liver disease or for those who wish to know more about it. This is not meant to replace individualised advice from your medical practitioner.

The DHF is an educational body committed to promoting better health for all Australians by promoting education and community health programs related to the digestive system.

The DHF is the educational arm of the Gastroenterological Society of Australia (GESA), the professional body representing the specialty of gastrointestinal and liver disease. Members of the Society are drawn from physicians, surgeons, scientists and other medical specialties with an interest in gastrointestinal (GI) disorders. GI disorders are the most common health-related problems affecting the community.

Research and education into gastrointestinal disease are essential to contain the effects of these disorders on all Australians.

Further information on a wide variety of gastrointestinal conditions is available on our website - www.gesa.org.au

dhf

Digestive Health Foundation

Digestive Health Foundation

c/- GESA

PO Box 508, Mulgrave VIC 3170, Australia

Telephone: 1300 766 176 Facsimile: (03) 9802 8533

www.gesa.org.au

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