

Reducing the size of your liver before bariatric surgery

This leaflet explains more about reducing the size of your liver before you have bariatric surgery.

If you have any further questions, please speak to a dietitian caring for you.

Preparing for your bariatric surgery

It is important to start thinking about how you will manage your eating from now until your surgery and, even more importantly, after you have had your surgery. Bariatric surgery is not a quick fix or 'cure all' and your success in weight loss will be dependent on how much effort you put into your management and treatment plan.

You can start improving your chance of success before you have your surgery. Over time, the liver can become quite large as it stores fat and a type of sugar called glycogen. For every ounce of glycogen, your body stores three to four ounces of water. Unfortunately a large and fatty liver can increase the risks when having this surgery and make recovery harder afterwards.

We advise that a low calorie, low fat, low carbohydrate eating plan should be followed for **at least two weeks** before surgery in order to reduce the size of your liver.

Why must I follow a liver reducing diet?

The aim of this diet is to reduce the glycogen stores in your body, especially those in your liver. This causes the liver to 'shrink' in size, making it easier for the surgeon to see what they are doing during your surgery.

During laparoscopic or 'keyhole' surgery, the liver has to be lifted out of the way to access the stomach lying beneath it. If the liver is heavy, fatty and immobile, it is harder for the surgeon to see and operate on the stomach underneath.

To reduce the glycogen stores in the liver, it is necessary to follow a diet that is low in calories, low in carbohydrate, low in fat and high in protein. Carbohydrates are sugars and starches. Foods high in starchy carbohydrate include bread, rice, potato, pasta and cereals.

It is quite possible that you will lose a significant amount of weight during these two weeks. However, a lot of the weight you lose will be from water as the body uses up your glycogen stores. This is because glycogen holds onto water, so when glycogen is burned for energy it also releases the water.

For the diet to be successful, it is important to stick to this diet for the full two weeks. There may be a temptation to have a special/larger meal prior to surgery. However, if you do this, it will reverse the liver reducing effects of the diet.

It is important that you only follow this diet before your surgery. You will not be following this diet after you go to the hospital. For advice on what to eat after your surgery, please see our separate leaflet about the specific surgery you are having (gastric band, sleeve or bypass).

What should I eat on a liver reducing diet?

There are three different plans available for a liver reducing diet:

1. **Food plan** Normal foods using carefully measured portions of carbohydrate.
2. **Milk plan** Using only semi-skimmed, soya or almond milk and multivitamin tablets.
3. **Meal replacement Shake plan** Using only shakes, either Optifast® or Slimfast®

1. Food plan

This diet is designed to give you approximately 100g of carbohydrate per day. It is low in fat (although how low will depend on the foods you chose) and moderate in protein. The energy value of the diet is between 800-1000kcal per day. It is very important to measure your portions accurately or you may end up eating too much and the diet will not work.

Per day you should take three meals and choose from the options listed below. **Please see page 6 for recipe ideas.**

Breakfast (15g carbohydrate each)

Choose **one** of the following options (use milk from your additional daily allowance listed on the next page):

- 5 dessert spoons of bran flakes **or** fruit & fibre **or** cornflakes
- 1 shredded wheat **or** 1½ Weetabix
- 6 dessert spoons of All Bran
- 5 dessert spoons of Rice Krispies
- 25g of rolled oats or cornmeal porridge
- 1 medium slice toast with scraping of low fat spread

Lunch (15-20g carbohydrate each)

Choose **one** of the following options:

- 1 slice medium sliced bread/toast
- 2 crisp breads
- ½ bagel
- ½ pitta bread

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With one of the following protein options:

- 2 eggs (cooked without fat)
- 60g /2oz cheese (2 x matchbox size)
- 8 thin packet slices of ham, chicken or turkey
- 1 small chicken breast without skin
- 4 rashers of grilled back bacon
- 100g/4oz (small portion) meat
- 2 grilled low fat or Quorn[®] sausages
- 100g/4oz tinned fish

Plus plenty of vegetables/salad (low fat dressing).

Evening meal (20g carbohydrate each)

Choose **one** of the following options:

- 1 average size old potato (approx 125g boiled/mashed)
- 4 egg-sized new potatoes with skin
- 2 small roast potatoes
- 125g yam – boiled
- 1 small green banana – boiled
- 3 dessert spoons cooked rice (any variety)
- 3 dessert spoons cooked pasta (any variety)
- 40 strands of spaghetti (count when raw!)

With one of the following protein options:

- 2 eggs
- 60g/2oz cheese (2 x matchbox size)
- 8 thin packet slices of ham, chicken or turkey
- 1 small chicken breast without skin
- 4 rashers grilled back bacon
- 100g/4oz (small portion) meat
- 100g/4oz tinned fish
- 100g/4oz tofu or Quorn[®]

Plus plenty of vegetables/salad (low fat dressing).

Additional allowances throughout the day

- 1/3 pint/200ml milk for drinks/cereal (10g carbohydrate)
- 2 portions of fruit **or** 1 x 150ml fruit juice and 1 x portion fruit (see fruit portions list below for details)
- One small pot (125g) low fat, low sugar yoghurt per day (diet or 'lite' varieties) **or** 1 small pot low fat natural yoghurt (about 10g carbohydrate)

Plus unlimited water, tea, coffee, low calorie squash, low calorie fizzy drinks. Please note that alcohol is NOT allowed while you are following any of the 2-week pre-op diet options.

How much is a portion of fruit?

- 1 piece of a medium fruit (e.g. apple, orange)
- 1 slice of very large fruit (e.g. pineapple, melon)
- 2 pieces of small fruit (e.g. satsuma, plum, kiwi)
- 3 dates

- 1/3 large can fruit in juice (drained)
- 3 heaped dessert spoons fresh fruit salad
- 3 dessert spoons stewed fruit without sugar
- 1 dessert spoon dried fruit
- 3 dried apricots
- 1 glass (150ml) fruit juice (maximum one per day!)

Additional information for the food plan

You should aim to eat mostly green salad and vegetables as these are lowest in carbohydrates. Vegetables such as peas, sweet corn and parsnips are higher in carbohydrate and should be avoided if possible.

Try to use cooking methods that do not add fat to your foods such as baking, grilling or boiling. You can try using the 1kcal spray oils instead of pouring oil. It is also okay to use artificial sweeteners in place of sugar.

Any of the following spices/condiments can be used to add flavour: salt, pepper, fresh or dried herbs, spices, mustard, curry powder, lemon/lime juice, vinegar, fish sauce, soy sauce, Worcestershire sauce, stock cubes, vanilla and other essences.

It is important **not** to eat less than the specified portions of carbohydrate as this can make you feel unwell. Other foods on the menu will provide you with protein and small amounts of fat. The inclusion of these foods means that it should not be necessary for you to take any vitamin or mineral supplement.

2. Milk plan

Many patients find it simpler to just follow a liquid diet plan of semi-skimmed milk for the two weeks before surgery. If you choose to follow this plan you should aim to have the following per day:

- **2 litres (3 ½ pints) semi-skimmed milk**
- 1 multivitamin and mineral tablet daily (e.g. Forceval, Sanatogen, Centrum)
- Fibre supplement (e.g. Fybogel or Benefibre) available from chemist

Try to split the milk into 4 – 5 ‘meals’ per day. You may add non-sugar containing flavourings to the milk (e.g. sugar-free milkshake syrups, vanilla essence, coffee etc.) but be careful not to add any sugar.

As an alternative to dairy you may use sweetened non-organic soya milk in the same quantities as above.

Plus unlimited water, tea, coffee, low calorie squash, low calorie fizzy drinks. Please note that alcohol is NOT allowed while you are following any of the 2-week pre-op diet options.

3. Meal replacement Shake plan

These are a nutritionally complete low energy liquid diet suitable for use before bariatric surgery. They contain the recommended daily intake of vitamins and minerals and provide the reduced amounts of calories and carbohydrate per day required to shrink the size of the liver.

Not all meal replacement shakes are suitable as many contain too much sugar (carbohydrate). We therefore recommend you choose from the two shake plans below:

1. **Slimfast Meal Replacement Plan** You can choose to use ready-prepared bottled shakes or prepare your own from powder (which is cheaper). The nutritional content of both forms is different so if you choose powder you will need to also purchase a whey protein shake.

Slimfast Powder Shakes (make with skimmed milk)

Per day:

- **3 Slimfast shakes per day**
- **2 'Precision Engineered' Whey Protein shakes (from Holland & Barrett)**
- Plus unlimited water, black tea or coffee, low calorie squash, low calorie fizzy drinks. Please note that alcohol is NOT allowed while you are following any of the 2-week pre-op diet options.

OR

Slimfast Bottled Shakes and High Protein Meal Bars

Per day:

- **5 bottled Slimfast shakes** (325ml)
- **You may exchange bottled shakes for Slimfast High Protein Meal bars** (NOT the snack bars) if you prefer, or use a mixture of both (e.g. 3 bottles and 2 bars). **Do not have more than 5 products total per day.**
- Plus unlimited water, black tea or coffee, low calorie squash, low calorie fizzy drinks. Please note that alcohol is NOT allowed while you are following any of the 2-week pre-op diet options.

2. **Optifast Shake Plan** Optifast® shakes need to be ordered from the manufacturer. To do this you will need to ask your GP or dietitian to authorise an order form and to agree that they will supervise you whilst you are on the diet. The Optifast® shakes can be delivered directly to your home. A two week supply costs £150.00.

- **4 sachets per day (this will provide you with all the nutrients you need)**
- **In addition to the milk or shake plan, you should also continue to drink around two litres (four pints) of calorie free fluids or water daily.**
- Available in 5 flavours
- Lactose and gluten-free
- Not suitable for vegetarians
- Per day will provide 800 calories, 70g protein and 90g carbohydrate
- Costs around £150 for a two week supply
- Information on Optifast® can be found online at:
www.nestlenutrition.co.uk/healthcare/gb/products/Documents/Optifast-product-information.pdf

How will I feel while I am on this diet?

As your body responds to the diet it releases ketones, which are made when the body breaks down fat for energy. These are released in the breath, urine and sweat – sometimes causing odour. You may also experience other symptoms such as thirst, and a slightly metallic taste in the mouth. In addition, you may also find that your appetite is suppressed after the first 3 - 4 days, meaning that you feel much less hungry than you would have expected. Some people report feeling a little light-headed in the first few days. Just make sure you are sticking to the plan and drinking plenty – this will pass.

IMPORTANT

If you are taking medication for diabetes you will need to contact your GP or diabetes doctor to have your dosage adjusted while you are on this diet in order to make sure that your blood sugar does not fall too low.

Recipe ideas for the Food Plan

Spaghetti bolognese (serves 1)

100g extra lean minced beef or Quorn®
½ onion, chopped
½ carrot, chopped
2-3 mushrooms, sliced
½ tin chopped tomatoes
100mls beef or vegetable stock
1 teaspoon dried oregano or mixed herbs
40 strands spaghetti

Directions: Dry fry the mince, onion and carrot until brown. Add the tomatoes, mushrooms, herbs and stock. Simmer uncovered for 20-30 minutes. Cook the pasta according to the packet instructions, stir into the sauce and serve.

Miso soup (Ramen) (serves 1)

1 sachet Miso powder
100g tofu or fish or chicken
1 dessert spoon each thinly sliced carrots, mushrooms, spring onions
½ portion fine rice noodles

Directions: Make up the Miso soup according to packet instructions. Add rice noodles and tofu chunks or very thin slices of fish or chicken, along with the carrots and mushrooms. Simmer gently until cooked through. Add spring onions and serve.

Chow mein (serves 1)

100g lean pork, chicken breast or tofu
½ onion
4-5 mushrooms
Large handful of fresh bean sprouts
Soy sauce
½ portion dried egg noodles

Directions: Cook the noodles according to the packet instructions. Put to one side. Thinly slice pork (or chicken or tofu). Slice onion, and mushrooms. In a hot pan, stir fry the pork (or chicken or tofu) until cooked. Add the onion, mushrooms and bean sprouts and fry for another two to three minutes. Add the noodles and mix well. Add soy sauce to taste and serve.

Baked fish with Parma ham (serves 1)

2 x 1" chunks thick fillet white fish (e.g. cod, monkfish)
2 slices lean Parma ham (fat removed)
200g mixed asparagus, mange tout or baby sweet corn
Lemon juice

Directions: Wrap the fish pieces in the Parma ham. Place on top of the mixed vegetables in an ovenproof dish. Sprinkle with lemon juice. Bake uncovered at 200°C for 20 minutes. Serve with allowed portion of new potatoes.

Chicken tikka (serves 1)

1 small chicken breast, cut into 1" chunks
2 dessertspoons natural low fat yoghurt
1 dessert spoon tikka spice powder mix

Directions: Mix the yoghurt and spice mix to make a paste. Mix into the chicken and leave to marinate for at least one hour (or overnight). Cook under a hot grill until slightly charred at the edges. Serve with raw onion, tomato and mint salad and rice.

African style stew (serves 1)

100g lean pork or chicken breast or fish
½ onion
½ small red chilli pepper (or to taste)
½ red bell pepper
½ tin chopped tomatoes
100mls beef or vegetable stock
Herbs, spices, seasoning to taste

Directions: Fry the pork, chicken or fish in a pan using spray oil, remove from pan. In a blender blitz the chilli, tomatoes, onion and red pepper. Pour into a pan and simmer for 10 minutes. Add the meat, chicken or fish and cook for a further 20-30 minutes – or until well cooked through. Serve with allowed portion of rice or yam.

Contact us

If you have any questions or concerns, please contact the bariatric dietitians at Guy's Hospital:
t: 020 7188 4128

To bleep, call the hospital switchboard on 020 7188 7188 and ask for the bleep desk. Ask for bleep 2906 or bleep 2911 and wait for a response. This will connect you to them directly.

Pharmacy Medicines Helpline

If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline.

t: 020 7188 8748 9am to 5pm, Monday to Friday

Your comments and concerns

For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.

t: 020 7188 8801 (PALS) **e:** pals@gstt.nhs.uk
t: 020 7188 3514 (complaints) **e:** complaints2@gstt.nhs.uk

Language Support Services

If you need an interpreter or information about your care in a different language or format, please get in touch:

t: 020 7188 8815 **e:** languagesupport@gstt.nhs.uk

NHS 111

Offers medical help and advice from fully trained advisers supported by experienced nurses and paramedics. Available over the phone 24 hours a day.

t: 111

NHS Choices

Provides online information and guidance on all aspects of health and healthcare, to help you make choices about your health. **w:** www.nhs.uk

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