

# Bariatric and metabolic surgery

## Information for Patients



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# Overview of surgery

## What is bariatric/metabolic surgery

Bariatric surgery is a term for a group of surgeries that are carried out with the aim of reducing weight and reducing weight related comorbidities. There are several options for surgery. Some of these options are considered more powerful than others for weight loss, and to provide benefits to weight related conditions, however the more powerful interventions have an increased amount of side effects. All surgery is a tool for weight loss that require lifelong dietary and lifestyle changes and compliance to follow-up.

## Conditions that can be helped by bariatric/metabolic surgery (not exhaustive list)

- Type two diabetes or prediabetes
- Hypertension (high blood pressure)
- Polycystic ovarian syndrome or PCOS
- Non-alcoholic liver disease
- Obstructive sleep apnoea
- Hypercholesterolaemia
- Intracranial hypertension

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## General benefits of weight loss

- Improved quality of life
- Reduced risk of stroke and heart disease
- Reduced damage to joints and increased ability to exercise.
- Improved fertility
- Weight reduction for other operations, such as gynaecological or orthopaedic surgery
- Improved self-image
- Reduction in medication

## Surgery will not

- Fix damage to joints that has already been done
- Have a significant effect on chronic pain in some people, and will not necessarily help people with neurological conditions
- Create a restriction or aversion to low nutritional value foods that avoids the need for lifestyle and diet changes
- Remove stressors and difficulties in life that aren't directly caused by obesity

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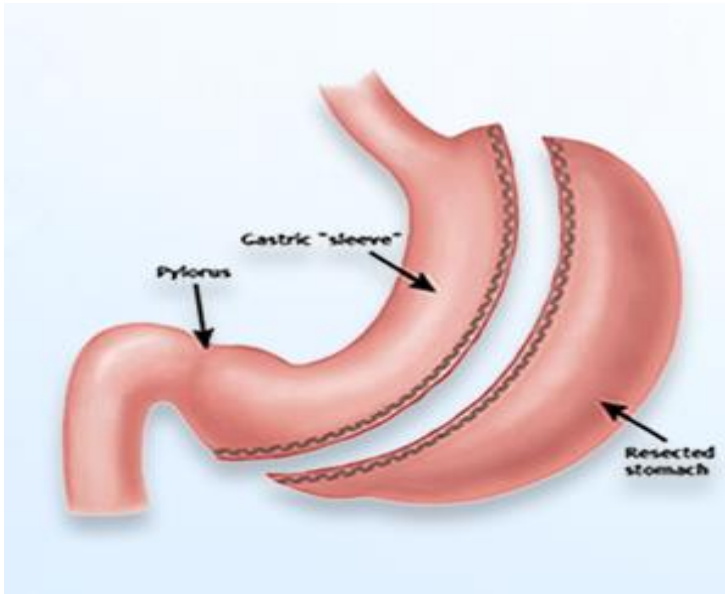
## All surgery is aimed to be performed laparoscopically/robotically or endoscopically



The surgeon makes 5-6 incision sites and inserts small thin devices to carry out the surgery. Depending on which surgery you have, it might be slightly different locations for these. The surgery is carried out by inflating the abdomen with gas to make room, and using a camera which projects onto a screen. Surgery is increasingly carried out with a surgeon operating robotic machinery, which provides more vision, shorter operating times and less pain reported. You may be offered this All surgery requires the ability to tolerate a general anaesthetic – it cannot be carried out under spinal block or local anaesthetic. Rarely, it might be required for a surgery to be converted to open in the rare case of uncontrolled bleeding.

In general, a successful surgical outcome can be losing between 50-70% of excess weight on top of a BMI of 25

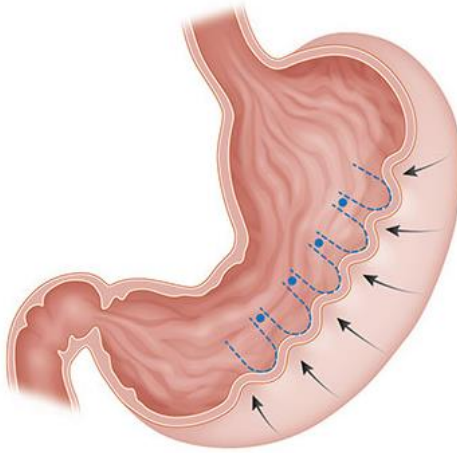
## Sleeve Gastrectomy



The sleeve gastrectomy is a very common choice for patients undergoing bariatric/metabolic surgery around the world. The surgeon creates a long thin vertical pouch. This surgery creates a smaller available space for food to enter the stomach, by reducing the size by around 70-80%. The removal of the fundus, the top part of the greater curve of the stomach means a significant reduction in the amount of hunger hormones, so you will feel less hungry, and more satisfied for longer.

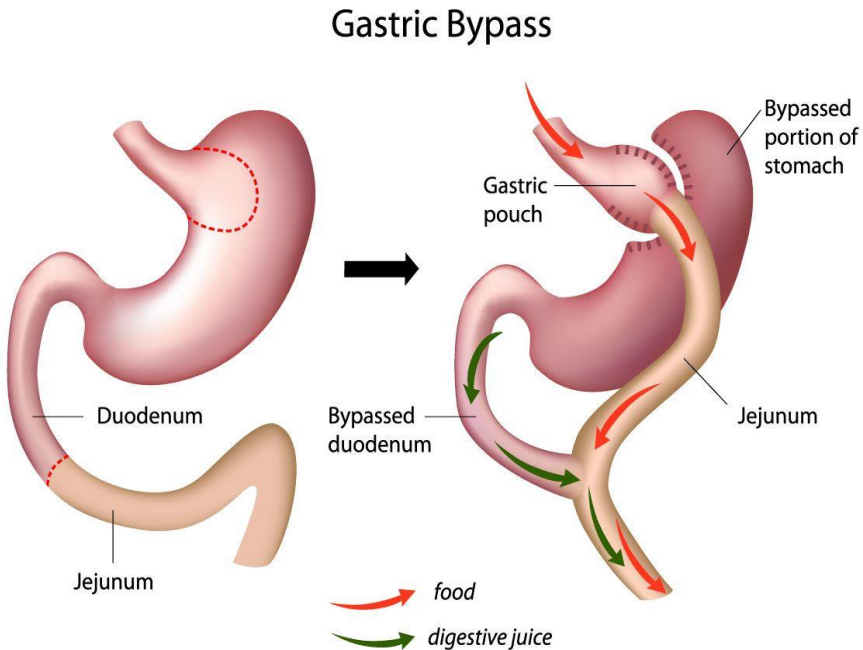
The sleeve gastrectomy does not have any changes in the bowel, so there is no element of reduced absorption, unlike the bypass operations.

## Endoscopic sleeve gastroplasty



Endoscopic Sleeve Gastroplasty (ESG) helps with weight loss by reducing the size of your stomach, which limits how much food it can hold. During the procedure, the stomach is reshaped into a sleeve-like structure through the use of an endoscope, a thin, flexible tube with a camera, which is guided by your surgeon. The smaller stomach means you will feel full more quickly after eating, reducing your overall food intake. As a result, you'll naturally consume fewer calories, which leads to weight loss over time. Additionally, ESG may impact hormones that regulate hunger, further helping to control appetite. This combination of reduced stomach capacity, increased feelings of fullness, and lower food consumption plays a key role in achieving sustainable weight loss. The diet followed after this surgery is also done slightly differently, Please refer to page 45-46 for more information.

## Roux- en-Y gastric bypass

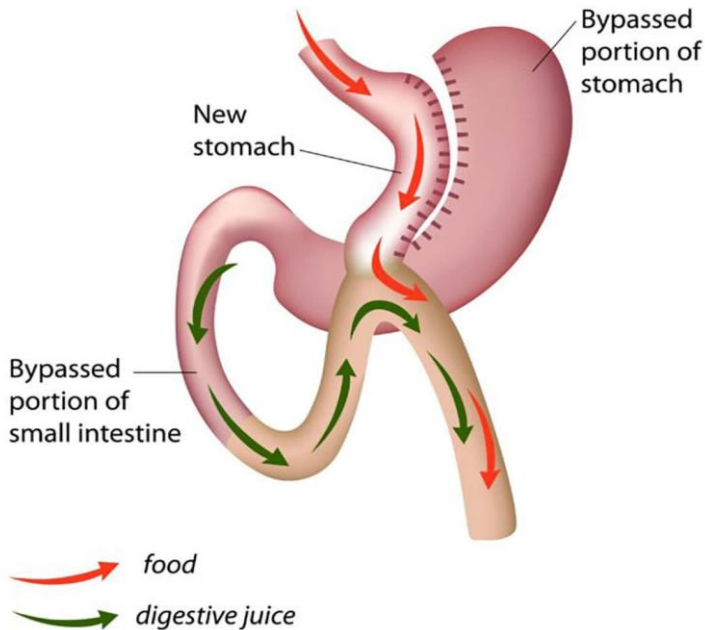


The Roux-en-Y gastric bypass creates a small gastric pouch with the rest of the stomach remaining. Around 150cm of the small intestine is bypassed and a new connection made, meaning food and fluids consumed move into a further part of the small bowel. This operation changes gut hormones and means you will feel fuller for longer. Malabsorption is a consequence of this surgery and means some nutrition might not be absorbed as fully. This can benefit weight loss, but also means there is a higher risk of malnutrition or nutrition related complications.

This surgery has slightly better weight loss outcomes than a sleeve gastrectomy, but has a higher chance of side effects.



## One anastomosis gastric bypass



The one anastomosis gastric bypass is often referred to as a mini gastric bypass, however it is still a significant surgery that combines elements of a sleeve gastrectomy and bypasses the first part of the intestine. This procedure has similar weight loss results to the other bypass above.

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## Deciding which surgery is for you

You may have strong opinions of which surgery is beneficial for you, or why this might be. We take this into account when discussing which surgery might suit you best. Some people are unable to have a certain type of surgery due to medical conditions or previous surgery.

Some of the surgeries can change the way medications are absorbed so your team will consider this and discuss with you, to let you know if there are any concerns. We consider obesity to be a chronic condition and consider any obesity or weight related conditions that can benefit from a specific surgery.

Along with the surgeon, there is an anaesthetist, dietitian, psychologist, endocrinologist and specialist nurses who see you as part of our core multidisciplinary team. Everyone supports you in a different way, but we work together along your journey.

## While you are waiting for surgery

It is likely that there will be a period of time of at least a few months between being accepted for surgery and put onto our list. In that time, it is important to stick to the principles of a healthy diet, engage with activity and exercise as much as possible and carry out any assessments or tasks that we ask you to. It is possible that we may ask you to lose a certain amount of weight, or seek some psychological support.

We will not operate on anyone who is currently smoking or vaping.

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Before coming into the hospital, it is essential to review your contraception, as methods such as the oral pill may not be absorbed properly and could be ineffective. It is recommended to use contraception methods such as the injection, implant, or coil, as pregnancy should be avoided during the first 18 months to 2 years, a period of rapid weight loss. Please ensure your contraception is in place before surgery. If you have any questions, please discuss this with the Clinical Nurse Specialist.

## **Liver Shrinkage Diet (otherwise known as Liver reduction or reducing diet)**

### **Aim of the Liver Shrinkage Diet**

Prior to undergoing bariatric surgery most people will be asked to follow a strict liver reducing diet for 2-4 weeks prior to surgery, depending on your BMI and body shape.

In order to perform laparoscopic bariatric surgery your liver has to be lifted up and out of the way for the surgeon to visualise and operate on the stomach underneath. Most people who require bariatric surgery will also have a large, fatty liver. This makes the liver less flexible to move and can also increase the chance of bleeding.

By following the liver shrinkage diet your body will be forced to use up glycogen (carbohydrate which is stored in the liver) and fat stores. This helps to shrink the size the liver, making it softer and therefore easier to move during your surgery.

Your surgery may be abandoned or cancelled on the day if you do not follow this essential diet.

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## What is a Liver shrinkage diet?

### You may decide between the following:

A low calorie, low carbohydrate, low fat and moderate protein food-based diet below.

Or

Liquid based diet of 3 pints of skimmed milk + 2 x 125g low fat yoghurts per day.

Or

There is also the option of a liquid-based meal replacement diet, which comes at a higher cost. This option can be discussed in more detail with your dietitian.

### **You must not mix between the three diet options for the entire 2-week period**

Each option provides:

- 800 – 1000 kcal per day
- Below 100 g carbohydrates
- Low fat
- Moderate protein

## The food-based plan:

Planning ahead and understanding the portion sizes will help you to follow this plan.

### ***Your daily serving allowance***

<b><i>Protein</i></b>	3 Portions
<b><i>Carbohydrates</i></b>	3 Portions
<b><i>Dairy</i></b>	2 Portions
<b><i>Vegetables</i></b>	3 Portions
<b><i>Fruit</i></b>	2 Portions (only as allowed snack option)
<b><i>Fat</i></b>	1 Portion

## Food Groups and portion sizes

<b>Protein</b>	<b>One Portion is:</b>
Lean meat e.g. beef, skinless chicken, turkey, lamb	100 g (no bigger than the size of a pack of playing cards)
Plain white fish	150 g
Salmon	125 g
Tin of tuna (in brine or spring water)	125 g
Tin of Salmon	125 g
Cooked Ham	60 g (3-4 slices depending on thickness)
Cooked chicken/turkey (skinless)	100 g
Quorn or tofu	100 g
Eggs (Not fried or scrambled in butter)	2
Baked Beans (reduced sugar)/ chick peas/ kidney beans/ lentils/ dahl/ cooked pulses	4 teaspoons

<b>Carbohydrates</b>	<b>One Portion is:</b>
Weetabix/Shredded wheat	1 piece
Bread or toast	1 piece
Plain Crackers	2-3
Rice	2 tablespoons
Pasta (small shaped)	3 tablespoons
Potato	2 egg sized
Sweet Potato	1 small
Yam	60 g
Cereal (plain cornflakes/rice krispies)	3 level tablespoons
Muesli (not granola)	2 level tablespoons
Polenta (plain), Quinoa	4 level teaspoons
Crisp Bread	4 pieces
Chapatti	½ without fat
Polenta	65g

<b>Vegetables</b>	<b>One Portion is:</b>
Cooked/raw e.g. carrots, broccoli, cauliflower, peas, peppers, celery, leek	3 tablespoons
Side salad e.g. lettuce, cucumber, spring onion (no dressing, no avocado)	Cereal bowl size
Tomatoes	1 large or 6 small cherry sized tomatoes

<b>Fruits</b>	<b>One Portion is:</b>
Apple, pear, orange, banana	1 piece
Strawberries, raspberries	7
Grapes	12

Melon	1 slice
Plum	2
Fruit Juice	100 ml

<b>Dairy</b>	<b>One Portion is:</b>
Skimmed milk/ soy milk	1/3 pint (includes in tea and coffee)
Yoghurt (low fat)/ soya yoghurt	1 small pot 150 g
Cottage cheese	1 pot 200g
Fromage Frais	1 small pot 150 g
Low fat cheese e.g. cheddar, edam	1 small matchbox sized piece

<b>Fats</b>	<b>One Portion is:</b>
Oil (for cooking)	1 teaspoon per day only
Low fat spread	2 teaspoons per day
1 kcal spray oil	10 sprays per day

We recommend avoiding rice and oat milk due to their low protein content, these alternatives can also be higher in sugars and carbohydrates. Opting for higher protein-alternatives such as soy milk (unsweetened), almond milk (unsweetened) or Lactose free milk, as they can help with meeting your protein needs, whilst keeping your carbohydrate intake in check.

Always consult your dietitian for personalised advice tailored to your specific dietary needs during this phase.

### **Tips for adding flavour:**

Use lemon juice, balsamic vinegar, spices, herbs, garlic, chilli and seasoning.

You must avoid salad dressings, mayonnaise, salad creams.

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Your menu should follow the following format.

**Breakfast:** 1 carbohydrate portion

1 dairy portion

**Examples:** 1 Weetabix with skimmed milk from your allowance

*Or*

Toast with reduced fat spread + 150 g low fat yoghurt

*Or*

2 tablespoons muesli with 150 g low fat plain yoghurt

*Or*

4 Crispbreads with matchbox size cheese

**Lunch:** **No carbohydrates**

2 protein portions

2 vegetable portions

**Examples:** Grilled chicken breast 200 g with large mixed salad (2 cereal bowl as size)

*Or*

Tinned salmon 200 g with small mixed salad and tomato

*Or*

White fish 250 g steamed with 6 tablespoons (tbsp) vegetables

*Or*

2 eggs + 60 g Ham or Turkey and large mixed salad



<b>Evening Meal:</b>	2 carbohydrate portions 1 protein portion 1 vegetable portion 1 dairy portion
<b>Examples:</b>	Jacket potato (small) with 125g Salmon with small salad. 1 pot fat free yoghurt  Or 6 tbsp pasta with 4 tbsp bolognaise sauce, 15 g grated cheese Or 2 egg Omelette with 3 tbsp vegetables e.g. pepper and mushroom with 4 new potatoes  1 pot fat free yoghurt
<b>Snacks:</b>	Maximum 2 pieces/ portions of fruit taken at any time of the day
<b>Examples:</b>	1 banana or 1 orange

*You should aim to drink at least 2 pints of fluids per day to prevent dehydration. Water, tea and coffee without sugar and sugar free drinks can be taken freely. **You must avoid alcohol and fizzy drinks. Milk in tea and coffee should only be taken from your daily allowance! Remember if you drink 1/3 pint of milk in cereal, tea or coffee you only have 1 dairy allowance left.***

## The liquid-based plan:

This diet is a liquid based meal replacement option. You do not consume any other food sources.

### Daily Intake

Liquid Options	Servings
Skimmed Or Semi skimmed milk Or Soya milk Or Lacto free milk	3 pints per day  The milk can be served either hot or cold and can be flavoured with sugar free syrups e.g. Crusha or Monin or Vanilla Essence
Low fat natural or plain yoghurt Or 0% fat yoghurt	2 x 125 g Portions per day
Bovril/Marmite/Stock (2 teaspoons in hot water)	Up to twice per day
Or  Meal replacement drinks may be a suitable option, however they are higher in cost than the alternative dietary options	(Speak with your dietitian for further information)

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## Example day:

<b>Breakfast:</b>	500 ml milky coffee 125g fat free yoghurt
<b>Snack:</b>	300 ml glass of sugar free syrup flavoured milk or plain
<b>Lunch:</b>	Bovril or Consommé drink Cup of tea with 100 ml milk
<b>Snack:</b>	300 ml glass of milk
<b>Evening meal:</b>	Oxo drink 125g low fat natural yoghurt Cup of tea or coffee with 100 ml milk
<b>Snack:</b>	200 ml glass of milk

*You should aim to drink at least 2 additional pints of fluids per day to prevent dehydration. Water, tea and coffee without sugar and sugar free drinks can be taken freely. **You must avoid alcohol and fizzy drinks. Milk in tea and coffee should only be taken from your daily allowance! If you need to sweeten your tea or coffee use a sweetener.***

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## Meal replacement drinks

Some people wish to use meal replacement drinks instead of the milk or food options. Not all meal replacements are the same, so please check with your dietitian for suitable meal replacements. In general meal replacements are an option, but are significantly more expensive than the other liquid option.

## Frequently Asked Questions

### What if I have diabetes?

If you have diabetes and are on medication you may need to alter the dose, or stop some altogether while following this diet, to ensure your blood glucose does not get too low or become very high. If you monitor your blood glucose you should continue to do this. You should discuss with our team prior to starting your diet. Particularly highlight to your dietitian if you take any diabetes drugs other than metformin.

### Weight loss medications

Make sure to tell the team on each contact if you have started any weight loss medications as these need to be reduced or stopped before your liver reduction and completely stopped before you have the operation. Some of them work for a longer period of time so need to be stopped a week before your diet starts.

### Are there any risks to the diet?

Because the diet is low in calories and carbohydrates you may feel more tired than usual, or light headed. You may also find

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concentration harder than usual. If this happens ensure you are taking the recommended portions for all foods/liquids and maintaining your hydration. Ensure you are spreading your meals throughout the day without long gaps between. You should not follow the diet for longer than the recommended two weeks. Most people describe some element of bad breath, that is caused by using up some of the energy in the liver during this diet. Sugar free gum in moderation can help.

### **Should I take vitamin and mineral supplements?**

The diet is very restrictive, it is recommended that you take a general A-Z vitamin and mineral supplement if following the food-based plan. **This is essential if following the liquid-based plan.**

### **When do I stop the diet?**

You should continue until midnight the night before your surgery. You will be advised when you need to be nil by mouth for surgery. It can be tempting to eat one last meal before your surgery. This can reverse the benefits of the diet and will prevent your surgery from happening. On occasion you may be advised incorrectly to have a small breakfast the day of surgery, this is not the case and your surgery may be cancelled.

### **Will my bowel habits change?**

It is likely your bowels may be less frequent than usual whilst following the diet. Ensure you are achieving your full fluid

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recommendations. Gentle exercise can also help. You can take stool softeners such as Dulcolax (sodium docusate) or osmotic laxatives such as movicol or laxido (macrogol)

## **Obesity related medical conditions, anaesthesia and Risks**

### **Type 2 diabetes**

This occurs when your body becomes resistant to the hormone insulin which regulates your blood sugar level. Type 2 diabetes usually occurs in later life and is associated with obesity. Poorly controlled diabetes leads to problems such as:

- kidney disease.
- heart disease.
- sight loss.
- problems with circulation in your feet and legs, which can lead to amputations.
- nerve damage leading to numbness, loss of function or pain.

### *Type 2 diabetes and anaesthesia*

Patients with diabetes have a higher risk of infection after surgery due to slower healing, especially with high blood sugar levels. Good blood sugar control before surgery is essential to reduce risks. Speak to your diabetes nurse or GP in advance to adjust treatment if needed.

### **Obstructive sleep apnoea (OSA)**

OSA is a relatively common condition in adults with obesity as there is more fatty tissue in the neck area and tongue. During

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sleep, the walls of the throat relax and narrow, which interrupts normal breathing and sleep.

OSA can lead to:

- pauses in breathing at night.
- stress on the heart and lungs.
- poor sleep.
- excessive tiredness in the daytime.
- irregular breathing, which can cause a build-up of carbon dioxide and a reduction in oxygen levels.

### *OSA and anaesthesia*

Moderate or severe OSA may make you very sensitive to sedative drugs, alcohol, pain killers or anaesthetics. These drugs can worsen the symptoms of OSA.

If you or your partner think you could have OSA, you should ask your GP to refer you to a sleep clinic to see if you are eligible for a continuous positive airway pressure (CPAP) machine. This is a small pump that delivers a compressed air through a tight mask while you sleep that either covers your nose or your nose and mouth. The compressed air prevents your throat closing.

If used correctly, a CPAP device can be life changing, by helping you to sleep well, to feel more awake during the day, to have more energy and to help you lose weight. It also reduces the strain on your heart, which stops the snoring and aids better sleep. Importantly, a CPAP device allows you to tolerate stronger pain killers more safely.

It is very important to bring your CPAP machine to the hospital for use after surgery. If you cannot use it, inform your surgical team in advance so they can arrange alternative support.

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## Thrombosis (blood clots)

Obesity increases the risk of life-threatening blood clots. Other risk factors include smoking, atrial fibrillation (arrhythmias or irregular heartbeat), cancer, broken long bones, or any patient who is bedbound for prolonged periods. More risk factors mean a higher chance of thrombosis.

### *Thrombosis and anaesthesia*

This risk can be minimised by keeping as mobile as possible before and after surgery. Hospital staff will discuss measures to reduce the risk. These could be:

- Wearing compression stockings (your nurse will help you put these on).
- Use of intermittent calf compressors – these boots squeeze your lower legs to keep the blood moving throughout your surgery and during your early recovery.
- Early mobilisation – for most types of surgery this means getting out of bed on the day of your operation or the following day.
- Depending on the type of surgery you are having, you may be prescribed tablets or injections to thin your blood. You may be required to take these at home as well.

## High blood pressure and heart disease

Obesity stresses the heart as it needs to work harder to pump oxygen around your body. It is often associated with high blood pressure and high cholesterol, which can eventually lead to heart disease. Irregular heartbeats (arrhythmias), strokes and kidney disease are also more common if you have obesity.



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## *Heart disease and anaesthesia*

Anaesthesia and surgery may cause additional stress on the body and the heart. Having obesity can increase the risk of heart attack or heart failure or arrhythmias during and after surgery.

If you have high blood pressure or any problems with your heart these should be well controlled before the surgery to reduce any potential risks. Have your blood pressure checked at your surgery well ahead of your operation – some GP surgeries have automated machines so you can pop in any time. If it is high, your GP can check your medications and make any changes needed ahead of the operation.

## **Heartburn**

Heartburn is a burning feeling in the chest caused by stomach acid wrongly travelling up towards the throat (acid reflux) and is more common in overweight or obese individuals.

## *Heartburn and anaesthesia*

With heartburn, there is an increased risk that stomach contents could spill into the lungs during an anaesthetic. A breathing tube is often used to reduce this risk. Inserting breathing tubes, however, can be more difficult in some patients who are overweight or have obesity.

It is helpful to lose weight before surgery and to use antacid medication regularly, including on the day of surgery.

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## Additional risks and complications

Modern general anaesthesia is actually very safe. There are some common side effects from the anaesthetic drugs, or the equipment used, which are usually not serious or long lasting. Risks will vary between individuals and will depend on the operation and the anaesthetic technique used.

Your anaesthetist will discuss with you the risks that they believe to be more significant for you.

**Very Common** – (more than 1 in 10) Sickness, Shivering, Thirst, Sore Throat, Bruising and Temporary memory loss (mainly in over 60s).

**Common** – (between 1 in 10 and 1 in 100) Pain at the injection site, Minor lip or tongue injury.

**Uncommon** – (between 1 in 100 and 1 in 1,000) Minor nerve injury.

**Rare** – (between 1 in 1,000 and 1 in 10,000) Peripheral nerve damage that is permanent, Corneal abrasion (scratch on eye), Damage to teeth requiring treatment, Anaphylaxis (severe allergic reaction to a drug).

**Very Rare** – (1 in 10,000 to 1 in 100,000) The risks we all take in normal life, such as road travel, are actually far greater than these risks. Awareness during an anaesthetic (1 in 20,000), Loss of vision (1 in 100,000), Death as a direct result of anaesthesia (1 in 100,000).

If you have significant levels of excess weight, it can be harder, and may take longer, to carry out certain procedures during surgery and anaesthesia, such as:

- Finding a vein to give drugs and fluid. This could take considerable time and may result in bruising to your arms, but it is essential to deliver your anaesthetic.
- Monitoring your blood pressure.
- Adjusting the sedative drug doses correctly, especially if you have OSA.
- Inserting a breathing tube in your throat to help you breathe during the operation (ventilation). Your oxygen levels can drop very quickly if there is any delay. Giving oxygen before your anaesthetic can help reduce this risk.
- Difficulties in moving you into the correct position for your operation. You may be asked to position yourself on the operating table to reduce the need for staff to move you. Extra weight itself can lead to an increased risk of pressure injuries.
- Increased risk of chest and wound infections after your surgery.
- Increased length of stay in hospital after surgery.

In addition, patients with obesity may take longer to recover after an anaesthetic.

## **Improving lifestyle ahead of surgery**

For planned surgery there are many things that you can do to reduce risk and make the procedure as safe as possible. The following are steps you can take while waiting for surgery to decrease your chances of complications and help speed up your recovery.

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## **Losing weight**

Losing weight before your operation has many advantages.

- For laparoscopic (keyhole) surgery, losing even a few kilograms your diet before surgery can reduce the amount of fat inside your abdominal cavity. It can also shrink the size of your internal organs, especially your liver, which allows more space for the surgeon to operate.
- It will reduce the risks of breathing problems, sleep apnoea, chest infection and blood clot formation after the anaesthetic. In addition, it is important to eat healthily to ensure adequate vitamin and protein levels to help your body to heal after surgery.
- It will help you control existing medical conditions, such as diabetes and OSA.

## **Smoking**

Smoking increases the risks associated with anaesthesia and surgery, including breathing problems, infections, and delayed healing. Stopping smoking, even a few weeks before surgery, can improve your recovery and reduce complications. Unfortunately, We will not operate on anyone who is currently smoking or vaping.

## **Alcohol consumption**

If you also stop drinking alcohol before surgery, this improves liver function and reduces the severity of OSA.

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## **Exercising more**

Increasing your activity levels before an operation can make a real difference to how well and quickly you will recover after surgery. Exercise helps with weight loss but importantly improves your heart and lung function. Keeping as mobile as possible before and after surgery can also reduce the risk of developing blood clots.

## **On the day of the operation**

Please continue your medications as prescribed unless we have advised you to stop taking any. This is particularly important if you are taking any medicines to thin your blood. Your operation may not go ahead if you don't follow instructions about how to take your medication before the operation.

There will be clear instructions about eating and drinking. These instructions are important. If there is food or liquid in your stomach during your anaesthetic, it could come up into your throat and lungs and endanger your life.

## **Before surgery**

- Your height, weight and BMI will be checked again on admission. Equipment safe for your weight can then be used during your care.
- You will be given a suitably sized gown and compression stockings to wear for your operation.
- You may be asked to walk to the operating theatre and position yourself comfortably on the operating table.
- You will be asked to breathe oxygen through a facemask before you go to sleep.

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- Equipment will be attached to your body to monitor your pulse, blood pressure and oxygen levels during the operation.

### **Immediately after surgery**

- You will usually wake up after your surgery in the recovery room and will be sat upright to help your breathing.
- You may need nebulisers or inhalers to further help your breathing.
- If you have OSA and a CPAP device, the staff will help you to use it if needed.
- With obesity, and particularly after certain types of surgery, there is increased risk of you needing care in the high dependency unit (HDU) or the intensive care unit (ICU) after your surgery. If this is planned, it will be discussed with you before your surgery.

### **On the recovery ward**

- If you are unable to move yourself, there may be a need for extra staff or special equipment to help you.
- If use a CPAP machine, the staff will assist you to use it.
- You will be encouraged to get up and move around on the day of your operation This will reduce the risk of blood clots and improve your recovery.
- It is vital that you breathe deeply to reduce the risk of chest complications.

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Patients living with obesity do have increased risks, but if there is time before surgery, these can be reduced by losing weight, increasing exercise, stopping alcohol consumption and optimisation of chronic diseases.

## **Liquid medications**

For the first four-six weeks after surgery all your regular medications must be in liquid or crushable form. You may need to buy a pill crusher from a pharmacy for this purpose. This is to allow your stomach to heal. We will write to your GP to ask them to change this, but it is your responsibility to pick up the medication and bring it to the hospital with you. If you have not heard from your GP about this and you are due to start your liver reduction diet, you must contact them about changing your prescription.

## **Coming for surgery**

You will be contacted regarding a date for your surgery and you will then receive this in writing. Prior to your surgery you will need to attend an appointment to have swabs done and sometimes further bloods if required.

Once we have a date for your surgery, your GP and yourself will be sent a letter regarding your medications and changing them into liquid, crushable or soluble form as previously discussed above.

The day before your surgery, you will be contacted by the admissions team to confirm the time they wish you to attend the department prior to surgery.

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Please make sure you have liquid or soluble paracetamol in preparation for your return home, as this will not be dispensed by the hospital.

Please make sure you bring into hospital with you:

Medications in liquid, soluble, crushable form;

CPAP machine if you use one;

You can bring a phone and charger;

Wear something into hospital that you would feel comfortable to travel home in following your surgery, bearing in mind your abdominal wounds.

Basic hygiene essentials such as toothbrush, toothpaste, something to wash with, maybe your own nightwear and slippers although this is not essential as you will be provided with a gown and non-slip socks;

You may also wish to bring a protein drink, protein water, peppermint tea or some sugar free/ no added sugar squash. This is not essential as basic drinks such as Milk, tea and water will be provided.

## **Admission to hospital**

When you come in for surgery, you will be required to attend the admissions department and your relatives or friends can drop you there, but will not be able to sit with you whilst you wait.

On the day of surgery, you will be seen by a surgeon, anaesthetist and one for the Bariatric specialist nurses if they are available and members of the admissions team. You will have a



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repeat blood test, be weighed, have your observations taken including blood pressure, pulse and temperature as well as being provided with your anti-embolic stockings, anti-slip socks and a gown.

## **Post-operative care**

You will have 3-5 Laparoscopic incision sites which will be closed by either medical glue or clips which will need to be removed by the GP practice nurse at 10-14 days. Your wounds will be reviewed prior to discharge home. If they are clean and dry, they will be left exposed and if dressings are needed, the hospital will provide them. You may shower after discharge, but be careful not to rub the wounds. Let the water gently wash over them. Afterwards, pat the area dry with a clean towel and allow it to air dry before dressing. You should wait 2 weeks before taking a bath, and this period may be extended if your wounds are not fully healed or after clip removal. We also recommend waiting 6 weeks before swimming.

You will be required to have blood thinning injections for two weeks, unless informed differently by the team. You can give these to yourself or a relative or friend can give them to you. The ward nurses will be able to demonstrate on how to administer these injections if you require.

You will need to wear your anti-embolic stockings for 2 weeks, both day and night, only removing them daily for a shower. It is important to stay mobile after surgery to reduce the risk of blood clots and help disperse the gas in your abdomen from the laparoscopic procedure, which can cause pain and discomfort. Additionally, take deep breaths (3-4 at a time) and repeat at

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least 3 times an hour to fully expand your lungs, as the gas may leave you feeling sore or uncomfortable. This will help reduce the risk of a chest infection. If you need to cough, we recommend using a rolled-up towel, pillow, or the flat palm of your hand to support your wounds, making it more comfortable to cough.

You will be given medication to help promote bowel movements. Due to the Liver Shrinkage diet and surgery, your bowel function may slow down. Take the medication as needed and ensure you maintain a good fluid intake to keep your stools soft and regular.

You will not be able take any ibuprofen or NSAIDS orally post op including Naproxen due to the risks of ulcers to the gastric intestinal tract.

You can not drive for at least 2 weeks and if you drive as your employment, you may need to check with the insurance and also consider if there is heavy lifting involved. After weight loss surgery, it is generally recommended to wait at least 6 weeks before engaging in strenuous physical activities. This period allows your body to heal properly, especially the abdominal area, and reduces the risk of complications. However, the exact timing can vary depending on your individual recovery. If unsure please discuss with your surgeon or Clinical Nurse Specialist.

If you experience any sudden severe abdominal pain, a high temperature, difficulty keeping fluids down, unexpected bleeding, redness, pain or swelling in your calves, or sudden shortness of breath, we recommend going to A&E. For any concerns, please contact the bariatric team or call 111 if it's outside of normal hours.

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## General changes post-surgery

Changes in hormones mean you will not feel as hungry, and some people don't feel hungry at all after surgery. You will not be able to eat as much or drink as much and it is very important to allow your new stomach/intestines heal after the operation.

It is important to make sure that enough fluids and important elements of the diet are absorbed after surgery, particularly protein and micronutrients. Your new anatomy will not be able to tolerate large quantities of food or fluids and it's important to make sure you are consistently providing fluids throughout the day.

Some people will find that they have a much stronger 'restriction' than others and it is not possible to predict this. It's very important that people make changes to their eating and drinking after surgery to avoid unpleasant side effects like nausea, vomiting, regurgitation, pain or dumping syndrome.

It is likely that after weight loss surgery there will be an element of loose or excess skin, and it's very unlikely that this will be removed on the NHS except in very specific circumstances.

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## Weight loss post-surgery

Everyone's journey with weight loss will be slightly different. Some people with a much higher starting BMI might lose a lot of weight more quickly. You should try to only compare yourself to you. Some people will be able to exercise a lot after surgery and build good muscle mass and enjoy exercise to help them lose weight and tone up. Others may have conditions that allow them to exercise less, so their overall weight loss might be reduced.

We recommend weighing once a week maximum, and monitoring changes over a longer period of time. It's easy to become fixated on the scales when small variations throughout the day are usual and expected. If you choose to take photos of your progress, it can be useful to do so in the same place each time. At the bottom of your stairs or in a doorway at home can give you the same backdrop to help.

### Weight loss example

Weight loss following bariatric surgery varies greatly. A weight loss of 50-70% excess weight can be expected 18 months after surgery.

The term excess weight refers to how much extra a person is over a BMI of 25 kg/m<sup>2</sup>. Achieving a BMI of 25kg/m<sup>2</sup> and below is not a realistic goal for the majority of people who undergo bariatric surgery.

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An example of excess weight and weight loss is shown below:

Weight: 162kg (25st 8lb), height: 1.75m, BMI 52.9kg/m<sup>2</sup>

Ideal body weight BMI 25 = 76.5kg (12st 1lb)

Excess weight: 162-76.5= 85.4kg (13st 7lb)

50% excess weight loss: 42.7kg (6st 11lb)

70% excess weight loss: 59.6kg (9st 6lb)

Weight after surgery (losing 50-70% excess weight): 102.2-119.3-kg - (16 st 1lb- 18st 10lb) with a BMI of 33-38.9kg/m<sup>2</sup> – remaining in the overweight range.

There are a range of different factors which can affect weight loss progress. As you age, your metabolism naturally slows down, and you may lose muscle mass, which can make weight loss more challenging. Your metabolic rate, or the number of calories your body burns at rest, varies from person to person—some people burn more calories, while others burn fewer, affecting how easily they lose weight. Having more muscle mass helps increase calorie burn, even when you're not active, which can support weight loss. Regular exercise, especially a combination of cardio and strength training, boosts calorie burn and helps preserve muscle mass, making weight loss more achievable.

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## Psychology and looking after your mental health

Bariatric surgery involves making a permanent alteration to your body, as well as lifestyle changes before and after surgery. It's important that you are ready for this, physically and emotionally.

- Some things you can do to make sure you are psychologically ready include:
  - Having good knowledge of what the surgery involves, the changes you will be committing to for life and the unexpected side effects.
  - You can do this by attending the education sessions on offer, speaking to others who have undergone surgery and reading up on the topic.
  - The more you know what you are entering into, the easier the transition will be.
- Before and after the surgery:
  - Draw in sources of support: have a good period of time off from work, use family and friends for emotional and practical support and speak to your dietitian or nurse if you have any concerns
  - Try to time the surgery for a time in your life where there are minimal other life stressors and remember not to make any big changes to your life around the time of your surgery (moving house, taking up a new job or coming off any antidepressants)
  - There is a natural adjustment process that happens after the surgery where emotions are up and down. If you are worried about your wellbeing, speak to your GP or self-refer to your local talking therapy service.

- If surgery is agreed and you are placed on a waiting list, it is important to try to maintain lifestyle changes that you've already made (e.g. healthy eating, getting enough sleep, and exercise, stopping smoking, reducing alcohol intake);
- Follow the 'preparation for surgery' advice from the bariatric surgery team;
- Keep using the coping skills you have learned to deal with emotional eating and use the time before surgery to address any further issues to do with problematic eating that may undermine you following your surgery
- Keep going with any counselling or mental health support you already receive

### **Managing your diet after bariatric surgery**

After bariatric surgery, it is essential for you to understand your diet and food groups to ensure your long-term success and health. With your stomach size reduced, proper nutrition becomes crucial to prevent deficiencies and support your recovery. Knowing which foods are nutrient-dense helps you maintain the right balance of vitamins, minerals, and protein. Understanding portion sizes and food choices also helps you avoid complications like vomiting, dumping syndrome and weight regain. By learning about your dietary needs, you can develop healthy eating habits that support healing, prevent issues, and help you maintain a positive relationship with food as you adjust to your new lifestyle.

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## Protein

Protein is one of the three macronutrients (along with carbohydrates and fats) that our bodies need in large amounts for optimal health. It is made up of amino acids, which are the building blocks that help the body grow and repair tissues, make enzymes and hormones and many other important functions.

There are 20 amino acids that make up proteins, and of these, 9 are essential amino acids. This means that our body cannot produce them on its own and we must obtain them from food. The remaining amino acids are classified as non-essential because the body can produce them.

Protein is particularly important for people undergoing bariatric surgery as it helps prevent muscle loss, promotes healing after surgery and supports the body's ability to function properly.

Protein also helps regulate blood sugar levels, promotes satiety (feeling full) and supports healthy skin, hair and nails. For people undergoing bariatric surgery, getting adequate protein is crucial for preserving muscle mass, aiding in wound healing and ensuring a healthy metabolism. Since bariatric surgery reduces stomach capacity, protein needs may be higher, making it important to consume protein-rich foods to meet daily requirements.



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## Fibre

Fibre is an essential carbohydrate that the body cannot digest, and it plays a crucial role in maintaining overall health. It helps promote digestive health by preventing constipation and supporting regular bowel movements. Fibre also contributes to weight management by increasing fullness, which helps control appetite. Additionally, it aids in blood sugar regulation, reduces cholesterol levels, and supports heart health. For people undergoing bariatric surgery, fibre is especially important for preventing digestive issues and supporting long-term recovery by improving gut health and nutrient absorption. Including fibre-rich foods in the diet is vital for maintaining overall well-being.

## Carbohydrates

Carbohydrates are the body's primary source of energy. They provide fuel for the brain, muscles, and organs to function properly. For people undergoing bariatric surgery, carbohydrates are important to help maintain energy levels and support digestion, especially when consumed in the form of complex carbs like whole grains, fruits, and vegetables. These foods release energy more slowly, helping to stabilise blood sugar levels and keep you feeling full longer. However, after bariatric surgery, it's essential to choose healthy, fibre-rich carbohydrates to avoid blood sugar spikes and support overall health.

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## Portion sizes

A portion size refers to the amount of food you eat in one sitting. It can vary depending on the type of food, individual dietary needs, and recommendations for a specific health condition or diet.

Small portions are critical due to the reduced stomach capacity after surgery. For example, meals may start with 1-2 tablespoons of food and gradually increase to 4-8 per meal.

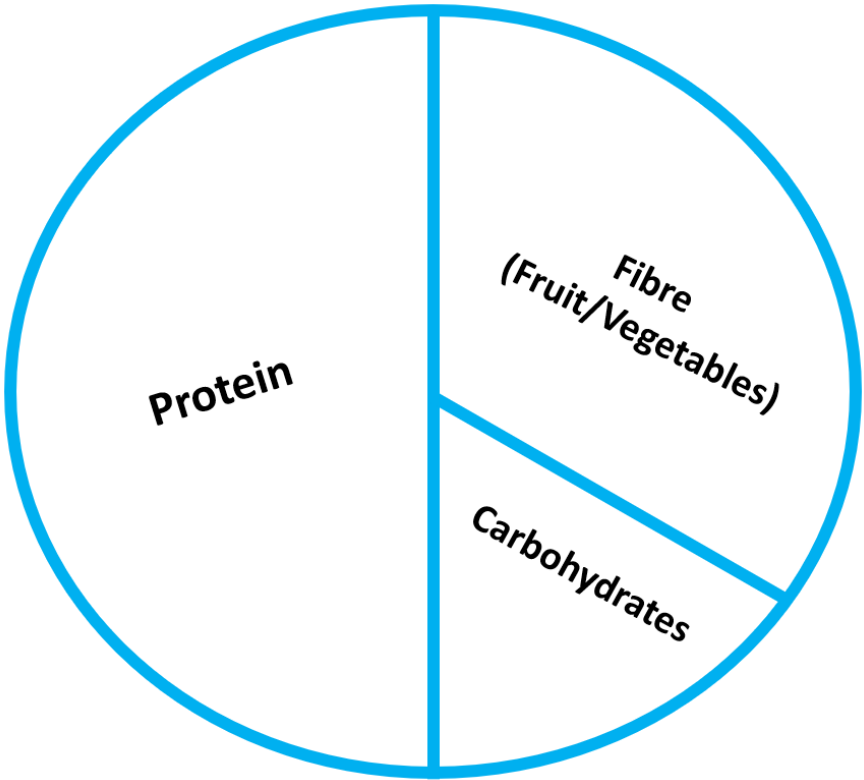
Focus on protein-rich foods to meet nutritional needs while keeping portions smaller to avoid discomfort and overeating.

Portion sizes help regulate calorie intake, promote healthy digestion and prevent overeating, which is especially important for people undergoing bariatric surgery who need to adapt to smaller meals after surgery.

Most people require 1-1.3g of protein per ideal bodyweight (see above to calculate or consult your dietitian to know how much you will require. Some people may need more or less due to their other medical conditions). There are examples below which show 10g and 20g protein sources.

If your ideal body weight is 60kg, your daily protein goal should be around 60-78g. To achieve this, a sample meal plan might include 2 small eggs for breakfast, a protein-rich yogurt as a snack and a tin of tuna for lunch or dinner. A simple way to estimate your protein portion sizes is by referencing the size of a tuna can or using the palm of your hand—both roughly equal to a 20g protein source. This can help you easily track and meet your protein needs throughout the day.

Your diet as a whole should focus on protein, fibre and then carbohydrates. The diagram below shows what your plate should mostly consist of.



<b>Protein</b>	<b>Fibre</b>	<b>Carbohydrates</b>
Chicken/turkey/beef/pork/lamb	Apples	Wholemeal pasta/rice/couscous
Salmon/tuna/mackerel	Pears	Wholemeal tortillas
Prawns/shrimp	Mixed berries	Wholemeal bread thins
Cod/white fish	Bananas	Wholegrain crackers
Eggs	Oranges	Wholemeal noodles
Greek yoghurt	Avocado	Oats
Cottage cheese	Prunes	Granola (low sugar)
Cheddar/ other hard cheeses	Broccoli	Quinoa
Tofu	Carrots	Weetabix
Tempeh	Spinach	Porridge
Beans/lentils/pulses/legumes	Sweet potato	Readybrek
Nuts	Chia seeds	Potatoes
Milk	Flaxseeds	
Hummus	Pumpkin seeds	

<b>10g protein sources</b>	<b>20g protein sources</b>
2 small eggs	3 large eggs
1/3 of a chicken breast	2/3 of a chicken breast (120g)
½ protein yoghurt	1 protein yoghurt
50g of lean beef	100-120g of lean meat (beef/pork/lamb)
½ can tuna/salmon	1 can of tuna/salmon
100g tofu	200g of tofu
30g jerky/biltong	100-120g of prawns
50g of nuts (mixed)	200g mixed beans
4 slices of wafer thin ham	200g of lentils/pulses
Baby bell light + pepperami	100g of cod/loin/salmon/sea bass
3 tbsp hummus	25g of Seitan
100g of lentils	40g of textured vegetable protein
3 Tbsp of cottage cheese	
120g of crabsticks	

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## Diet after surgery:

After your surgery you will need to go through several stages slowly progressing from fluids to solid foods. This is to avoid putting pressure on your wounds as they heal. You will need to follow a modified texture diet for 6 weeks before you can return to a normal diet. The texture progression phases are important to reduce discomfort and unpleasant side effects such as vomiting and regurgitation or pain. It will also help you adjust to your new, smaller stomach. With each stage of the diet you should follow the guidance for two weeks.

### The diet is set out over four stages:

- 1. Fluids**
- 2. Pureed food**
- 3. Soft Moist food**
- 4. Normal varied healthy diet**

The day after your surgery the surgical team will tell you when it is safe to start to begin to sip water. If you tolerate this well you will then start stage one of the bariatric diet. You should continue with each food texture for two weeks and progress to the next stage if you are tolerating this well and experiencing no difficulties.

The aim of each stage is to eat well whilst minimising the risk of side effects whilst your stomach heals.

## Stage One – Smooth liquids (day 1-14)

This stage of the diet allows your stomach to rest and heal from the surgery. It is important to go slowly and adjust to your smaller stomach size. After weight loss surgery appetite will also be significantly reduced and it can be a challenge to get enough protein and fluid therefore it is important to prioritise liquids that are high in protein before other fluids.

All liquids should be completely smooth with no lumps or bits. Start with small frequent sips and gradually increase the quantity until the sensation of feeling full occurs. It is important to stop as soon as you feel full to prevent pain, nausea or vomiting. The liquids you drink should be thin enough to pass through a straw. Fluids need to be taken slowly so that you can develop a sensitivity to how quickly they pass into the stomach area and fill the smaller space recognising when you feel full.

### Protein rich liquids:

Aim for 1 pint or 570 ml per day of protein rich liquids (3-4 high protein drinks 15-25g per 'meal').

- Skimmed or semi-skimmed milk 19 g protein
- Soups containing meats, bean or pulses. Blitz these until smooth, adding additional milk to achieve the correct consistency also increases the protein content. If in doubt pass through a sieve
- Lean protein shakes or meal replacements providing over 15g of protein per serving
- Build Up high protein soups
- Low fat or fat free natural or fruit yogurts
- Ovaltine or Horlicks made with skimmed milk
- Protein water, either pre-made bottles or in the form of clear whey isolate
- Smoothies made with protein yoghurt or low fat yoghurt

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- Smooth soup with additional milk powder/unflavoured protein powder

### **TIP – Use high protein milk (40 g protein per 200 ml serving)**

You can use this in all drinks such as soups, tea, coffee, and powdered meal replacements or shakes

### **Make at home High Protein Milk:**

#### **Ingredients**

4 tbsp or 60 g Skimmed milk powder

1 pint of skimmed milk

#### **Method**

Mix milk powder with 50 ml of the milk to form a paste. Stir in the remainder of the milk and use throughout the day

### **Liquids for hydration:**

- Water
- Tea or coffee with milk. Use sweetener if required, not sugar
- Stock cube, marmite or Bovril in hot water
- No added sugar/ sugar free squash
- Herbal or fruit teas
- Diluted vegetable juice

### **Liquids to avoid:**

- Carbonated drinks and sparkling water as the gases can make you bloated and uncomfortable
- Alcohol as this is an irritant to the stomach
- Any liquids with bits or lumps



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- Fluids with excess sugar or fats which can make you feel sick or cause excessive bowel motions. You are advised to avoid drinks which contain sugar in the long term

### **Sample meal plan: Phase 1 Liquid diet**

Breakfast: High Protein shake

Snack: 200 ml high protein milk

Lunch: Homemade soup

Snack: Slimfast/Complan

Evening meal: High Protein shake

### **How much and when?**

Remember that you now have a much smaller stomach which is still in the process of healing therefore go slowly. Your total fluid aim is six to eight cups per day this is the equivalent of two litres per day which includes protein rich liquids and liquids for hydration.

- Aim for 100 – 200 ml each hour
- Avoid drinking liquids for hydration before protein rich liquid meals. This will prevent you feeling full up which would limit your capacity for nutritious liquid meals
- Stop drinking as soon as you feel full to prevent stress and discomfort to the stomach

### **Vitamins**

After weight loss surgery it is necessary to take a range of vitamin and mineral supplements. Typically, you would start to take these in tablet form from week six after surgery. If you wish to start this earlier a chewable or liquid formulation should be taken.

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## Common Problems and Causes in Stage one

- Pain and discomfort are frequently caused by drinking too quickly or too much at one time
- Vomiting and diarrhoea are often caused by drinking rich fluids too high in sugar or fat
- Constipation can be caused by not getting enough fluid throughout the day or reduced intake of liquid foods
- These symptoms can also be experienced by moving to the next phase too quickly

### Stage Two: Pureed diet (day 14-28)

You should expect to stay on this stage for two weeks. All food at this stage should be pureed but still without lumps. It is important to complete this stage as your stomach pouch will be very small and tight. Pureed foods are smooth and will pass through your stomach more easily. Suitable foods have a consistency of yogurt. You will need to puree your meal using a blender, liquidiser or food processor.

The aim as with all stages is to ensure you are getting all the nutrients you need. You should include a protein, carbohydrate and vegetable portion at each meal. Half your meal portion should be from a protein rich food.

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## Meal ideas: puree stage

### Breakfast

Puree scrambled eggs with puree baked beans  
Puree weetabix/ready brek with high protein milk  
Cottage cheese with puree fruit  
Greek yoghurt with pureed berries  
Smoothie with additional protein powder

### Lunch

Puree chicken with vegetables soup  
Puree baked salmon with sweet mash potato  
Pureed tofu and vegetable stew  
Pureed lentil soup  
Pureed mince, mixed vegetables and sauce

### Dinner

Pureed lentil dahl  
Pureed sweet potato and lentil curry  
Pureed chicken with vegetables  
Puree turkey mince in marinara sauce

### Puree snack ideas

½ low fat, high protein yoghurt (smooth)  
3 tbsp fruit puree  
Pureed hummus and vegetables  
Pureed scrambled egg

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### **Foods to Avoid:**

- All solid foods
- Tough skin on foods such as tomatoes or dried fruits
- Bacon meats with gristle
- Skin on meat, chicken or fish
- Sweetcorn and broad beans
- Tomato seeds
- Bread, toast, rusks, seeds and nuts

### **Liquids for hydration:**

- Continue to keep up fluid intake between meals (aim for 1.5-2 L throughout the day)
- Tea or coffee with milk. Use sweetener if required, not sugar
- Stock cube, marmite or Bovril in hot water
- 'No added sugar'/sugar free squash
- Herbal or fruit teas
- Diluted vegetable juice
- Avoid carbonated drinks and sparkling water
- Avoid alcohol

### **How much and when?**

It is common to experience some discomfort after surgery. The following tips can help:

- Eat 3 small meals and 2-3 snacks throughout the day. Start with 2-3 teaspoons and build up slowly
- Eat food very slowly aim for 20 minutes to complete a meal
- Sit upright in a chair if possible
- Consume foods and fluids separately – wait 30 minutes after eating before having fluids for hydration

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- If your appetite is poor, concentrate on the protein containing part of the meal first
  - You should still chew your foods, even if they are pureed
  - Measure your meals, with a ladle or empty yoghurt pot to guide your portion sizes.
  - If you do experience difficulties after introducing pureed diet you may need return to the previous texture and until things improve and then try again in smaller portions
  - It is not normal to regurgitate or vomit food on a frequent basis. If this is happening you may need to return to phase one of the diet until your symptoms settle then progress slowly
  - You should follow the national guidelines for a healthy diet

### **Stage 3: Soft textured foods (Day 28-42)**

You should expect to remain on this stage for two weeks whilst your stomach continues to heal. All food at this stage should have a soft consistency, be well cooked and could be easily mashed by a fork. You should not require a knife to eat soft foods.

Your meals should continue to be balanced and contain protein, carbohydrate and vegetables. Aim to have three small meals per day and one to two of the suggested protein rich snacks if you feel hungry between meals. It is important not to skip meals.

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## **Meal ideas: soft and moist diet stage**

### **Breakfast**

Soft cooked eggs (scrambled/poached/omelette)  
Porridge/Weetabix/oatibix/readybrek with high protein milk  
Mashed baked beans  
Greek yoghurt

### **Lunch**

Mashed potato with low fat cheese/tuna/beans/cheese  
Thick soups/stew with tender meat and vegetables  
Slow cooked chicken thigh, cauliflower rice and soft vegetables  
Polenta with soft vegetables

### **Dinner**

Beef mince in gravy with soft carrots, swede and skinless mash potato  
Creamy risotto  
Baked salmon with mashed cauliflower  
Tofu stir fry  
Soft chicken and rice casserole

### **Snack ideas**

Low fat high protein yoghurt  
Cottage cheese and pureed fruit  
Moist chicken  
High protein shake/ water

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### **Foods to Avoid:**

- Fibrous vegetables such as celery, sweetcorn, peas or asparagus
- Any food with a tough skin such as tomato, potato skin
- Foods with seeds and pips
- Sausages

### **Liquids for hydration:**

- Continue to keep up fluid intake between meals (aim for 1.5-2 L throughout the day) to avoid constipation
- Tea or coffee with milk. Use sweetener if required, not sugar
- Stock cube, marmite or Bovril in hot water
- No added sugar/sugar free squash
- Herbal or fruit teas
- Diluted vegetable juice
- Avoid carbonated drinks and sparkling water
- Avoid alcohol

## When and how much?

Eat three meals per day, if you feel hungry then have a protein rich snack. The main focus for your meals and snacks is protein. Half of your plate should be made up with protein rich foods. Start with 3-4 teaspoons and stop eating at the first sign of fullness. As little as one extra teaspoon can cause you to overfill which may cause pain or vomiting. It is not uncommon as you pass through this stage to encounter tolerance problems. It is important to remain patient and remember your stomach is still healing.

- Measure your meal portion. A small empty yoghurt pot or small ladle is a good guide
- Fill half your plate with protein rich foods
- Eat slowly and stop as soon as you feel full
- Wait one minute between mouthfuls
- Eat at a table to avoid distractions
- Follow the rule of 20:
  - o 20 mouthfuls
  - o Chewed 20 times
  - o 20 minutes meal time

Continue to consume food and fluids separately. Aim to leave 20-30 minutes after eating.

It is not normal to regurgitate or vomit food on a frequent basis. If this is happening you may need to return to phase one of the diet until your symptoms settle then progress slowly



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## Regular diet

By this stage your stomach should have healed sufficiently to tolerate a variety of different foods and textures. This stage represents a return to normal foods. You should continue to eat three regular meals throughout the day. Eating well after weight loss surgery is important to ensure your diet has sufficient vitamins, minerals and proteins for health and vitality.

The key points to help you maximise the benefits of your weight loss surgery.

1. Eat three meals per day. Your smaller stomach size and reduction in hunger hormones should mean you are satisfied eating 3 meals a day. You should avoid skipping meals even if you are not hungry.

2. Eat slowly, chew carefully and stop as soon as you feel full.

- Take small bites
- Chew each bite 20 times
- Wait one minute between mouthfuls
- Eat at a table to avoid distractions

3. Protein, vegetables, carbohydrates. This is the order in which you should eat from your plate. Protein is the most important component of your meal so eat this first in case you become full.

4. Eat a healthy balanced diet. Choose lean meat or fish with vegetables as these will remain in your stomach for longer and are more satisfying.

5. Portions. Your plate should be 'side' plate sized. Half the plate should contain protein rich sources.

6. Do not graze. Stick to regular eating pattern.

7. Avoid eating and drinking at the same time. There is not enough room in your smaller stomach for food and drink. Aim to

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leave 20-30 minutes before a meal and 20-30 afterward before having fluids.

8. Choose low calorie drinks (non- carbonated) liquids pass through the stomach quickly, high calorie drinks include alcohol, fruit juices, smoothies, sugar containing squash, sports drinks and milkshakes. Milk is a good source of calcium and protein and low- fat milk in reasonable quantities is acceptable. Avoid all carbonated drinks as the gases can create pressure in the stomach and possibly lead to the stomach stretching.

Following a healthy balanced high-protein diet is critically important because it plays a key role in both immediate recovery and long-term health after weight loss surgery. Bariatric surgery alters how the body absorbs nutrients, and maintaining an appropriate diet is essential for healing, preventing deficiencies, and achieving sustainable weight loss.

Due to smaller stomach capacity, altered digestion and absorption, you must focus on nutrient-dense foods to ensure that you get the nutrients that your body needs.

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## **Meal ideas: regular diet**

### **Breakfast**

Greek yoghurt, berries, 2 tbsp of low fat/low sugar granola  
Smoked salmon with egg  
Tofu scramble  
Omelette (tomatoes/spinach/peppers/mushrooms)

### **Lunch**

Tuna salad  
Chicken broccoli and rice  
Jacket potato with cheese/beans/tuna  
Turkey/Quorn mince lettuce wraps

### **Dinner**

Grilled chicken and vegetable skewers  
Tofu and vegetable stir fry  
Stuffed bell peppers with ground turkey  
5 bean chilli with cauliflower rice

### **Snack ideas**

2 boiled eggs  
Chicken pieces  
Low fat cheese (baby bell light)  
Small handful of mixed nuts

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## Meal planning/ eating out after bariatric surgery

After bariatric surgery, you can still enjoy eating out, but it requires some adjustments. The key is portion control and choosing healthier options. You can order starter-sized dishes, opt for a children's menu, or simply ask the restaurant to serve smaller portions. Don't hesitate to let the staff know you have had bariatric surgery; most restaurants will be happy to accommodate your needs.

Focus on lean proteins, vegetables, and healthier sides, and avoid high-fat or high-sugar options. You can ask for sauces or dressings on the side, choose grilled over fried foods, and replace high-carb sides with extra vegetables or a small salad. By making these adaptations, you can still enjoy dining out while staying on track.

Meal prepping after bariatric surgery helps ensure portion control by allowing you to prepare smaller, balanced meals in advance, preventing overeating. It also helps you focus on protein-rich foods like lean meats, tofu, eggs, and legumes, which are essential for healing, maintaining muscle mass, and promoting fullness. By having meals ready, you can maintain a consistent eating schedule, which supports your recovery and helps avoid cravings. Meal prepping also gives you control over ingredient choices and cooking methods, allowing you to opt for healthier, low-fat, and low-sugar options. This not only saves time but also reduces stress, making it easier to stay on track even on busy days.

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## Vitamins and minerals

After having weight loss surgery, it is unlikely that you will be able to get all the vitamins and mineral that your body requires. It is difficult to eat enough of these nutrients with your smaller stomach and it is harder for your body to absorb. You will need to take a multivitamin and mineral supplement, every day. This is a lifelong requirement and essential for good health and should be taken from week 6. If taken in liquid or chewable form, you may wish to start earlier.

### Multivitamin and mineral

Multivitamins are required after surgery to support overall health and prevent deficiencies. It helps bridge the gap between reduced food intake and your body's need for essential vitamins. A complete multivitamin provides a solid foundation for your nutritional needs.

### Choose from:

- Forceval one capsule per day (this is available on prescription in certain circumstances) Dose: One capsule per day
- Over the counter supplement such as Sanatogen A-Z, Centrum A-Z (also available in supermarket own brand such as Tesco, Asda or Morrisons A-Z, Lloyds/Boots/Superdrug A-Z.) Dose: Two capsules per day
- Please note that while there are specialised bariatric multivitamins available, they can be quite expensive. The standard supermarket versions are equally effective and can serve as a more affordable alternative.

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## Calcium and vitamin D

Both calcium and vitamin D are essential for bone health, muscle function, and the absorption of nutrients. After bariatric surgery, it is especially important to supplement these nutrients to prevent bone loss, osteoporosis, and other deficiencies. Adequate levels of both help ensure the proper functioning of the immune system, muscles, and nervous system, supporting overall health and well-being.

### Vitamin D:

Vitamin D supplement containing 1000iu/25ug of vitamin D

### Calcium:

You will need to ensure you are having a diet rich in calcium, to get this naturally from your diet you should aim for 800-1000mg each day.

## Iron

- Ferrous fumarate 210 mg
- Ferrous sulphate 200 mg
- Ferrous gluconate 300 mg

Iron is crucial for overall health due to its role in several vital functions. It is a key component of haemoglobin, which carries oxygen in the blood, helping to prevent anaemia, fatigue, and weakness. Iron also supports metabolism, immune function, and tissue repair, contributing to better recovery from illness or injury. Adequate iron intake boosts energy levels, aids in immune defence, and improves physical endurance

Dose: One tablet each day or two tablets during menstruation

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## Vitamin B12

Vitamin B12 is important for nerves, red blood cells, energy, and brain health. After bariatric surgery, it can be harder for your body to absorb B12 from food, so having a B12 injection is necessary to prevent deficiency,

- Three monthly injection

### Shared care with your GP

Throughout your weight loss journey, we will stay in regular contact with your GP to get them informed of your progress. Please be aware that blood tests will be required during your follow up appointments. These tests will be managed and arranged by our team, so your GP will not need to handle them, we will however update them on any potential abnormalities.

### Post op care

You will receive follow up appointments at regular intervals after having surgery, this is to monitor your progress and ensure that your health is on track. These appointments will be a combination of in-person and virtual with the dietitian and/or clinical nurse specialist. Unless there is a specific reason for it, you will not see a surgeon after you are discharged from the hospital.

## Post-Operative Complications

### Hair loss

During the first 6-9 months you will likely experience rapid weight loss. It is not uncommon for some hair loss to occur. By continuing to eat a healthy and balanced diet and taking your vitamin and mineral supplements this will allow your hair to return to normal in the longer term.

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## Dumping Syndrome

Dumping syndrome is a common side effect after weight loss surgery. Up to 75% of people who have had a gastric bypass surgery will experience dumping syndrome. This condition occurs if you eat or drink too much sugar, if you eat and drink food together or if you consume large quantities of food.

There are two types of dumping syndrome: early and late. Early dumping syndrome can happen during or immediately after a meal (within 10-30 minutes) and late dumping can occur 1-3 hours after eating.

### Early dumping

Early dumping occurs when food (particularly high-sugar or high-fat foods) moves too quickly from the stomach, and into the small intestine. Due to the small intestine receiving undigested food too quickly, this leads to a release of hormones and fluids which help to digest it. This causes a rapid shift in fluid from the blood vessels into the intestines, which can lead to various symptoms (Bloating, cramps, sweating, nausea, vomiting, heart palpitations, dizziness etc.)

### Late dumping

Late dumping syndrome is primarily caused by a rapid rise in blood sugar levels, followed by a sharp drop (hypoglycaemia) after consuming foods higher in sugar or simple carbohydrates. In normal digestion, sugar is gradually absorbed into the bloodstream. After weight loss surgery, the stomach is smaller and the normal digestion is bypassed, so sugar moves quickly into the small intestine. The rapid sugar absorption causes an initial spike in blood sugar, followed by the body's insulin response, which can lead to low blood sugar levels.; the body tries to correct the drop, leading to symptoms.



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This can happen during or immediately after a meal within 10-30 minutes of eating or later 1-3 hours after eating. Symptoms include nausea, vomiting, diarrhoea, cramping, dizziness, fatigue, fainting and increased heart rate.

Tips to avoid dumping syndrome:

- Avoid sugary foods and drinks, this includes undiluted fruit juices
- Avoid eating and drinking fluids for hydration at the same time
- Eat smaller portions and ensure you are chewing your food
- Dumping syndrome can also be experienced when having foods which are high in fat and alcohol
- Choose higher protein and lower carbohydrate food choices

## Constipation

The most common cause for constipation is insufficient fluid intake, therefore it is important to ensure you are staying well hydrated throughout the day. After bariatric surgery you will be unable to drink a lot in a short amount of time, it is important to space your hydration throughout the day, ensuring you are having between 100-200mls per hour. Fibre is also an important component of the diet, and this can also soften the stool, making it easier to pass.

### Tips to avoid constipation:

- Increase your overall fluid intake
- Ensure you are eating enough high fibre foods such as fruits, vegetables, pulses and wholegrain cereals
- It is important to keep active and mobile to improve bowel function
- It may help to add a laxative if your constipation does not improve with these modifications

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## Nausea, vomiting and indigestion

Nausea and vomiting can occur due to a wide range of causes. If you have been sick or are feeling sick it may be that you might have eaten and drunk too closely together, or simply just eaten/drunk too quickly. Please see below for further ways in which you can avoid these symptoms.

### Tips to avoid nausea, vomiting and indigestion

- Ensure you are not eating too quickly – remember the rule of 20!
- Chew all food thoroughly
- Avoid eating and drinking at the same time
- Do not lie down too soon after eating or drinking

### Exercise

After bariatric surgery, it's important for you to exercise because it helps support your weight loss, improve muscle tone and boost your metabolism. Regular physical activity can also reduce the risk of complications like blood clots and improve overall health by enhancing cardiovascular fitness, flexibility and mobility. Additionally, exercise can help you maintain your weight loss long-term, improve your mental well-being and boost your energy levels, making it an essential part of your new lifestyle.

### NHS weekly activity recommendations:

2x strength/resistance-based sessions - this helps strengthen your muscles, increases your bone density and will also contribute towards healthy heart and lungs

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150 mins of moderate aerobic activity such as swimming or mowing the lawn **or** 75 mins of vigorous aerobic activity, such as running or climbing stairs

### **Main principles to follow:**

Meet the NHS guidance for weekly amount and types of exercise

Pick exercise forms you find enjoyable: this will help you be consistent over time

Go with a friend/family member, or tell someone your plan for the session: this will help to hold you accountable

Follow the plan, not the mood: stick to what you said you'd do, and see it through

### **Further information and advice can be obtained from:**

Sources of further information

#### **For you**

- NHS ([nhs.uk/live-well](https://www.nhs.uk/live-well)).


#### **Your GP**

- Preparing for surgery – Fitter Better Sooner ([rcoa.ac.uk/fitterbettersooner](https://rcoa.ac.uk/fitterbettersooner)).
- Anaesthesia and risk ([rcoa.ac.uk/patientinfo/risks](https://rcoa.ac.uk/patientinfo/risks)).
- Information leaflets and video resources ([rcoa.ac.uk/patientinfo/leaflets-video-resources](https://rcoa.ac.uk/patientinfo/leaflets-video-resources)).
- Diabetes UK ([diabetes.org.uk](https://diabetes.org.uk)).
- Active 10 app
- Couch to 5k
- Let's get moving booklet and activity plan
- Moving medicine patient information finder
- Everyday active Kent
- One You East Sussex
- We Are Undefeatable

## For your doctors

- Society for Obesity and Bariatric Anaesthesia (SOBA) (sobauk.co.uk).
- Perioperative management of the obese surgical patient (bit.ly/periop-obese-patient).

**NHS 111**

 **111**

**NHS Choices online**

[www.nhs.uk](http://www.nhs.uk)

**MTW NHS Trust is committed to making its patient information accessible in a range of languages and formats. If you need this leaflet in another language or format please ask one of your clinical care team or the Patient Advice and Liaison Service (PALS). We will do our best to arrange this.**

Maidstone and Tunbridge Wells NHS Trust welcomes all forms of feedback from our service users. If the standard of service you have received from the Trust does not meet your expectations, we want to hear from you. Please speak with the ward manager or the nurse in charge in the first instance, or you can contact the **Patient Advice and Liaison Service (PALS)** on:

**Telephone:**      01622 224960 or  01892 632953

**Email:**            [mtw-tr.palsoffice@nhs.net](mailto:mtw-tr.palsoffice@nhs.net)

**or visit their office** at either Maidstone or Tunbridge Wells Hospital between 9.00am and 5.00pm, Monday to Friday.

You can be confident that your care will not be affected by highlighting any areas of concern or making a complaint. The Trust will retain a record of your contact, which is held separately to any medical records. If you are acting on behalf of a patient, we may need to obtain the patient's consent in order to protect patient confidentiality. More information on PALS or making a complaint can be found on the Trust's website: [www.mtw.nhs.uk](http://www.mtw.nhs.uk) or pick up a leaflet from main reception.

Issue date: October 2022

Database reference: RWF-SUR-GS-LEA-PAT-22

Review date: October 2026

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