

Anaesthesia and your weight

This leaflet explains why and how additional body weight can cause added difficulties and risks during surgery and anaesthesia. It also highlights what can be done before, during and after surgery to reduce these risks.

Introduction

If you have obesity and are planning to have an operation, the excess weight can put you at a higher risk of certain complications. These could be due to the surgery itself or from the anaesthesia you need for the procedure.

Obesity is often seen as a social issue, but as far as your hospital care is concerned, you should not expect to be treated any differently or feel at a disadvantage. NHS hospitals should provide the highest standards of care for you and have policies to help maintain your dignity. Anaesthetists and surgeons regard obesity, not in a judgemental way, but as a medical condition which carries a higher risk during surgery.

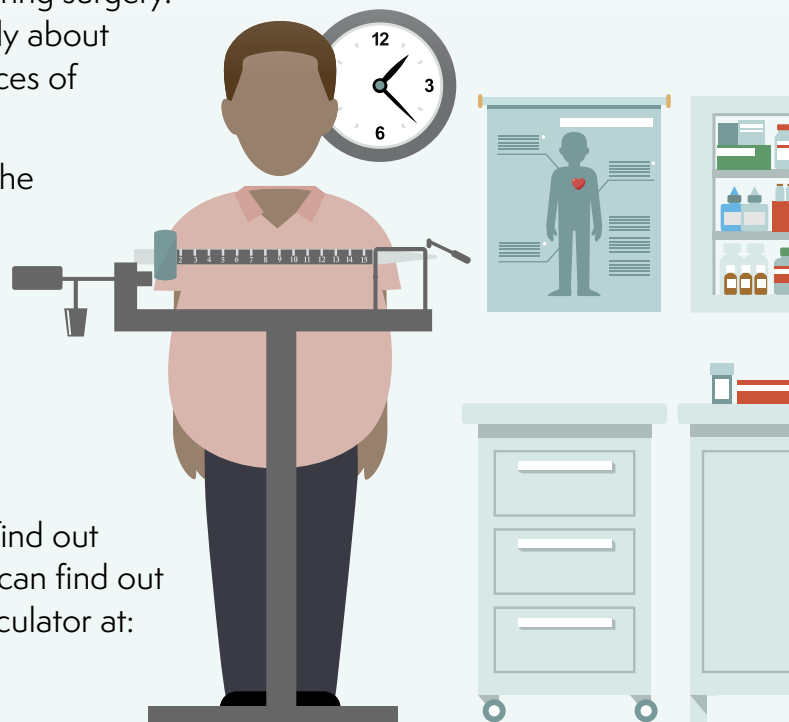
As such it is important that everyone talks openly about risks and concerns as this will improve the chances of successful surgery and recovery.

Anaesthetists are medically trained to manage the potential problems in patients with obesity.

The Society for Obesity and Bariatric Anaesthesia (SOBA) (sobauk.co.uk) was set up to promote better training and care given by anaesthetists to patients with obesity.

How to tell if you have obesity

Body mass index (BMI) is a calculation used to find out if you are a healthy weight for your height. You can find out your BMI using the NHS BMI health weight calculator at: nhs.uk/live-well/healthy-weight/bmi-calculator



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BMI classifications

| | |
|----------------|-----------------------|
| Underweight | Below 18.5 |
| Healthy weight | Between 18.5 and 24.9 |
| Overweight | Between 25 and 29.9 |
| Obesity | Between 30 and 39.9 |
| Morbid obesity | Above 40 |

Waist size is also an indication of whether you are carrying too much fat around your stomach, which increases your risk of heart disease, diabetes and stroke.

Regardless of your height or BMI, you should try to lose weight if your waist is:

- 94cm (37ins) or more for men
- 80cm (31.5ins) or more for women.

You're at very high risk and should contact a GP if your waist is:

- 102cm (40ins) or more for men
- 88cm (34ins) or more for women.

Source: NHS Health A-Z ([nhs.uk/conditions](https://www.nhs.uk/conditions)).

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.

You can find out more information about type 2 diabetes here:

[nhs.uk/conditions/type-2-diabetes](https://www.nhs.uk/conditions/type-2-diabetes)

Type 2 diabetes and anaesthesia

Patients with diabetes are at a higher risk of infection after surgery as their healing can be slower. The risk of infection increases with higher blood sugar levels, so good control of blood sugar around the time of your surgery is important.



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If you have diabetes, your blood sugar level should be well controlled before the surgery to reduce any potential risks. Talk to your diabetes nurse or GP early to see if they need to make any changes to your treatment.

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 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.

 You can find out more information OSA here: [nhs.uk/conditions/sleep-apnoea](https://www.nhs.uk/conditions/sleep-apnoea)

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. Fortunately, alternatives such as spinal or local anaesthesia are often available. See the section on reducing risk (page 5).

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 continuous supply of 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 personal CPAP machine to hospital with you so that you can use it immediately after your surgery. If you are unable to use a CPAP machine, you must let your surgical team know so that they can arrange alternative support and ensure that your operation can go ahead.

Thrombosis (blood clots)

Obesity increases the risk of developing blood clots. Blood clots in the heart, lungs or brain can kill you.



The risk of thrombosis is also increased in people who smoke, those who have atrial fibrillation (arrhythmias or irregular heartbeat), those with cancer, broken long bones or any patient who is bedbound for prolonged periods. The more risk factors, the higher the chance of thrombosis.

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Thrombosis and anaesthesia

The chance of developing thrombosis during and after surgery can be higher in people who have obesity. This risk can be minimised by keeping as mobile as possible before and after surgery.

Staff at the hospital will discuss with you steps that can be taken to reduce this 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.

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.

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). Patients who are overweight or obese are more likely to develop this condition.



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. However, 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.

Reducing risk

Using regional anaesthesia techniques instead of a general anaesthetic

For some procedures you can avoid the risks from general anaesthesia by having a regional anaesthetic and staying conscious (awake). Sometimes you can be offered some sedation to relax you. For other procedures regional anaesthesia can be given as well as a general anaesthetic. The nerves around the part of your body which needs the surgery will be numbed. If the procedure is on the lower part of your body an epidural or spinal anaesthetic may be suitable. A member of the team will look after you during the procedure and you will not be able to see the actual surgery.

Another benefit of regional anaesthesia is that it may allow you to be mobile again sooner after surgery, reducing the risks of thrombosis.

You can find out more about nerve blocks and spinal anaesthetics from our leaflets *Nerve blocks for surgery on the shoulder, arm or hand* and *Your spinal anaesthetic* which are both available from our website: rcoa.ac.uk/patientinfo/leaflets-video-resources

However, a regional block may be more difficult to put in if you have obesity. For some people it may not be possible to use this technique. However, given the potential benefits and reduction in risk, it is usually well worth considering regional anaesthesia as an alternative to a general anaesthetic.

Your anaesthetist will discuss anaesthetic options for your surgery and risks with you when you attend the preoperative assessment clinic or on the day of your surgery.



Anaesthesia and your weight

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.

Losing weight

Losing weight before your operation has many advantages.

- For laparoscopic (keyhole) surgery, losing even a few kilograms and eating a low fat, low sugar, higher protein 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.
- Fatty liver disease is common in adults with obesity. A low fat diet for two weeks prior to surgery is important and can help to improve your liver function.
- If you are having bone or joint surgery, it makes moving around and physiotherapy easier after your operation.
- Advanced pain relief techniques performed by anaesthetists, such as epidurals and spinal anaesthetics, become easier to perform and are therefore more likely to be effective.
- 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.



Stopping smoking and alcohol consumption

Smoking reduces the amount of oxygen that can be carried in your blood and damages some of the mechanisms which protect your lungs from infection. Stopping smoking, ideally for at least six weeks before surgery, helps increase oxygen levels in your blood. This makes your anaesthetic safer, improves wound healing and reduces the risk of postoperative coughing and chest infections.

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



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. You may also consider some specific exercises to increase your muscle strength, for example to support a new orthopaedic joint, your pelvic floor or other parts of your body, depending on the type of surgery you are having.

Please discuss with your surgeon or GP what exercise is safe for you to do.



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On the day of the operation

You should take your medications as prescribed until the day of the operation and bring all your medicines and inhalers to hospital with you. The hospital will advise you if you need to stop taking any medication. 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.

The hospital should give you 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.
- Your anaesthetist will ask you to breathe oxygen through a facemask before you go to sleep.
- 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. You can find out more about a planned stay in HDU or ICU by reading our leaflet *Your anaesthetic for major surgery* which is available from our website: rcoa.ac.uk/patientinfo/leaflets-video-resources



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.

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Summary

Patients with obesity are usually able to have the same procedures as other patients.

There are increased risks, but if there is time before surgery, these can be reduced by losing weight, increasing exercise and stopping smoking and drinking alcohol before surgery.

Acknowledgements

 We would like to thank Weight Concern (weightconcern.org.uk) for their advice and guidance in producing this resource.

Sources of further information

For you

- NHS (nhs.uk/live-well).
- Your GP.
- Preparing for surgery – Fitter Better Sooner (rcoa.ac.uk/fitterbettersooner).
- Anaesthesia and risk (rcoa.ac.uk/patientinfo/risks).
- Information leaflets and video resources (rcoa.ac.uk/patientinfo/leaflets-video-resources)
- Diabetes UK (diabetes.org.uk).

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).

Disclaimer

We try very hard to keep the information in this leaflet accurate and up-to-date, but we cannot guarantee this. We don't expect this general information to cover all the questions you might have or to deal with everything that might be important to you. You should discuss your choices and any worries you have with your medical team, using this leaflet as a guide. This leaflet on its own should not be treated as advice. It cannot be used for any commercial or business purpose.

 For full details, please see our website: rcoa.ac.uk/patientinfo/resources#disclaimer

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Tell us what you think

We welcome suggestions to improve this leaflet.

If you have any comments that you would like to make, please email them to:
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