Heartburn and gastro-oesophageal reflux disease

Introduction

Eat right for your digestion

How to eat and drink to ensure a good digestion, including foods to avoid and which ones to fill up on.

Gastro-oesophageal reflux disease (GORD) is a common condition where stomach acid leaks out of the stomach and into the oesophagus (gullet). The oesophagus is a long tube of muscle than runs from the mouth to the stomach.

Common symptoms of GORD include:

heartburn – burning chest pain or discomfort that occurs after eating

an unpleasant sour taste in the mouth – caused by stomach acid coming back up into the mouth (known as regurgitation)

dysphagia – pain and difficulty swallowing

Many people experience occasional episodes of GORD, but if people have persistent and reoccurring symptoms it is normally regarded as a condition that needs treatment.

Treatment

A step-by-step approach is usually recommended for GORD. This means that relatively uncomplicated treatments, such as changing your diet, will be tried first.

If this fails to help control symptoms then a person can be 'stepped up' to more complex treatments such as antacids, which help neutralise the effects of stomach acid.

In cases where medication fails to control symptoms, surgery may be required.

Causes

It is thought that GORD is caused by a combination of factors. The most important factor is the lower oesophageal sphincter (LOS) muscle not working properly.

The LOS acts like a valve, opening to let food fall into the stomach and closing to prevent acid leaking out of the stomach and into the oesophagus. In cases of GORD, the LOS does not close properly, allowing acid to leak up, out of the stomach.

Known risk factors for GORD include:

being overweight or obese

being pregnant

eating a high-fat diet

Complications

A common complication of GORD is that the stomach acid can irritate and inflame the lining of the oesophagus, which is known as oesophagitis.

In severe cases of oesophagitis, ulcers (open sores) can form which can cause pain and make swallowing difficult.

A rarer and more serious complication of GORD is cancer developing inside the oesophagus (oesophageal cancer).

Who is affected

GORD is a common digestive condition. It is estimated that one in five people will experience at least one episode of GORD a week, and that 1 in 10 people experience symptoms of GORD on a daily basis.

GORD can affect people of all ages, including children. However, most cases affect adults aged 40 or over. GORD is thought to affect both sexes equally, but males are more likely to develop complications.

Outlook

The outlook for GORD is generally good, and most people respond well to treatment with medication.

However, relapses are common, with around half of people experiencing a return of symptoms after a year. As a result, some people may require a long-term course of medication to control their symptoms.

Symptoms of gastro-oesophageal reflux disease

The three most common symptoms of gastro-oesophageal reflux disease (GORD) are:

heartburn

regurgitation of acid into your throat and mouth

dysphagia (difficulty swallowing)

These symptoms are discussed in more detail below.

Heartburn

Heartburn is a burning pain or a feeling of discomfort that develops just below your breastbone. The pain is usually worse after eating, or when bending over or lying down.

Regurgitation

Regurgitation of acid usually causes an unpleasant, sour taste at the top of your throat or the back of your mouth.

Dysphagia

Around one in three people with GORD has problems swallowing (dysphagia). It can occur if the stomach acid causes scarring of the oesophagus, which leads to the oesophagus narrowing, making it difficult to swallow food.

People with GORD-associated dysphagia say it feels like a piece of food has become stuck somewhere near their breastbone.

Less common symptoms of GORD

GORD can sometimes have a number of less common symptoms associated with the irritation and damage caused by stomach acid.

Less common symptoms of GORD include:

feeling sick

persistent cough, often worse at the night

chest pain

wheezing

tooth decay

laryngitis (inflammation of the larynx), which causes throat pain and hoarseness

If you have asthma and GORD, your asthma symptoms may get worse as a result of stomach acid irritating your airways.

When to seek medical advice

If you are only experiencing symptoms such as heartburn once or twice a month, then you probably do not need to seek treatment from your DOCTOR.

You should be able to control symptoms by making a number of lifestyle changes and using over-the-counter medication as and when symptoms occur – read more about the treatment of GORD.

You should see your DOCTOR if you are having frequent or severe symptoms and finding yourself using over-the-counter medication on a weekly or daily basis. You may require prescription medication to control symptoms and prevent complications.

Causes of gastro-oesophageal reflux disease

It is thought that most cases of gastro-oesophageal reflux disease (GORD) are caused by a problem with the lower oesophageal sphincter (LOS) muscle. The LOS is located at the bottom of the oesophagus (gullet), the tube that runs from the back of the throat to the stomach.

The LOS works in a similar way to a valve. It opens to let food into your stomach, and it closes to prevent acid leaking back up into your oesophagus.

However, in people with GORD, the LOS can become weakened, which allows stomach acid to pass back into the oesophagus. This causes symptoms of heartburn, such as a burning pain or a feeling of discomfort in your stomach and chest.

Exactly what causes the LOS to become weakened is not always clear, but a number of risk factors have been identified.

These are outlined below.

Risk factors

being overweight or obese – this can place an increased pressure on your stomach, which in turn can weaken the LOS

having a diet high in fatty foods – the stomach takes longer to dispose of stomach acids after digesting a fatty meal

consuming tobacco, alcohol, coffee, or chocolate – it has been suggested that these four substances may relax the LOS

being pregnant – changes in hormone levels during pregnancy can weaken the LOS and increase pressure on your stomach

having a hiatus hernia – a hiatus hernia is where part of your stomach pushes up through your diaphragm (the sheet of muscle used for breathing)

stress

There is also a condition called gastroparesis, where the stomach takes longer to dispose of stomach acid. The excess acid can push up through the LOS.

Gastroparesis is common in people who have diabetes, because high blood sugar levels can damage the nerves that control the stomach.

Medication

There are a number of medications that can relax the LOS, leading to the symptoms of GORD.

These include:

calcium-channel blockers – a type of medication used to treat high blood pressure

non-steroidal anti-inflammatory drugs (NSAIDs) – a type of painkiller, such as ibuprofen

selective serotonin reuptake inhibitors (SSRIs) – a type of antidepressant

corticosteroids (steroid medication) – which are often used to treat severe symptoms of inflammation

bisphosphonates – used to treat osteoporosis (weakening of the bones)

nitrates – a medication used to treat angina (a condition that causes chest pain)

Diagnosing gastro-oesophageal reflux disease

In most cases, your DOCTOR will be able to diagnose gastro-oesophageal reflux disease (GORD) by asking questions about your symptoms.

Further testing for GORD is usually only required if:

you have dysphagia (difficulty swallowing)

your symptoms do not improve despite taking medication

Further testing aims to confirm or disprove the diagnosis of GORD while checking for any other possible causes of your symptoms, such as irritiable bowel syndrome.

Endoscopy

An endoscopy is a procedure where the inside of your body is directly examined using an endoscope.

An endoscope is a long, thin flexible tube that has a light source and video camera at one end so that images of the inside of your body can be sent to an external monitor.

To confirm a diagnosis of GORD, the endoscope will be inserted into your mouth and down your throat. The procedure is usually done while you are awake, and you may be given a sedative to help you to relax.

An endoscopy is used to check whether the surface of your oesophagus has been damaged by stomach acid. It can also rule out more serious conditions that can also cause heartburn, such as stomach cancer.

Manometry

If an endoscopy does not find any evidence of damage to your oesophagus, you may be referred for a further test called manometry.

Manometry is used to assess how well your lower oesophageal sphincter (LOS) is working by measuring pressure levels inside the sphincter muscle.

During manometry, one of your nostrils will be numbed using a topical anaesthetic. A small tube will then be passed down your nostril and into your oesophagus to the site of the LOS. The tube contains a number of pressure sensors, which can detect the pressure generated by the muscle, then send the reading to a computer.

During the test, you will be asked to swallow some food and liquid to check how effectively your LOS is functioning.

A manometry test takes around 20 to 30 minutes to complete. It is not painful, but you may have minor side effects including:

a nosebleed

a sore throat

However, these side effects should pass quickly once the test has been completed.

Manometry can be useful for confirming a diagnosis of GORD, or for detecting less common conditions that can disrupt the normal workings of the LOS, such as muscle spasms or achalasia (a rare swallowing disorder).

Barium swallow

If you are experiencing symptoms of dysphagia then you may be referred for a test known as a barium swallow.

The barium swallow test is one of the most effective ways of assessing your swallowing ability and finding exactly where the problems are occurring. The

test can often identify blockages or problems with the muscles used during swallowing.

As part of the test, you will be asked to drink some barium solution. Barium is a non-toxic chemical that is widely used in tests because it shows up clearly on an X-ray. Once the barium moves down into your upper digestive system, a series of X-rays will be taken to identify any problems.

If you need to have a barium meal X-ray, you will not be able to eat or drink anything for at least six hours before the procedure so that your stomach and duodenum (top of the small intestine) are empty. You may be given an injection to relax the muscles in your digestive system.

You will then lie down on a couch and your specialist will give you a white, chalky liquid to drink which contains barium. As the barium fills your stomach, your specialist will be able to see your stomach on an X-ray monitor, as well as any ulcers or abnormal growths. Your couch may be tipped slightly during the test so that the barium fills all the areas of your stomach.

A barium swallow usually takes about 15 minutes to perform. Afterwards you will be able to eat and drink as normal, although you may need to drink more water to help flush the barium out of your system. You may feel slightly sick after a barium meal X-ray, and the barium may cause constipation. Your stools may also be white for a few days afterwards as the barium passes through your system.

24-hour pH monitoring

If the manometry test cannot find problems with your oesophageal sphincter muscles, another test known as 24-hour pH monitoring can be used (pH is a unit of measurement used in chemistry, and describes how acidic a solution is). The lower the pH level, the more acidic the solution is.

The 24-hour pH monitoring test is designed to measure pH levels around your oesophagus. You should stop taking medication used to treat GORD for seven days before having a 24-hour pH test because the medication could distort the test results.

During the test, a small tube containing a probe will be passed through your nose to the back of your oesophagus. This is not painful but can feel a little uncomfortable.

The probe is connected to a portable recording device about the size of an MP3 player, which you wear around your wrist. Throughout the 24-hour test period, you will be asked to press a button on the recorder every time you become aware of your symptoms.

You will be asked to complete a diary sheet by recording when you have symptoms upon eating. Eat as you normally would to ensure an accurate assessment can be made.

After the 24-hour period is over, the probe will be removed so measurements on the recorder can be analysed. If test results indicate a sudden rise in your pH levels after eating, a confident diagnosis of GORD can usually be made.

Treating gastro-oesophageal reflux disease

A number of self-care techniques may help relieve symptoms of gastro-oesophageal reflux disease (GORD). They are described below.

If you are overweight, losing weight may help reduce the severity and frequency of your symptoms because it will reduce pressure on your stomach.

If you are a smoker, consider quitting. Tobacco smoke can irritate your digestive system and may make symptoms of GORD worse.

Eat smaller, more frequent meals, rather than three large meals a day. Make sure you have your evening meal three to four hours before you go to bed.

Be aware of triggers that make your GORD worse. For example, alcohol, coffee, chocolate, tomatoes, or fatty or spicy food. After you identify any food that triggers your symptoms, remove them from your diet to see whether your symptoms improve.

Raise the head of your bed by around 20cm (8 inches) by placing a piece of wood, or blocks under it. This may help reduce your symptoms of GORD. However, make sure your bed is sturdy and safe before adding the wood or blocks. Do not use extra pillows because this may increase pressure on your abdomen.

If you are currently taking medication for other health conditions, check with your DOCTOR to find whether they may be contributing to your symptoms of GORD. Alternative medicines may be available. Do not stop taking a prescribed medication without consulting your DOCTOR first.

Medication

A number of different medications can be used to treat GORD. These include:

over-the-counter medications

proton-pump inhibitors (PPIs)

H2-receptor antagonists

prokinetics

Depending on how your symptoms respond, you may only need medication for a short while or alternatively on a long-term basis.

These are described below.

Over-the-counter medications

A number of over-the-counter medicines can help relieve mild to moderate symptoms of GORD.

Antacids are medicines that neutralise the effects of stomach acid. However, antacids should not be taken at the same time as other medicines because they can stop other medicines from being properly absorbed into your body. They may also damage the special coating on some types of tablets. Ask your DOCTOR or pharmacist for advice.

Alginates are an alternative type of medicine to antacids. They work by producing a protective coating that shields the lining of your stomach and oesophagus from the effects of stomach acid.

Proton-pump inhibitors (PPIs)

If GORD fails to respond to the self-care techniques described above, your DOCTOR may prescribe a one month course of proton-pump inhibitors (PPIs) for you. PPIs work by reducing the amount of acid produced by your stomach.

Most people tolerate PPI well and side effects are uncommon.

When they do occur they are usually mild and may include

headaches

diarrhoea

feeling sick

abdominal pain

constipation

dizziness

skin rashes

In order to minimise any side effects, your DOCTOR will prescribe the lowest possible dose of PPIs that they think will be effective in controlling your symptoms. Therefore, inform your DOCTOR if they prescribe PPIs for you that prove ineffective. A stronger dose may be needed.

Sometimes, the symptoms of GORD can return after a course of PPIs has been completed. Go back to see your DOCTOR if you have further or persistent symptoms.

In some cases you may need to take PPIs on a long-term basis.

H2-receptor antagonists

If PPIs cannot control your symptoms of GORD, another medicine known as an H2-receptor antagonist (H2RA) may be recommended to take in combination with PPIs on a short-term basis (two weeks), or as an alternative to them.

H2RAs block the effects of the chemical histamine, used by your body to produce stomach acid. H2RAs therefore help reduce the amount of acid in your stomach.

Side effects of H2RAs are uncommon. However, possible side effects may include:

diarrhoea

headaches

dizziness

tiredness

a rash

Some types of H2RAs are available as over-the-counter medicines. These types of HR2As are taken in a lower dosage than the ones available on prescription.

Ask your DOCTOR or pharmacist if you are not sure whether these medicines are suitable for you.

Prokinetics

If your GORD symptoms are not responding to other forms of treatment, your DOCTOR may prescribe a short-term dose of a prokinetic.

Prokinetics speed up the emptying of your stomach, which means there is less opportunity for acid to irritate your oesophagus.

A small number of people who take prokinetics have what is known as ‘extrapyramidal symptoms’. Extrapyramidal symptoms are a series of related side effects that affect your nervous system. Extrapyramidal symptoms include:

muscle spasms

problems opening your mouth fully

a tendency to stick your tongue out of your mouth

slurred speech

abnormal changes in body posture

If you have the above symptoms while taking prokinetics, stop taking them and contact your DOCTOR or out-of-hours doctor immediately. They may recommend your dose is discontinued.

Extrapyramidal symptoms should stop within 24 hours of the medicine being withdrawn.

Prokinetics are not usually recommended for people under 20 years old because of an increased risk of extrapyramidal symptoms.

Surgery

Surgery is usually only recommended in cases of GORD that fail to respond to the treatments listed above.

Alternatively, you may wish to consider surgery if you have persistent and troublesome symptoms but do not want to take medication on a long-term basis.

While surgery for GORD can help relieve your symptoms, there are some associated complications that may result in you developing additional symptoms, such as:

dysphagia (difficulty swallowing)

flatulence

bloating

an inability to belch (burp)

Discuss the advantages and disadvantages of surgery with your DOCTOR before making a decision about treatment.

Surgical procedures that are used to treat GORD include:

laparoscopic nissen fundoplication (LNF)

endoscopic injection of bulking agents

endoluminal gastroplication

endoscopic augmentation with hydrogel implants

endoscopic radiofrequency ablation

These procedures are discussed below.

Laparoscopic nissen fundoplication (LNF)

Laparoscopic nissen fundoplication (LNF) is one of the most common surgical techniques used to treat GORD.

LNF is a type of keyhole surgery that involves the surgeon making a series of small incisions (cuts) in your abdomen (tummy). Carbon dioxide gas is then used to inflate your abdomen to give the surgeon room to work in.

During LNF, the surgeon will wrap the upper section of your stomach around your oesophagus and staple it in place. This will contract (tighten) your lower oesophageal sphincter (LOS), which should prevent any acid moving back out of your stomach.

LNF is carried out under general anaesthetic, which means you will not feel any pain or discomfort. The surgery takes 60 to 90 minutes to complete.

After having LNF, most people can leave hospital once they have recovered from the effects of the general anaesthetic. This is usually within two to three days. Depending on the type of job you do, you should be able to return to work within three to six weeks.

For the first six weeks after surgery, it is recommended you only eat soft food, such as mince, mashed potatoes or soup. Avoid eating hard food that could get stuck at the site of the surgery, such as toast, chicken or steak.

Common side effects of LNF include:

dysphagia (difficulty swallowing)

belching

bloating

flatulence

These side effects should resolve over the course of a few months. However, in about 1 in 100 cases they can be persistent. In such circumstances, further corrective surgery may be required.

New surgical techniques

In the last decade, a number of new surgical techniques have been introduced for the treatment of GORD.

The National Institute for Health and Clinical Excellence (NICE) has looked at a number of these surgical techniques. It has recommended they are safe enough to be made available on the NHS.

However, NICE has also recommended that people considering having these new techniques be aware there is little evidence regarding their effectiveness in the medium to long-term.

All techniques discussed below are non-invasive, which means no incisions need be made into your body. Therefore, they can usually be performed under local anaesthetic on a day surgery basis, so you should not have to spend the night in hospital.

Endoscopic injection of bulking agents

Endoscopic injection of bulking agents involves the surgeon using an endoscope to find the site where stomach and oesophagus meet (known as the gastro-oesophageal junction).

A thin tube called a catheter is then passed down the endoscope, and used to inject a combination of plastic and liquid into the junction. This narrows the junction and helps to prevent acid leaking up from the stomach.

The most common side effect of this type of surgery is mild to moderate chest pain. This develops in around a half of all cases.

Other side effects include:

dysphagia

feeling sick

high temperature of 38ºC (100.4ºF) or above

These side effects should resolve within a few weeks.

Endoluminal gastroplication

Endoluminal gastroplication involves the surgeon using an endoscope to sew a series of pleats (folds) into the LOS. The pleats should restrict how far the LOS can open, preventing acid leaking up from your stomach.

Side effects of this type of surgery include:

chest pain

abdominal (tummy) pain

vomiting

sore throat

These side effects should improve within a few days.

Endoscopic augmentation with hydrogel implants

Endoscopic augmentation with hydrogel implants is a similar technique to an endoscopic injection, except the surgeon uses hydrogel to narrow your gastro-oesophageal junction. Hydrogel is a type of flexible plastic gel very similar to living tissue.

The most common complication arising from this procedure is that the hydrogel starts to come out of the gastro-oesophageal junction. One study found this happened in one in five cases. However, this is a relatively new technique and success rates may well improve in future.

Endoscopic radiofrequency ablation

In endoscopic radiofrequency ablation, the surgeon passes a balloon down an endoscope to the site of your gastro-oesophageal junction. The balloon is then inflated.

Tiny electrodes are attached to the outside of the balloon and small pulses of heat generated. This creates small scars in the tissue of your oesophagus, causing it to narrow and making it more difficult for stomach acid to leak out of your stomach.

Out of all the new surgical techniques mentioned, there is little known about the safety of endoscopic radiofrequency ablation. Possible complications and side effects may include:

chest pain

dysphagia

injury to the oesophagus

LINX Reflux Management System

A new type of surgery introduced in 2011, not yet considered by NICE, is the LINX Reflux Management System.

This type of keyhole surgery uses magnetic beads to reinforce the LOS muscle.

The magnetic force of the beads helps keep the LOS closed when at rest, preventing stomach acid leaking upwards. The LOS opens normally when swallowing.

This type of surgery appears effective and safe in the short-term but as it is a new technique, its long-term effectiveness and safety are unclear.

Complications of gastro-oesophageal reflux disease

Oesophageal ulcers

The excess acid produced by gastro-oesophageal reflux disease (GORD) can damage the lining of your oesophagus (oesophagitis) which can lead to the formation of ulcers. The ulcers can bleed, causing pain and making swallowing difficult. Ulcers can usually be successfully treated by controlling the underlying symptoms of GORD.

Medications used to treat GORD can take several weeks to become effective, so it is likely your DOCTOR will recommend additional medication to provide short-term relief from your symptoms.

Two types of medication that can be used are:

antacids to neutralise stomach acid on a short-term basis

alginates, which produce a protective coating on the lining of your oesophagus

Both antacids and alginates are over-the-counter medications available from pharmacists. The pharmacist will advise you on the types of antacid and alginate most suitable for you.

Antacids are best taken when you have symptoms, or when symptoms are expected, such as after meals or at bedtime. Alginates are best taken after meals.

Side effects for both medications are uncommon but include:

diarrhoea

vomiting

flatulence

Oesophageal stricture

Repeated damage to the lining of your oesophagus can lead to the formation of scar tissue. If the scar tissue is allowed to build up, it can cause your oesophagus to become narrowed. This is known as oesophageal stricture.

An oesophageal stricture can make swallowing food difficult and painful. Oesophageal strictures can be treated by using a tiny balloon to dilate (widen) the oesophagus. This procedure is usually carried out under a local anaesthetic.

Barrett’s oesophagus

Repeated episodes of GORD can lead to changes in the cells lining of your lower oesophagus. This is a condition known as Barrett's oesophagus.

It is estimated that 1 in 10 people with GORD will develop Barrett's oesophagus. Most cases of Barrett's oesophagus first develop in people aged 50-70 years old. The average age at diagnosis is 62.

Barrett's oesophagus does not usually cause noticeable symptoms other than those associated with GORD.

The concern is that Barrett's oesophagus is a pre-cancerous condition. This means that while changes in the cells are not cancerous, there is a small risk they could develop into 'full blown' cancer in the future. This would then trigger the onset of oesophageal cancer (see below).

Oesophageal cancer

Risk factors that increase the risk of cells in the lining of your oesophagus turning cancerous include:

being male

having the symptoms of GORD for longer than 10 years

having three or more episodes of heartburn and related symptoms a week

smoking

obesity

If it is thought that you have an increased risk of developing oesophageal cancer, it is likely you will be referred for regular endoscopies to monitor the condition of the affected cells.

If oesophageal cancer is diagnosed in its initial stages, it is usually possible to cure the cancer using a treatment called photodynamic therapy (PDT).

PDT involves injecting your oesophagus with a medication that makes it sensitive to the effects of light. A laser attached to an endoscope is then placed inside your oesophagus and burns away the cancerous cells.