



Gastro-oesophageal reflux

This information sheet from Great Ormond Street Hospital (GOSH) explains the causes, symptoms and treatment of gastro-oesophageal reflux and where to get help.

What is gastro-oesophageal reflux?

Normally, when we swallow food and drink, it moves down the foodpipe (oesophagus) to the stomach, where it starts to be broken down by the acids released from the stomach wall. After it has been partially broken down, it passes through to the small and large intestines, where all the goodness and excess water is removed.

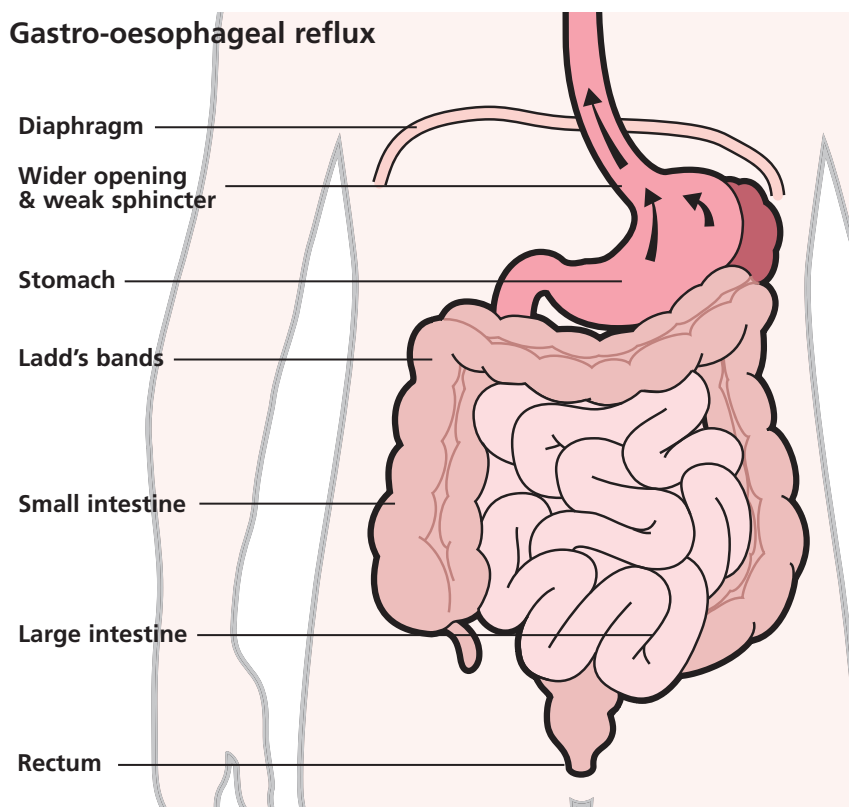
When a baby or child has gastrooesophageal reflux, the food and drink travels down the foodpipe as normal. However, some of the mixture of food, drink and acid travels back up the foodpipe, instead of passing through to the large and small intestines. As the food and drink is mixed with acid from the stomach, it can irritate the lining of the foodpipe, making it sore. This is gastrooesophageal reflux disease.

Some children also breathe some of the mixture into the windpipe (aspiration), which can irritate the lungs and cause chest infections.

What causes gastro-oesophageal reflux?

Gastro-oesophageal reflux is very common in the first few weeks and months of life, as the sphincter (ring of muscle) at the base of the oesophagus has not matured yet. Many babies with reflux gradually improve as they grow, particularly when they start to eat more solid food and feed in an upright position in a high chair for instance.

In some children, however, the reflux continues. This is caused by a combination of factors which may include a wider than usual opening in the diaphragm around the oesophagus and a weakened sphincter. Children with developmental problems such as cerebral palsy or Down syndrome are more likely to continue to have gastro-oesophageal reflux in childhood and adolescence.



What are the signs and symptoms of gastro-oesophageal reflux?

The main sign of gastro-oesophageal reflux is frequent spitting up or regurgitation after feeds. This is often accompanied by abdominal pain or general crankiness in the hours after feeding. Over time, babies with reflux may not gain weight as expected (failure to thrive) and may have frequent chest infections due to aspirating (breathing in) stomach contents into the windpipe and lungs. The inside surface of the oesophagus may become inflamed due to contact with stomach acid, which may lead to scarring and narrowing.

How is gastro-oesophageal reflux diagnosed?

In most cases, your doctor will diagnose gastro-oesophageal reflux after taking a detailed clinical history from you – asking about symptoms and feeding patterns. They may weigh your child to see whether they are gaining weight as expected.

Sometimes, more detailed diagnostic tests are needed – these can include:

- **pH impedance study** – The nurse will insert a thin tube containing a probe into your child's nostril and down the back of the throat into their oesophagus. Once the tube has been inserted, the nurse will then tape it to your child's cheek and then your child will have an X-ray to check it is in the right place. Only then will the test start. The other end of the tube is connected to a recording box. This will stay in place for 24 hours to record your child's gastrooesophageal reflux. During this period, your child should eat and drink as usual, and you might need to fill in a diary.
- **Upper GI contrast study** – Contrast studies usually use a thick, white liquid called barium that shows up well on x-rays. Sometimes, we use a clear liquid instead that looks like water but tastes a bit like peppermint instead. This also shows up on the X-rays. The liquid is introduced to your child's digestive system to show how well it is working.
- **Gastroscopy** – This is a test that allows the doctor to look at the oesophagus, stomach and duodenum for any abnormalities. An endoscope (a flexible tube with a camera on the end) is passed into the mouth to look at the lining of the gut and to take tiny biopsies (samples of tissue).

- **Oesophageal manometry** – This is a test to measure how well the muscles and nerves in the oesophagus work. A catheter (plastic tube) is inserted into your child's digestive system through their nose. When your child swallows the nerve and muscle activity is picked up by sensors contained in the catheter and are recorded on a machine.

Further information about each of these tests and scans is available on our website. The results of these tests are reviewed to confirm the diagnosis of gastro-oesophageal reflux and assess its severity.

How is gastro-oesophageal reflux treated?

Initially, your child's feeds and feeding pattern may be adjusted to see if that improves the symptoms. For instance, feeding your child smaller amounts more frequently will be suggested along with changes to their feeding position, such as sitting them in a more upright position during feeds and immediately afterwards. You can also raise the head of their cot by placing the legs on wooden blocks – do not use pillows to raise your child's head as this can increase the risk of cot death – it is safer to tilt the entire cot. Other options include switching feed formula to types less likely to cause reflux and adding thickening agents to feeds so they are less likely to flow back up the oesophagus.

Medications may also be suggested – some form a barrier on top of the stomach contents to reduce the risk of them flowing backwards, while others damp down acid production in the stomach. Another type of medication speeds up the rate at which feed passes from the stomach into the duodenum and intestines. All these medications take some time to work but can be very helpful for the majority of children.

If your child has severe gastro-oesophageal reflux which is not controlled with medication or is causing significant complications, your doctor may recommend an operation called a fundoplication to prevent reflux. Before reaching this decision, the severity of your child's reflux will usually be assessed with an upper GI contrast study and a pH or impedance study. As every child is different, the decision to recommend surgery will only be made after these assessments have been completed. The fundoplication operation uses the top of the stomach to strengthen the sphincter so it is less likely to allow food, drink or acid to travel back into the foodpipe.

What happens next?

In some children, the symptoms associated with gastro-oesophageal reflux disease disappear with or without treatment, usually by the age of two. However, in some children, gastro-oesophageal reflux disease is more of a long-term condition and can have a serious effect on both the child and family's quality of life.

The options for treating gastro-oesophageal reflux disease are improving all the time, with new medicines and surgical options being discovered alongside a better understanding of why a child develops gastro-oesophageal reflux disease.

Most children see an improvement in symptoms, especially after the fundoplication operation, although some long-term effects may continue to be troublesome. Your child will continue to be reviewed regularly by their local team.