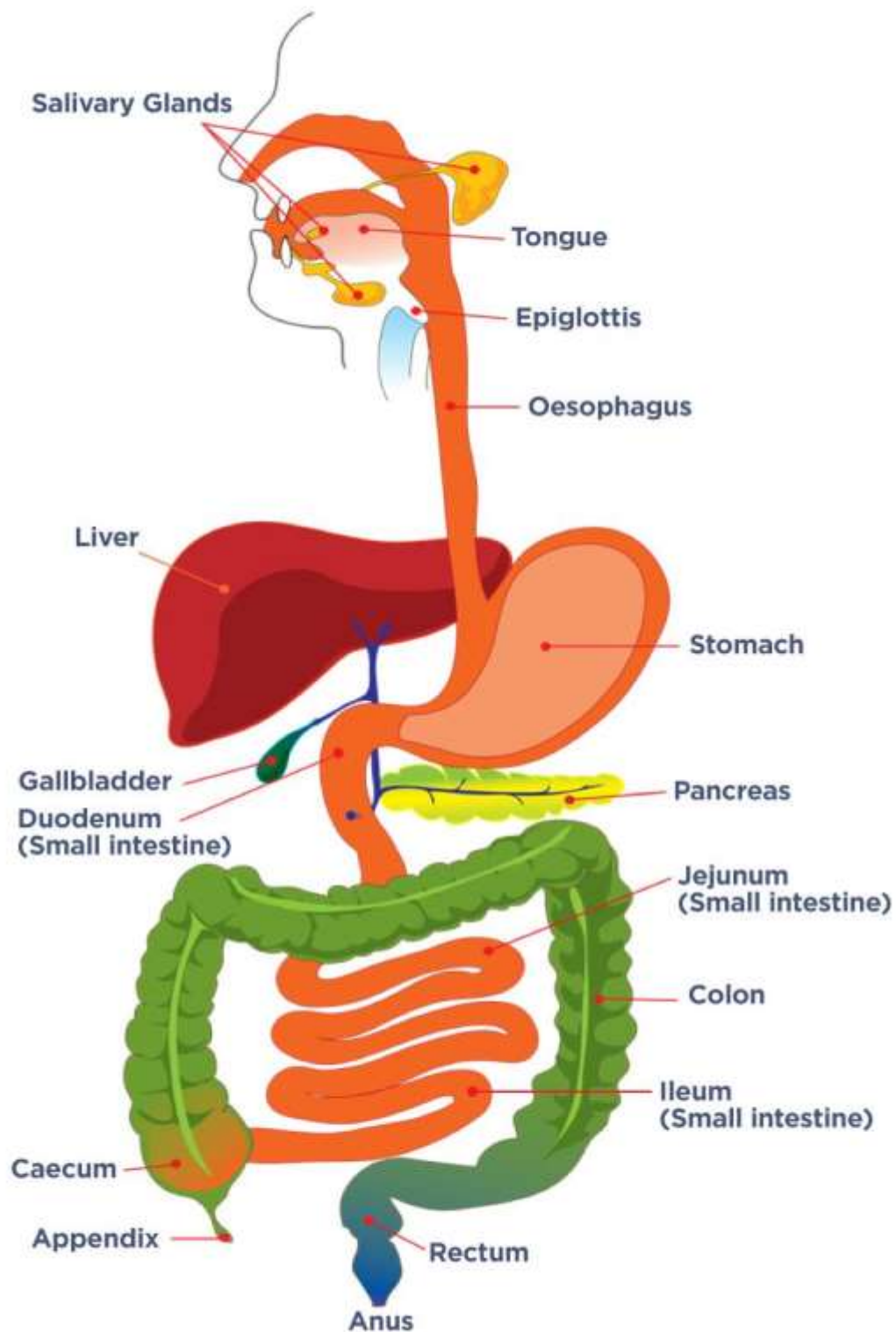


THE DIGESTIVE SYSTEM



This factsheet is about bile acid malabsorption

Bile contains bile acids which are used for two main purposes. Firstly, in the breakdown and absorption of fats and vitamins from food as it passes through the gut and, secondly, to aid with the removal of waste products. Bile acids are made in the liver, stored in the gallbladder and released into the small intestine (gut) when food is eaten. Virtually all (97%) of the bile acids are then re-absorbed in the final section of the small intestine (ileum) and returned to the liver. This cycle repeats itself and is called the *enterohepatic circulation*. When this cycle is disturbed, this is termed bile acid malabsorption. Bile acid malabsorption is sometimes called bile salt malabsorption and these two terms mean exactly the same thing. Bile acid malabsorption affects up to 1 in 100 people in the UK.

Causes of bile acid malabsorption

There are three different causes of bile acid malabsorption and these are categorised into types:

- **Type I:** This is when there is a problem in the part of the small intestine (ileum) where re-absorption takes place. Causes include inflammation or removal of the ileum, due to conditions such as Crohn's disease or cancer treatment.
- **Type II:** This is when no definitive cause can be found and is known as primary bile acid malabsorption.
- **Type III:** This can result from other diseases or conditions within the abdomen such as gallbladder removal, coeliac disease, chronic pancreatitis, radiotherapy or small bowel bacteria overgrowth.

What are the usual symptoms of bile acid malabsorption?

- **Diarrhoea:** This is the main symptom. When bile acids are not properly re-absorbed from the ileum, they pass instead into the large intestine (colon), irritating the lining of the colon and stimulating salt and water secretion. Diarrhoea is usually frequent during the day and sometimes at night. It may be pale, greasy and hard to flush away or may be unusually coloured (green or orange).
- **Stomach problems:** These include bloating, cramping abdominal pain and excessive wind. Unfortunately, many symptoms of bile acid malabsorption mimic those of Irritable Bowel Syndrome (IBS) and some IBS patients may actually have undiagnosed bile acid malabsorption.

How is bile acid malabsorption diagnosed?

The main investigation for a definitive diagnosis of bile acid malabsorption is a nuclear medicine test called the SeHCAT scan. An artificial bile acid SeHCAT (75Se-homocholic acid taurine) is swallowed via a capsule or drink and a first scan is carried out on the same day to establish how much artificial bile acid is in the body – the starting amount. One week later a second scan will show how much has been retained. The overall result can establish how much bile acid is lost from the body and whether malabsorption is taking place. The amount of radiation in the test is very small and extra precautions are not necessary. Sometimes, doctors may prescribe treatment (see below) instead of testing as the response to medication can make the diagnosis difficult (this is called a *trial of therapy*).

What treatment is available for bile acid malabsorption?

Treatment mainly includes medication and dietary changes. If there is an underlying condition (type I or III) treatment of the underlying condition can lead to improvement of symptoms.

- **Medications:** these work by binding to the bile acid in the small intestine and preventing them from irritating the large intestine. These are called 'bile acid sequestrants' and can help symptoms and improve the quality of

Bile Acid Malabsorption Information Leaflet

the life of sufferers. They will affect the absorption of other drugs so must be taken four hours before or after other medications. The main medications include:

- i. Colestyramine and colestipol: these medications only come in powder form. Unfortunately, some people may find them unpalatable and if the dose is too high, it can cause constipation, so it is important to adjust the dose according to symptoms.
 - ii. Colesevelam: this is a newer medication and comes in a tablet form. Some patients find it easier to take than colestyramine. Due to current cost and drug licensing colesevelam may not be widely available.
- **Diet:** following a diagnosis of bile acid malabsorption, a referral to a dietician may be advised, and a key piece of dietary advice will be to keep to a strict low-fat diet (40g of fat per day). A dietician will advise on other specialised diets on an individual basis.

Does bile acid malabsorption need to be monitored and, if so, how?

Medications used to treat bile acid malabsorption do carry some side effects. This includes lowering the levels of fat soluble vitamins (A, D, E and K) because the medications can disrupt the way these vitamins are absorbed into the body. In addition, these medications can be often used to help lower cholesterol but this can lead to an increase in different sorts of fats in the blood, namely triglycerides. Therefore, regular blood tests to monitor the levels of triglycerides and fat-soluble vitamins may be necessary whilst on the medication.

Weight loss can occur if diarrhoea is severe and it is important to monitor this. It may also be helpful to keep a note of stool frequency and consistency on a chart, as this can be used to inform the doctor as to how symptoms are controlled and doses of medication can be adjusted if needed.

How can bile acid malabsorption affect you?

This can happen in several ways with the most common issues centred around frequent diarrhoea, which can occur up to or even more than ten times a day. Naturally this affects daily routines and may lead to psychological issues such as fear of leaving the house or travelling. Other issues include side effects from the medication. If too much bile acid is lost from the body due to diarrhoea, there is an increased risk of the formation of gallstones and kidney stones.

The impact over time depends on the underlying cause of your bile acid malabsorption. In patients with Type I bile acid malabsorption, it depends on whether the ileum has been removed or not and, in addition, response to medication can be variable. Some patients with Type II bile acid malabsorption can naturally improve and no longer require medications. However, many patients may need to remain on medications for long term.

What to ask your doctor about bile acid malabsorption?

- Do I need to be referred to a dietician to see if there are any changes to my diet that may help with my symptoms?
- How often do I need blood tests?
- How do I adjust my medications according to my symptoms?
- How long will I need to take the medication for?

What more research needs to be done on bile acid malabsorption?

Further research into medications to help treat bile acid malabsorption is needed. There is the potential for new hormone-based treatments in the future.

For more information about research in this area please contact Guts UK Charity on

Bile Acid Malabsorption Information Leaflet



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