

Department of Paediatric Gastroenterology, Hepatology and Nutrition

Hydrogen breath test for (small bowel) bacterial overgrowth

Information for parents

This leaflet explains hydrogen breath tests and describes what to expect when your child comes to Addenbrooke's Hospital for one of these tests. A hydrogen breath test is a non-invasive, safe and painless way to investigate sugar malabsorption (for example, lactose, sucrose, fructose).

What is bacterial overgrowth?

In all people, large numbers of bacteria live in the large bowel or colon. The small bowel, further up your gut, is relatively free of bacteria. If food does not move normally through the small bowel (due to poor motility or short bowel syndrome for example), bacteria may excessively take over this area. This is known as (small bowel) bacterial overgrowth. This condition may interfere with normal digestive function and lead to symptoms such as chronic diarrhoea, flatulence, weight loss and weakness. Bacterial overgrowth can occur because of abnormal movement of the gut. Therefore, anything that obstructs or slows down the gut's ability to empty can lead to bacterial overgrowth.

How do we test for bacterial overgrowth?

Lactulose (a type of sugar) is used to test for overgrowth of bacteria in the small bowel. This type of sugar is not absorbed by the small bowel, but passes quite quickly through the small bowel into the large bowel. In the large bowel it is then fermented/digested by bacteria that produce hydrogen as part of the breakdown products. This fermentation is partly how it helps improve constipation as a mild laxative. By measuring the timing of the rise in breath hydrogen, we can detect whether or not there are bacteria present in the upper small bowel.

What happens before the test?

- You will receive information about how to prepare your child for the test in your admission letter.
- If your child is under one year old, he or she will not be allowed to eat or drink anything (except for water) for six hours before the test. If they are over one year, they will not be allowed to eat or drink anything (except for water) for twelve hours before the test. It is important to follow these instructions otherwise your child's test may need to be delayed or even cancelled.
- If your child has any medical problems, particularly allergies or diabetes, please tell the nurse or doctor about these before you book the study date. Please also tell the team about any medications your child is currently taking.
- Please call the Gastroenterology Nurses on 01223 274757: If your child is taking antibiotics, laxatives or stool softeners.

What does the test involve?

- You will be able to stay with your child throughout the test.
- Your child must **not** eat or drink during this test.
- Your child will first be asked to blow into a special tube to get a baseline (normal) reading. If your child is too young to blow into the tube, the nurses will use a facemask instead.
- After the first sample has been taken, the nurses will give your child some sugar solution to drink.
- Breath samples will then be collected in the same way as the first one, every 30 minutes for three hours.

What happens after the procedure?

Once all the samples have been collected, your child will be allowed to eat and drink again and they will then be able to go home. If you have any concerns about your child you should contact the paediatric gastroenterology nurses on 01223 274757, or if it is after 5pm your G.P.

What are the benefits?

The breath test will help to diagnose the cause of your child's symptoms in a non-invasive, safe and painless way.

Are there any risks?

- There are no significant risks associated with this test, although your child may not be able to drink all of the sugary solution, or may get some mild abdominal pain and/or diarrhoea if they do not absorb the sugar properly.

- This test is not 100% sensitive. About one in 20 children do not have any hydrogen-producing bacteria and therefore this test will be (falsely) negative (even if they develop symptoms after the test!).
- We will be observing your child closely during the test.
- As they will not be allowed to drink during the test, they may feel tired, irritable and thirsty, but they are unlikely to become dehydrated.
- The nurses will stop the test if they have any concerns about your child's wellbeing.
- It is important to complete the test so that we can get truly meaningful results.
- There is a tiny risk that your child could become dehydrated when you get home, especially if he or she is refusing food and drink, and/or vomiting, or develops diarrhoea. Signs of dehydration include:
 - Dry lips
 - Pale skin
 - Sunken eyes
 - Not passing urine.

You can prevent dehydration by giving your child regular small drinks rather than one large drink. If you are worried, please call your GP or a member of the team.

How long will it take to get the results?

The results are available by the end of the test. The nurse will discuss them with you, but you may have to wait to discuss them with your doctor and/or dietitian before deciding on a management plan.

Are there any alternatives?

Bacterial overgrowth can be diagnosed by culturing (growing) the bacteria from a sample of fluid from the small intestine and counting the numbers of colonic bacteria that are present. This procedure requires a tube to be passed through the nose, throat, oesophagus and stomach under x-ray guidance so that fluid can be taken from the small intestine. It is carried out under a general anaesthetic, and most laboratories are not able to accurately culture the samples.

How is bacterial overgrowth treated?

The initial treatment is a course of antibiotics to reduce the number of bacteria in the small bowel. Some people respond to taking probiotics (dietary supplements containing potentially beneficial bacteria or yeasts) However, some people require a repeat dose of antibiotics.

If you have any queries, please contact:

Gastroenterology Specialist Nurse or the Paediatric Gastroenterology Nurses on 01223 274757.



We are currently working towards a smoke free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169

Help with this leaflet:



If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or

patient.information@addenbrookes.nhs.uk



Document history

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