



HYDROGEN & METHANE BREATH TEST

WHAT IS A BREATH TEST?

A breath test provides information about the digestion of certain sugars or carbohydrates, such as milk sugar (lactose) or fruit sugar (fructose). This will help determine if you are intolerant to certain sugars. One example is the use of this test to detect lactose intolerance, a disorder in which people have symptoms from abnormal digestion of lactose, a substance in many foods including milk and ice cream.

The test is also used for detecting abnormal growth of bacteria within the small bowel. For this test we use either glucose or lactulose. Bacterial overgrowth can cause a variety of symptoms including diarrhoea, nausea, bloating, gas and abdominal cramps. The process for all these tests is the same, the only difference is the sugar you are given to drink.

PREPARATION FOR THE TEST

- For four (4) weeks before your test: You should not take any antibiotics.
- For one (1) week before your test: Do not take any laxatives or stool softeners (Colace, Milk of Magnesia, Ex-Lax etc), stool bulking agents (Metamucil, Citrucel etc), motility agents (Prucalopride, Linaclotide etc) or probiotics (VSL#3, Actimel, Yakult etc). You may take all other essential medicines, but if in doubt please ask us. You should also not undergo any test that requires cleansing of the bowel, such as colonoscopy or barium enema.
- The day before your test: You may consume only the following foods and drinks: plain white bread, plain white rice, plain white potatoes, baked or grilled white meat or fish (i.e. no oily fish), a maximum of two eggs, water, non-flavoured black coffee or black tea (no milk). Only salt may be used to flavour your food. A little butter, oil or margarine is permitted (1tbsp). Fizzy drinks such as lemonade or cola are not permitted. No herbal teas are permitted.

DO NOT EAT OR DRINK ANYTHING ELSE

Eating prohibited foods could give false results for the test. Specifically, avoid beans, pasta, fibre cereals, fruit (including dried fruit) and high fibre foods. The night before the test, have an early dinner of rice and protein.

- For 12 hours before your test: Apart from water, you must stop eating and drinking 12 hours before the test. For example, if your test is at 9:00 a.m., you would stop eating and drinking at 9:00 pm the night before (see your appointment letter for precise timings). You may continue to take your usual prescription medicines with water until 12 hours before the test. Please bring all prescription medications to your appointment (or a list of them).
- The day of your test: Apart from up to 500ml (1 pint) of water, you should not eat or drink anything in the morning. You may take your essential medications with a small amount of water but do not take anything that may affect your bowel (list above). If you are diabetic requiring insulin or diabetes medicine, ask your physician if you should change your morning dose. Generally, half of your normal long acting insulin is given. Oral hypoglycaemic medications are usually not taken that morning until



completion of the test and resumption of eating meals. If in doubt please check with your referring Consultant. On the morning of your test please brush your teeth but be careful not to swallow the toothpaste.

DO NOT EAT, DRINK, CHEW GUM, SMOKE CIGARETTES, EAT BREATH MINTS
AND/OR OTHER SWEETS BEFORE OR DURING THE TEST.

Do not sleep or exercise while the test is being done. Your test may last for two to four hours. Please allow yourself sufficient time to complete you test.

THE TEST PROCEDURE

- The physiologist will verify that you have not had anything to eat or drink apart from water after midnight.
- A breath sample will be collected by having you exhale into a foil bag.
- A glass of water mixed with either glucose, lactose, lactulose, or fructose will be given to drink. You should drink this whole amount over a minute or two.
- Breath samples will be collected approximately every 15 minutes.
- During the test, you should take notice of your symptoms and inform the healthcare professional if you have your typical symptoms for which the test is being performed.
- During the test, you should not eat, chew gum, smoke, sleep, or exercise.
- When the test is over, generally after 2-4 hours, you may leave. You may return to your usual diet and activity after the test.
- The report will be sent to your doctor within 24-hours.

PRINCIPLES OF HYDROGEN BREATH TESTING

Hydrogen and methane gas in the body is produced from intestinal bacteria. Bacteria, normally in the large intestine, produce hydrogen through fermentation of carbohydrates – lactose and fructose are substrates commonly given for the hydrogen breath test. Some of the hydrogen produced by bacteria is absorbed by the intestine whereby it enters the blood and is transported to the lungs.

Hydrogen is then exhaled via the lungs by normal breathing. This is collected in a bag for subsequent analysis. In small intestinal bacterial overgrowth (SIBO), the small intestinal bacteria ferment the sugars before you have had chance to digest them and this produces an early rise in the breath hydrogen which can also reproduce some of your symptoms.

In lactose intolerance, the individual has a deficiency in lactase, the enzyme that breaks down lactose. Normally, lactose is broken down in the small intestine by lactase and very little lactose reaches the large intestine where bacteria break it down to produce hydrogen. If you have a lactase deficiency, the ingested lactose is not absorbed in the small intestine and reaches the colon where it is fermented by colonic bacteria producing a large amount of hydrogen which is measured in the breath samples. A similar process can occur with fructose (fruit sugar).