

# Breath Hydrogen and Methane Tests

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Breath Hydrogen and Methane Tests are used to determine intolerances to both Lactose (the sugar found in milk) and/or Fructose (the sugar found in honey and many fruits). In order to maximise the accuracy and information obtained from a breath test, the first breath test is a control test, using Lactose (a mild laxative), which everyone will have a reaction to. The control test is done to determine whether you are a Hydrogen producer or a Methane producer to insure that the subsequent breath tests will be measuring the most appropriate gas for you.

Normally the sugars that we ingest every day are absorbed within the small bowel, but a large proportion of people absorb these sugars poorly, allowing the sugars to pass into the large bowel. When these improperly absorbed sugars react with the bacteria in the large bowel, a gas is produced, either Hydrogen or Methane, and in turn this is absorbed into the blood stream and travels to the lungs where it is breathed out, and can be detected through these breath tests. If someone is producing high levels of Hydrogen or Methane Gas (causing a reaction), once the Lactose or Fructose sugar has been ingested, this suggests it is not being absorbed properly in the small bowel and indicates an intolerance to that particular sugar.

The breathalyser used at the MacMurray Centre only detects Hydrogen Gas when it is breathed out from the lungs.

## **If you are a Hydrogen Gas producer:**

A patient whose bowel predominantly produces Hydrogen will elicit a reaction from the breathalyser. For the control test, the patient will be asked to give an initial blow, which will hopefully generate a number low than 10 ppm (parts per million), and then will be given the Lactose to ingest. Every 15 minutes after this, the patient will be asked to repeat the blowing process. As soon as the breathalyser generates a number 20 ppm or higher than the initial blow, more than once, we know that a reaction has occurred and conclude the test. However long it takes to elicit a reaction is known as the oro-caecal transit time (the amount of time it takes for the sugar to reach the large bowel from your mouth) and knowing the personal transit time for each patient helps us determine how much time they must stay for each subsequent test; adapting the tests specifically for each patient.

## **If you are a Methane Gas producer:**

A small number of people do not produce Hydrogen, or else only produce a small amount, which is not enough to be detected by the breathalyser: these people instead primarily produce Methane Gas. In these cases, a reaction will not be observed by the breathalyser, and the following two tests will have the patient breathing into foil bags, with one before the sugar is ingested, and then the others every 30 minutes for the full 3 hours. These bags are then sent down to Christchurch to be analysed, so an immediate evaluation cannot be made. The results from these tests can take up to a week to be returned to the MacMurray Centre.