

**Q. *Why do people perform hydrogen breath tests?***

- A. Hydrogen breath testing is a relatively simple, non-invasive test to assist in the diagnosis of gastric problems. Hydrogen breath testing can assist in confirming carbohydrate malabsorption or intolerance or ruling out these conditions. Carbohydrates which cannot be digested can cause stomach cramps and diarrhea as well as other symptoms such as bloating.

**Q. *What does a hydrogen breath test show?***

- A. It shows the amount of hydrogen (H<sub>2</sub> ppm) in the breath, which is an indirect, non-invasive measurement of the amount possible carbohydrate malabsorption (lactose, fructose, sucrose and glucose) or intolerance. It can also detect small intestinal bacterial overgrowth (SIBO) and estimation of oro-cecal transit time.

**Q. *How hygienic is a hydrogen breath test?***

- A. Micro Direct recommends the use of a SafeBreath filtered cardboard mouthpiece. SafeBreath have a built-in viral/bacterial filter ensuring >99% efficacy for a complete hygienic solution, protecting both patient and equipment.

**Q. *How is the hydrogen breath test performed?***

- A. The patient's medication and health should be noted prior to scheduling a test. Antibiotics can distort test results for up to four weeks after they have been discontinued and laxatives should be discontinued at least three days prior to the test being performed. The patient should fast overnight for a minimum of 12 hours. The patient should be relaxed and the test protocol and procedure explained clearly before the start of the test. To start the hydrogen breath test, a baseline fasting value (0 minutes) should be recorded and then the patient should ingest the specific test substrate – fructose, glucose, lactose or lactulose. The substrate is dissolved in water for ingestion by the patient; and the amount of substrate administered is dependent on the patient's body weight. A measurement should be taken at 15 minutes after the administration of the substrate and then the measurements should be repeated at 30 minute intervals over the course of at least two hours (or three hours dependent on the diagnostic reasoning for the test).

(Reference: Uday Ghoshal, How to interpret hydrogen breath tests. J. J. Neurogastroenterol Motil July 2011)

**Q. What is considered a positive result?**

- A. A positive result is often considered to be an increase in hydrogen concentration of more than 20 ppm above the baseline value. A significant increase in exhaled hydrogen levels and the appearance of symptoms both occurring at approximately 60 minutes after the start of the test are considered as a diagnosis of intestinal intolerance of the test substrate.

**Q. What is considered a negative result?**

- A. A negative result can be no significant increase in hydrogen levels i.e., readings vary by less than 5 ppm above or below the baseline value AND there are no symptoms.

If clinical symptoms occur but there is no increase in hydrogen it should be considered that the patient may be a non-hydrogen producer, to make a safe diagnosis, a lactulose test should be carried out. If a lactulose load still does not produce an increase of hydrogen levels, the subject is likely a non-hydrogen producer.

**Q. False negative results**

- A. False negative results may occur due to a longer oro-cecal transit time i.e., it is possible the test was terminated before a measurable increase in hydrogen levels could be established. If a slow transit time is suspected, it is not unreasonable to continue to perform breath testing for another one hour with two additional readings being performed.

**Q. What may cause an elevated baseline reading?**

- A. An elevated baseline reading of approximately 15 ppm is usually because of incomplete fasting or a shorter fasting time than the requested fasting period.

References:

1. Implementation and interpretation of hydrogen breath tests. A. Eisenmann et al. J. Breath Res 2008
2. How to interpret hydrogen breath tests. Uday Ghoshal J. Neurogastroenterol Motil. Vol 17, No 3 July 2011
3. Use and abuse of hydrogen breath tests M. Simre'n, P.O. Stotzer. Gut 2006 55:297-303