The Fructose Malabsorption
180 Minute Breath Test - #920

Providing a Convenient Assessment of Fructose Malabsorption with a Simple Breath Test

What Is This Test For?
The Fructose Malabsorption Test is a breath test measuring hydrogen and methane production at timed intervals after consuming a fructose solution. If the fructose is not digested normally, gut bacteria will ferment the fructose, forming hydrogen and/or methane. Hydrogen and methane are not normal products of human digestion. Measuring the amount of hydrogen and methane in breath samples reveals the potential for fructose malabsorption and can help identify a potential cause of gas, bloating and diarrhea after eating foods rich in fructose.

Fructose should be digested and absorbed in the small intestine. Fructose exists as a monosaccharide or as a disaccharide when it is combined with glucose to form sucrose. Fructose is better absorbed when it is combined in a 1:1 ratio with glucose. The presence of glucose seems to facilitate the absorption of fructose. The small intestine can only absorb 25-50 grams of fructose at any one time. If fructose is not adequately absorbed, it enters the colon where it is fermented by colonic bacteria forming hydrogen and methane potentially causing gas, bloating or pain. Once the fructose enters the colon it also creates an osmotic gradient, contributing to loose stools.

Who Should do this Test?
The Fructose Malabsorption Test is non-invasive, simple to perform, and accurate. The test is most frequently used when other potential causes of GI symptoms have been ruled out or treated. Conditions such as IBS, SIBO, celiac, yeast overgrowth, and bacterial or parasitic infections can cause symptoms that are similar to fructose malabsorption. If these conditions exist, they should be diagnosed and treated appropriately. If symptoms of gas, bloating and loose stools persist after successfully treating and eradicating other issues, testing for fructose malabsorption is an appropriate next step.

Why is this Test Useful?
The Fructose Malabsorption Test can be used for those who have gas, bloating and loose stools but have ruled out or treated other potential causes of these symptoms. Fructose is found in many foods particularly fruits, honey and some grains. Having the ability to identify specific causes of GI symptoms helps clinicians to recommend a targeted diet to avoid high fructose foods.
How Is The Test Performed?

The Fructose Malabsorption Test is performed by collecting breath samples after following a 24-hour preparatory diet avoiding all sugars and fructose-containing foods. In the first 12 hours, a specific diet is followed. In the second 12 hours, nothing but water is consumed until breath collections are started the following morning. Ten breath samples, including a baseline sample, will be collected over a period of three hours. A fructose packet is mixed with 8-10 ounces of water and is consumed after collecting the baseline breath sample. Breath collections are taken thereafter for every 20 minutes until all ten samples are collected.

Please refer to test kit instructions for more specifics on how to perform the collections and detailed instructions on medications, circumstances, underlying medical conditions, supplements, diet, etc. that may affect the results of the test.

Interpretation of the Results

Both hydrogen and methane are measured in each breath sample. Carbon dioxide (CO2) is measured to ensure that an adequate quantity of breath has been collected. A test can be positive for fructose malabsorption if hydrogen, methane or both are elevated. The specifics for a positive test result are below:

• **Hydrogen Positive Fructose Malabsorption Test** – An increase of hydrogen gas equal or greater than 20 ppm above the lowest previous at any time of collection after baseline. An elevated hydrogen baseline value of greater than or equal to 20 ppm may also be an indication SIBO or lack of adherence to the prep diet before the test.

• **Methane Positive Fructose Malabsorption Test** – A methane value that exceeds 10 ppm at any point in the test after baseline.

Symptoms, Causes and Effects of Fructose Malabsorption

The causes and effects of fructose malabsorption can be cyclical in that the causes can be effects, and the effects can contribute to the cause. It is important to address underlying gut imbalances to improve the gut's ability to digest fructose.

**Symptoms of Fructose Malabsorption**

- Gas
- Bloating
- Reflux
- Diarrhea
- Constipation
- Abdominal Pain

**Causes of Fructose Malabsorption**

- Celiac Disease
- Inflammatory Bowel Disease
- Yeast Overgrowth
- Bacterial Overgrowth
- Parasitic or Bacterial Infections
- SIBO

**Effects of Fructose Malabsorption**

- Irritable Bowel Syndrome
- Intestinal Permeability
- SIBO
- Bacterial Overgrowth
- Dysbiosis
- Rapid Bacterial Fermentation
- Increased Osmotic Load
- Altered Gastrointestinal Motility
- Malabsorption of nutrients

Additional Test Recommendations to Consider:

- BioHealth GI Screen #401H
- BioHealth SIBO Breath Test #900, #901 or #910
- BioHealth Metabolic Assessment Profile #101
- BioHealth Intestinal Permeability Test #110
**Treatment Options**

Our digestive tracts can tolerate only 25-50 grams of fructose at any one time. Reducing the amount of fructose in the diet can improve symptoms of fructose malabsorption and allow the gut to normalize over time. Foods that are high in fructose and sorbitol together seem to have a particularly detrimental effect, while foods that have an equal amount of glucose to fructose are better tolerated.

» **Diet**

1. **Low FODMAP Diet** – This is a diet that greatly reduces fructose and fructans in addition to other saccharides that do not digest well and feed bacteria in the small intestine. This diet promotes the avoidance of Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols (FODMAP). More specifically, the diet avoids fructose (certain fruits and veggies), fructans (wheat, onions, garlic), galactans (legumes), and polyols (alcohol-based sweeteners and artificial sweeteners). [www.monashfodmap.com](http://www.monashfodmap.com)

2. **Avoidance of High Fructose Foods**
   - **Fructans** – Short chain fructans are called Fructo-Oligosaccharides (FOS); long chain fructans are inulin. Both are fermentable and feed bacteria in the intestines. [https://alittlebityummy.com/fructans-the-low-fodmap-diet/](https://alittlebityummy.com/fructans-the-low-fodmap-diet/)
   - **Fructose** – many fruits, honey and other syrup sweeteners, root veggies and other veggies, anything with high-fructose corn syrup. [https://www.food-intolerance-network.com/about-us.html](https://www.food-intolerance-network.com/about-us.html)

» **Supplement Recommendations**

1. **Support Digestion** – 1-2 capsules with each meal.
2. **Support Mucosa** – 3 capsules twice daily after breakfast and lunch.
3. **Xylose Isomerase** – 1-2 capsules with fructose-containing meals. Xylose isomerase is an enzyme that catalyzes the interconversion of D-xylose and D-xylulose. It converts excessive fructose to glucose.

» **Address Underlying Disorders**

1. It is of primary importance, as part of a treatment program, to rule out other GI disorders that may contribute to fructose intolerance. Please refer to additional test recommendations.

**Follow Up Testing**

- Follow up testing should be done 2-3 months after a treatment program has been implemented.

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