

HYDROGEN/METHANE BREATH TESTS

What is a BREATH TEST? Information for physicians and patients. (H₂. Hydrogen and CH₄. Methane)

Hydrogen and/or Methane gas in the body are produced from **intestinal bacteria**. Bacteria, normally in the large intestine, produce hydrogen or methane through fermentation of carbohydrates. Substrates containing these carbohydrates, like **Lactulose**, is given orally to test for small intestinal bacterial presence. Some of the hydrogen or methane produced from the bacterial fermentation causes bloating, abdominal discomfort or diarrhea. The gases are absorbed by the intestinal mucosa and enter the vasculature and transported to the lungs. The gases are then exhaled through normal breathing. These are collected in a bag for immediate analysis.

In **Small Intestinal Bacterial Overgrowth (SIBO)**, bacteria exist in the small intestine. **Lactulose**, when used as the challenge dose, is poorly absorbed in the gastrointestinal tract making it the perfect substrate to test for bacterial overgrowth throughout the length of the small bowel (21 feet).

NOTE: If lactose or fructose is given as substrate, bacteria compete with the natural digestive process and metabolize the sugar before it is absorbed and may produce an early rise in breath hydrogen. Dedicated intolerance testing for these sugars are performed separately.

In **Lactose and Fructose intolerance**, the individual has a deficiency in the enzymes needed for its absorption. Normally, it is broken down in the small intestine, absorbed, and **very little lactose or fructose reach the large intestine**. If it reaches the colon in its raw form, it is metabolized by colonic bacteria producing a large amount of gas which can be measured distally in the **breath sample**. (Positive Intolerance Test).

The Guidelines below are to be followed for ALL Hydrogen/Methane Breath Tests
****12 HOURS BEFORE YOU START YOUR BREATH TEST, YOU SHOULD FAST. THIS MEANS DO NOT EAT OR DRINK ANYTHING OTHER THAN WATER.**

Please wait **28 days** to do the test after your last dose after your last dose of antibiotic therapy*,

bismuth products, antimicrobial herbals* (i.e. berberine, oregano oil) or probiotics before the test

• Please wait **14 days** to do the breath test after bowel purgatives (i.e. for colonoscopy) or barium radiography.

• Please wait **7 days** after your last dose if you are taking **Laxatives**

• Please wait **2 days** after your last dose if you are taking **Motility agents** (i.e. **Metoclopramide**, **Loperamide**)

• No smoking, including second-hand smoke, for at least 1 hour before or at any time during the
• breath test.

• No sleeping or vigorous exercise for at least 1 hour before or any time during the breath test.

• No eating or drinking anything at all during the breath test.

* not for small intestine bacterial overgrowth since practitioners often test for efficacy of antimicrobials during or just after the conclusion of therapy

The day before your test, please limit your diet.

A low-residue diet that minimizes nonabsorbable carbohydrates (starches and sugars) is strongly recommended. Here are examples of foods that you **CAN** eat:

- Baked or broiled chicken, fish or turkey. (salt and pepper only)
- White bread only.
- Plain steamed white rice.
- Eggs
- Clear chicken or beef broth.
- Drink water, non-flavored black coffee, or tea.

AVOID foods like:

- Pasta, whole grain products, bran, high fiber cereals, granola, ect.
- Fruit juices, applesauce, apricots, bananas, cantaloupe, canned fruit cocktail, grapes, honeydew melon, peaches, watermelon. Raw and dried fruits likes raisins and berries.
- Vegetable juices, potatoes, alfalfa sprouts, beets, green/yellow beans, carrots, celery, cucumber, eggplant, lettuce, mushrooms, green/red peppers, squash, zucchini, broccoli, cauliflower, brussels sprouts, cabbage, kale, swiss chard, beans, lentils, corn, etc.
- All nuts, seeds and beans, as well as foods that may contain seeds
- Milk, cheese, ice cream, yogurt, butter

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