

## Hydrogen/Methane Breath Testing

Breath testing relies on the concept that ingested sugars will be fermented by bacteria in the small intestine, creating gases (hydrogen and methane) that diffuse into the bloodstream and are released in expired air. Hydrogen and methane are exclusively produced in the large intestine in healthy humans but also produced in the small intestine in patients with SIBO.

The clinician can choose to use glucose or lactulose as the substrate for the hydrogen/methane breath test. Glucose is available to patients without a prescription, whereas lactulose is only available with a prescription. Each offers different advantages. Statistics on the sensitivity and specificity of each test vary greatly, but one advantage of lactulose is that it is more likely to detect SIBO in the most distal portion of the small intestine. This is because glucose is absorbed in the proximal small bowel, and lactulose passes all the way to the colon.

The North American Consensus group established guidelines for preparation (table 1) and performance of hydrogen/methane breath tests. They suggest up to a maximum dose of 75g of glucose with 1 cup (8 ounces) of water and the correct dose of lactulose is 10g with 1 cup (8 ounces) of water. The patient collects a baseline sample of expired air and then consumes either glucose or lactulose in water. The patient then collects samples of expired air every 20 minutes for 3 hours.

**Table 1. Patient Preparation for Hydrogen/Methane Breath Test\***

- Antibiotics should be avoided 4 weeks before the breath test (this pertains only to the initial test; follow-up testing can be done immediately after antibiotics to assess response to treatment)
- Prokinetic drugs and laxatives should be stopped 1 week before breath testing
- Fermentable foods, such as complex carbohydrates, should be avoided on the day before breath testing
- The patient should fast 8-12 hours before breath testing

\* Stated by the North American Breath Testing Consensus