



Interpreting Hydrogen Methane Breath Testing (HMBT) Reading With Gastrolyzer®

DISCLAIMER: This document is based on the North American Consensus (2017)¹. The information was accurate at the time of publication.

Tips on collection for baseline sample²:

- Ensure the patient is fully rested and seated.
- If using a device that can measure the oxygen (O₂) concentration, such as the GastroCH₄ECK® Gastrolyzer®, ensure it meets the quality criteria:
 - Sufficient amount of alveolar air (Ensure collection sample bag is completely filled).
 - Approximately less than 14% O₂.
 - 4% carbon dioxide (CO₂).
 - If the sample is satisfactory, note it as the baseline and record the time.
- For direct sampling:
 - The patient will be asked to inhale and then be prompted to hold their breath for 15 seconds.
 - Once the 15-second countdown is complete, the patient will be instructed to exhale slowly into the mouthpiece.
- For sampling bag testing:
 - Instruct the patient to take a deep breath, exhale half of their breath, and then blow the rest into the sampling bag to collect the sample from the very last part of the breath (end-tidal volume/alveolar air).
 - Securely cap/tighten the inlet tube on the sampling bag.

Collect and analyse breath samples²:

- Instruct the patient to consume ALL the substrate solution (time 0).
- Start a timer for the required time interval (e.g., 20 min, 30 min).
- Collect breath samples at the specified time intervals:

Test	Prepare the test substrate*	Collect and analyse breath samples	Interpreting and analysis breath test results
Lactulose Test for SIBO Investigation	10 g	Variable sampling time interval pattern. Refer to relevant guidelines, depending on the type of investigation.	The critical marker for this is an increase in hydrogen (H ₂) levels by more than 20 parts per million (ppm) over the baseline within the first 90 minutes of testing.
Glucose Test for SIBO Investigation	75 g	Collect samples at 15-minute intervals over a 120-minute period. The short duration of the test is due to the fact that glucose is absorbed rapidly and completely within the jejunum/the proximal ileum, i.e., within 120 minutes of consuming the substrate.	

* Dissolve the exact amount of test substrate for the test day in around 200 ml of water.

Test	Prepare the test substrate*	Collect and analyse breath samples	Interpreting and analysis breath test results
Lactose Malabsorption Test	25 g (dissolve in around 50 ml of hot water, then add cold water to make up a total of 250 ml solution).	Collect samples at fixed 20-minute time intervals over a 180-minute period.	An increase in H ₂ production exceeding 20 ppm above baseline during the test indicates abnormal absorption, suggestive of fructose or lactose malabsorption often associated with SIBO.
Fructose Malabsorption Test	25 g	Collect samples at fixed 20-minute time intervals over a 180-minute period.	

* Dissolve the exact amount of test substrate for the test day in around 200 ml of water.

Tips²:

- Extend the test duration for patients with potentially delayed orocecal transit time if the colonic rise of H₂ (> 20 ppm from the baseline) is not detected within a 180-minute time frame.
- For home testing, the sampling time interval can be extended to 30 minutes, except for the lactulose test, which requires additional samples at 75 minutes and 90 minutes.

NOTES:

- For CH₄ testing, the NAC does not state that a rise of > 10 ppm is a sign of SIBO.
- For the lactulose test, shorter intervals around the 90-minute threshold are advisable for SIBO investigation, e.g., one additional sample at 75 minutes².

Recommendations for Paediatric HMBTs²:

- Until a valid paediatric HMBT guideline is established, proceed with caution and follow the generic North American Consensus Suggestions.

References:

1. North American Consensus on Breath Testing. Rezaie, A., Lembo, A., et al. (2017). Hydrogen and Methane-Based Breath Testing Gastrointestinal Disorders: The North American Consensus. The American Journal of Gastroenterology, 112(5), 775-784.
2. Dr Jafari, J. (2025). The Essential Guide to Hydrogen and Methane Breath Testing. The Modern Non-Invasive Approach to Investigating Gastrointestinal Disorders. United Kingdom. Bedfont® Scientific Limited.



Bedfont® Scientific Ltd.
 Station Road, Harrietsham, Maidstone,
 Kent, ME17 1JA England
 Tel: +44 (0)1622 851122 Fax: +44 (0)1622 854860
 Email: ask@bedfont.com Web: www.bedfont.com

© Bedfont® Scientific Limited 2025

Issue 1 - September 2025, Part No: LAB895

Bedfont® Scientific Limited reserves the right to change or update this literature without prior notice.

Registered in: England and Wales. Registered No: 1289798



bedfont