

Lactose Malabsorption

Breath Test Interpretation Guidelines

About 70% of the adult world population is lactose-intolerant due to low levels of intestinal lactase (hypolactasia).¹ Hypolactasia often remains undiagnosed and has the potential to cause some morbidity. Lactose-intolerance/hypolactasia is most commonly diagnosed by the lactose hydrogen breath test.

Lactose is found only in mammalian milk and is hydrolysed by lactase in the small intestine. It has been discovered that the “wild-type” gene status for the lactase gene is characterized by lactase non-persistence, often leading to lactose intolerance. Two genetic polymorphisms responsible for persistence (i.e. lactose tolerant) have been identified, with their distribution concentrated in northern Europeans.¹

Symptoms of Lactose Malabsorption

- Abdominal pain
- Bloating
- Flatulence
- Diarrhea (commonly mistaken for irritable bowel syndrome)
- Small intestinal bacterial overgrowth (SIBO)
- Fungal overgrowth

Many people with hypolactasia can tolerate some lactose-containing foods with nutritional counseling and/or digestive support.¹

Neurovanna Lactose Diagnostic Criteria

Numerous published studies, consensus papers and laboratory validations are used by clinicians to interpret breath test results. Laboratory diagnosis and commentary are provided to the practitioner for educational purposes and should not be considered as diagnostic.

- Methane production ≥ 10 parts per million (ppm) during the test²
- A rise over lowest preceding value in hydrogen production ≥ 20 ppm during the test^{2,3}
- A rise over lowest preceding value in the sum of hydrogen and methane production ≥ 15 ppm during the test³

Clinical Considerations

Falsely elevated findings may result from:

- Improper test preparation
- Residual fiber in the intestine due to delayed transit time
- Residual oropharyngeal (mouth and throat) bacteria
- Exposure to tobacco smoke during collection
- Chewing gum during collection
- Sleeping during collection

Elevated baseline hydrogen levels after strictly following preparation guidelines can occur and may interfere with test interpretations. Based on a complete clinical picture, some healthcare practitioners may consider an elevated hydrogen baseline a positive test.

Quality Control

Neurovanna’s quality control exceeds laboratory equipment manufacturer’s recommendations with machinery calibrated after every 2 hours or 5th test run. Testing performed on a CLIA waived, QuinTron BreathTracker™ Digital MicroLyzer H+. A parallel measurement of carbon dioxide (CO₂) is obtained with each sample to allow for greater testing precision. All samples are processed using CO₂ correction factor technique that reduces errors and improves interpretation.

1. Lomer MC, et al.. Aliment Pharmacol Ther. 2008 Jan 15;27(2):93-103. Epub 2007 Oct 23.
2. Rezaie A, et al. The American journal of gastroenterology. May 2017;112(5):775-784.
3. QuinTron validated criteria.