



Test Results

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CLIA CERTIFICATION: 38D0624258

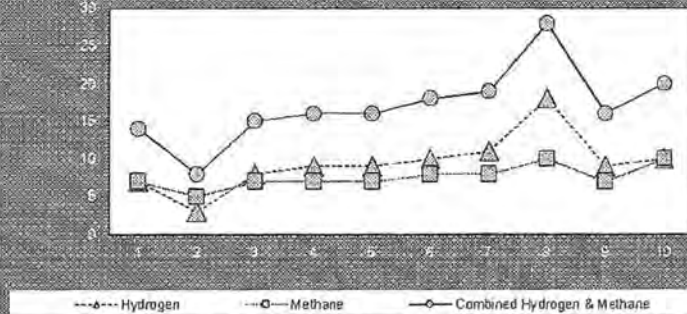
Patient Name: _____ DOB: _____ Provider: **Davis, Brian**

Date Collected: **11/2/2015** Date Received in Lab: **11/6/2015** Date Tested: **11/12/2015** Tech: **KR**

Data

H₂ = Hydrogen CH₄ = Methane CO₂ = Measured

| | Sample | ppm H ₂ | ppm CH ₄ | Total H ₂ + CH ₄ | CO ₂ %* |
|----|-------------------|--------------------|---------------------|--|--------------------|
| 1 | Baseline | 7 | 7 | 14 | OK |
| 2 | 20 min | 3 | 5 | 8 | OK |
| 3 | 40 min | 8 | 7 | 15 | OK |
| 4 | 65 min ** | 9 | 7 | 16 | OK |
| 5 | 87 min ** | 9 | 7 | 16 | OK |
| 6 | 108 min ** | 10 | 8 | 18 | OK |
| 7 | 128 min ** | 11 | 8 | 19 | OK |
| 8 | 150 min ** | 18 | 10 | 28 | OK |
| 9 | 170 min ** | 9 | 7 | 16 | OK |
| 10 | 191 min ** | 10 | 10 | 20 | OK |



*Dilutions of the sample may occur during the sampling procedure which may decrease the CO₂ concentration of the sample and render the sample invalid. If the concentration falls below 1.4 %, the entry for CO₂ will be marked as Quantity Not Sufficient (QNS) and the entries for H₂ and CH₄ will be highlighted. If the sample is otherwise unusable the entry for CO₂ will be marked as Not Available (N/A) and the entries for H₂ and CH₄ will be highlighted. See notes section for details if cells are highlighted and blank or highlighted and contain N/A or QNS.

Analysis

| | | | |
|--|----|---|--------|
| Combined baseline total = | 14 | - | ≤20ppm |
| Greatest H ₂ increase over the lowest preceding value within first 120 minutes = | 8 | - | ≤20ppm |
| Greatest CH ₄ increase over the lowest preceding value within first 120 minutes = | 3 | - | ≤12ppm |
| Greatest combined H ₂ & CH ₄ increase over the lowest preceding value within first 120 minutes = | 11 | - | ≤15ppm |

Interpretation

| | | |
|---|--|-----------------|
| SIBO Suspected - Elevated Hydrogen | Increases of hydrogen greater than 20ppm over the lowest preceding value within the first 120 minutes (+/- 5min deviation) are indicative of bacterial overgrowth. | NEGATIVE |
| SIBO Suspected - Elevated Methane | Increases of methane greater than 12ppm over the lowest preceding value within the first 120 minutes (+/- 5min deviation) are indicative of bacterial overgrowth. | NEGATIVE |
| SIBO Suspected - Elevated Combined Hydrogen & Methane Gasses | Increases in combined hydrogen and methane gas values greater than 15ppm over the lowest preceding value are indicative of bacterial overgrowth. | NEGATIVE |

Notes

The following symptoms were reported during collection:

At 18 min.: Slight cramp (stomach)

Patient note: "Sip of aloe vera juice previous day at 6 pm accidentally"

Lab note: Strict compliance to the preparatory guidelines & diet is required to ensure the most accurate and reliable results.

Note: The actual collection times were shifted 5 or more minutes from the standard collection times, starting with Sample #4. Note that the 120 minute sample was collected at 128 minutes. See bold times**

Additional Information

High Baseline: Some doctors interpret a baseline gas above normal value as positive. This is particularly true for methane since a high baseline and an early rise is a standard methane pattern.^{1,2,3} Gas levels that fall after an elevated baseline and continue to reduce or remain low during the first two hours, may indicate an improper preparation diet.⁴

Methane ≥ 3ppm: Some doctors interpret methane ≥ 3ppm at any point in the test as positive.⁵ Levels of methane that are greater than or equal to 3ppm at any time during the test are indicative of methanogen overgrowth which has been correlated in studies to IBS constipation type and chronic constipation.⁶

Level vs. Increase: The standard interpretation of results for SIBO uses the difference between the peak level compared to the lowest previous level in the first 120 minutes (+/- 5 min deviation). If this increase is equal or greater than 20 PPM for H₂, or equal or greater than 12 PPM for CH₄ – SIBO is diagnosed. At the NCNM SIBO center, we have also used an absolute value (rather than an increase) of 20 PPM (H₂) or 12 PPM (CH₄) to indicate SIBO. Also note that methane values may not increase, the baseline and all levels often remain high for the whole test.^{7,8}

References: 1. Pennan JA, Modler S, Barr RG, Rosenthal P. Fasting breath hydrogen concentration: normal values and clinical application. *Gastroenterology* 1984;87(5):1358-63. Pub Med ID#: 6489700 2. Quigley EM, Ouera R. Small intestinal bacterial overgrowth: roles of antibiotics, prebiotics, and probiotics. *Gastroenterology*. 2006 Feb;130(2 Suppl 1):S78-S90. Pub Med ID#: 16473077 3. Pimentel M, Lin HC, Enayati P, van den Burg E, Lee JH, Chen JH, Park S, Kong Y, Conklin J. Methane, a gas produced by enteric bacteria, slows intestinal transit and augments small intestinal contractile activity. *Am J Physiol Gastrointest Liver Physiol*. 2006 Jun;290(6):G1089-95. Pub Med ID#: 16293652 4. Siebecker A, Sandberg-Lewis S. The Finer Points of Diagnosis, Test Interpretation, and Treatment. *Naturopathic Doctor News and Review*. January 2014, 10:46. <http://ndnr.com/gastrointestinal/sibo/> 5. Pimentel M. SIBO Symposium: Current Perspectives and Management in IBS. National College of Natural Medicine. January 18-19, 2014. Webinar recording: <http://www.ncnm.edu/ce/moddle/course/category.php?id=130> 6. Use studies already listed 7. Pimentel M. An evidence-based treatment algorithm for IBS based on a bacterial/SIBO hypothesis: Part 2. *Am J Gastroenterol*. 2010 Jun;105(6):1227-30. PMID: 20523308 8. Siebecker A, Sandberg-Lewis S. The Finer Points of Diagnosis, Test Interpretation, and Treatment. *Naturopathic Doctor National Review*. January 2014, 10:46. <http://ndnr.com/gastrointestinal/sibo/>