# SIBO – Is it Causing Your IBS or Gut-Related Disorder?

Today the number of people struggling with gut-related disorders appears to be rising at an alarming rate. This is a topic not often discussed around the dinner table, at parties, or even with friends. Many suffer in silence as they experience a never-ending battle with their gut and health. Quite often, conventional testing is performed with negative results, no answers, and limited relief. Sadly, the patient's health often declines, impacting their social activities, relationships, and quality of life.

Irritable bowel syndrome, IBS, has a global presence of 11.3% and is often a diagnosis of exclusion. The criteria to diagnose IBS are very broad and, after patients have had multiple tests to rule out other disease states, they are commonly given this label. There are several drugs available for IBS; however, they often don't work, have side effects, and fail to address the problem's root cause. It is important to note that IBS can be complex: instead of a single cause or treatment, there could be multiple disorders, imbalances, or triggers, each with their own unique pathogenesis. Unfortunately, the conventional medical model is less likely to acknowledge and test for these.

One of the most prevalent disorders underlying IBS symptoms is SIBO (Small Intestinal Bacterial Overgrowth). It is estimated that 60-80% of IBS cases could actually be SIBO, according to the *World Journal of Gastroenterology*. Five million cases are estimated for SIBO worldwide, and there has been an exponential increase in SIBO research in the past 5 years. However, in my experience, many GI doctors are not aware of the prevalence and magnitude of the disease, do not offer testing, and have not been trained to effectively treat SIBO due to time constraints.

**What is Small Intestine Bacterial Overgrowth (SIBO)?**

SIBO is defined as an overgrowth of bacteria in the small intestine due to various underlying causes. The majority of our gut bacteria are found in the large intestine; however, with SIBO, bacteria have migrated and colonized in the small intestine where they do not belong. The small intestine's job is to properly digest, assimilate, and absorb food while maintaining a low level of microbes to avoid fermentation. Fermentation occurs when protein and carbohydrates are broken down and converted to gases such as hydrogen and methane, ammonia, and other substances that are harmful to the gut and result in inflammation, gut permeability, and decreased motility. Both hydrogen and methane typically cause abdominal bloating, distension and a host of other symptoms. SIBO sufferers are divided into one of three categories; diarrhea-dominant (D), constipation-dominant (C) or alternating variations of both.

**What Are the Symptoms of SIBO?**

Symptoms of SIBO are often synonymous with IBS. One of the most frequent and distinguishable symptoms seems to be excessive bloating after eating.

The most common symptoms are:

1. Bloating within 1 hour after meals
2. Chronic diarrhea, constipation, or mixed
3. GERD, reflux, or burping after meals
4. Foul-smelling gas, stomach gurgling, pain/discomfort, or cramping

Other symptoms may include:

- Joint pain
- Restless legs at night
- Multiple food sensitivities/allergies
- Acne or skin rashes
- Brain fog or memory issues
- Chronic iron and/or B12 deficiency
- Weight gain or loss
- Difficulty sleeping

Other clues that may indicate SIBO include symptoms improving while on antibiotics and problems worsening while taking fiber or prebiotic fiber.

**What Causes SIBO?**

SIBO can occur when there is a breakdown in one or more of the body's innate mechanisms designed to keep bacteria from colonizing the small intestine. *It is just as important to identify the cause as it is to treat the bacteria.*

There are four primary underlying causes:

1. **Impaired Motility** – Not to be confused with constipation, poor motility refers to the slow function or impairment of the migrating motor complex (MMC). These are the muscles in the digestive tract that move food, bacteria, and toxins out of the small intestine. The MMC is crucial to maintaining balanced gut bacteria populations. Motility can be impacted by conditions such as Parkinson's, diabetes, pancreatitis, and hypothyroidism, as well as autoimmune or post-infectious IBS, chronic infections, mold/CIRS, scleroderma, vagus nerve dysfunction, and use of narcotic pain medication.
2. **Impaired Digestion** – This may occur due to inadequate stomach acid, which helps kill any pathogens or bacteria that enter the digestive tract. One of the most common causes of low stomach acid is the overuse of PPI's and acid reducers taken for chronic conditions such as acid reflux, heartburn, GERD, LPR, ulcers, gastritis, and H.pylori. Narcotic use, aging and chronic stress will also reduce stomach acid levels. Similarly, an appropriate level of digestive enzymes and bile production is needed to limit the growth of bacteria. Deficiency of pancreatic or brush border enzymes and poor bile flow may occur with damage to the lining of the small intestine caused by food sensitivities, medications, toxins, and chronic stress.
3. **Medications –** As already mentioned, antacids/PPI's and opiates/narcotics have been linked to SIBO, and, recently, so have tricyclic antidepressants and T4 thyroid medication.
4. **Impaired Flow Through the Intestines:** Anatomical abnormalities that occur from scar tissue as a result of abdominal surgeries, endometriosis, or gallbladder removal

can block bacterial clearance. Also, the Ileocecal valve, the valve between the small intestine and the colon that prevents retrograde movement of bacteria from the colon to the small intestine, may be impaired.

SIBO can be a result of one or more of the above conditions and the root cause must be resolved or there is a high chance for recurrence.

**What are the Secondary Health Problems Related to Abnormal Amounts of Bacteria?**

- SIBO damages the microvilli, the absorptive surface of the small intestine. This can lead to malabsorption of nutrients. Research also reveals that SIBO can lead to intestinal permeability or "leaky gut." This is a condition in which partially digested food particles, as well as harmful bacterial by-products, are absorbed through the lining of the small intestine and subsequently trigger immune and inflammatory reactions.
- SIBO not only causes malabsorption of nutrients, but the bacteria can also feed on necessary nutrients such as vitamin B12 and protein, leading to deficiency.
- Bacteria may deconjugate bile acids, which can lead to fat malabsorption and deficiencies of fat-soluble vitamins. Bacteria can produce various endotoxins such as lipopolysaccharides (LPS) that may have effects across the whole body.
- Motility of the small intestine is often further slowed by the bacteria themselves. This continues to drive fermentation, and may also lead to a co-infection with fungal organisms.

**How is SIBO Diagnosed?**

The typical "gold standard" to test for SIBO is a breath test that measures levels of hydrogen and methane gas. It is a simple, non-invasive test that can be completed at home. After a 1-2 day prep diet and 12-hour fast, a baseline breath sample is taken before a lactulose or glucose solution is swallowed. Breath samples are then collected every 15-20 minutes for 2.5 to 3 hours (depending on the lab used). If bacteria are present, they will ferment the lactulose or glucose and produce hydrogen and/or methane gas, which is then measured through the breath.

In simple terms, if the gas levels are above a certain number within a certain time period, then the test indicates a positive result for SIBO. Testing is not perfect and there can be false negative/positive results. Using the correct solution is important, and having a skilled practitioner to interpret the results is key, as they are not always black and white.

**How is SIBO Treated?**

A comprehensive approach is vital. The goal is not just to eradicate SIBO but to address the underlying cause(s). As research continues to emerge and our understanding of how to best treat SIBO grows, this may change. Currently, many methods can be used to address SIBO, and an individualized approach offers the best results. These are the steps I take with patients.

**Phase 1: Eradicate the Overgrowth of Bacteria**

- This can be done with prescription antibiotics and/or herbal antimicrobials along with supplements such as fiber and probiotics.
- Rifaximin (Xifaxin) is the most studied antibiotic for SIBO and may be the preferred option because it stays local to the small intestine and doesn't disrupt the good bacteria in the colon. It has a reported success rate of around 50-60% for those with hydrogen-dominant SIBO. However, a combination of Rifaximin paired with another antibiotic called Neomycin has shown a success rate as high as 70-85% for methane-dominant SIBO. Because of issues with antibiotic resistance, natural herbal antimicrobials can be used and have shown success rates approaching 50-70% in those who fail Rifaximin or who choose to avoid traditional antibiotic therapy. It is important to note that multiple rounds of treatment may be needed.
- The Elemental Diet is a predigested liquid diet that starves the bacteria and has been shown to have a success rate of 80-90% when followed for 2 weeks. This may be an appropriate approach for those allergic to antibiotics, herbals, or for those who don't respond to them for treatment. It is a very difficult diet to follow and can be emotionally challenging as well.
- Addressing biofilms is also imperative to treatment since 75% of bacterial infections are shown to create a matrix that can serve as a protective home. Antimicrobials and specific products to disrupt biofilms are used to ensure proper eradication.

**Phase 2: Reduce Symptoms, Support Digestion, Replete**

- Diet does not cure SIBO but rather helps manage symptoms and create a hospitable environment for healing. Many diets reduce fermentable carbohydrates to varying degrees. I tend to work mostly with the SIBO-Specific diet and the SIBO Bi-Phasic diet. These are each a combination of the Low-FODMAP diet and Specific Carbohydrate Diet (SCD), developed by Dr. Alison Siebecker and Dr. Nirala Jacobi, respectively. In my experience, both these have been helpful for patients to reduce symptoms and may be used as part of the intervention protocol before, during, or after the treatment phase, depending on the situation. Other diets that reduce fermentable fibers include the GAPS diet, the Fast Tract Diet, the Low-FODMAP diet. It's important to note that these diets are not intended for long-term use. They are tools used to help manage symptoms, identify food sensitivities/intolerances and to help the digestive system heal. Once symptoms have improved, we can carefully and systematically reintroduce previously restricted foods. The goal is to liberalize the diet as much as possible while limiting symptoms.
- Supporting digestion is essential through proper eating strategies, taking supplements like digestive enzymes or HCL/pepsin to help break down and absorb nutrients from food, as well as working to activate the vagus nerve to help the body relax so it can "rest to digest." Also, in the case of constipation, natural remedies can be used such as magnesium, buffered vitamin C, and others to ensure regular elimination.

- Nutritional support is required to replete the systems of those with nutrient deficiencies and malnutrition so their bodies can function and heal effectively.

**Phases 3 & 4: Repopulate, Repair, Improve Diversity**

- Recolonization with healthy, beneficial bacteria is essential. Selecting the right strain and fit for each patient is important. My patients have had great success using a spore-based product that has been demonstrated in clinical trials to help with both motility and repair of the gut lining. Often probiotics are used after the treatment phase is complete, but some can be used during treatment.
- Prebiotics fibers such as inulin, beta-glucan, pectin, acacia and others are often not used until it is known that the bacteria have been eradicated.
- Since the bacteria can create damage to the gut lining, it is important to restore the integrity of the gut mucosa by giving support to healthy mucosal cells, as well as to offer immune support. This can be done with immunoglobulins, S. boulardii, or colostrum and nutrients such as L-glutamine, aloe vera, deglycyrrhizinated licorice, marshmallow root, okra, quercetin, zinc carnosine, and more.

**Phase 5: Restore MMC, Rebalance, and Prevent Relapse**

- In this phase, we address whole-body health and lifestyle factors to prevent future GI dysfunction, including sleep, diet, exercise, and stress management.
- The most common cause of SIBO is an impaired migrating motor complex (MMC). As discussed, this is a wave that goes through the small intestines every 90-120 minutes, moving bacteria and undigested material down to the large intestine and it can only occur during fasting at night and between meals. This is why it is important to support the MMC by avoiding snacking between meals, fasting 12 hours overnight, and reducing stress.
- Post-treatment with a natural prokinetic, or promotility agent, is necessary to stimulate the migrating motor complex to keep things moving. Prokinetics are started after the bacteria have been eradicated. Natural prokinetics include Iberogast, MotilPro, and ginger-containing formulas. Prescriptions such as low-dose erythromycin, prucalopride (Motegrity), and low-dose naltrexone (LDN) may be used.

**My Functional Nutrition Approach to SIBO**

In my practice, I seek to understand each person's unique biochemistry and how food, environment, lifestyle, genetics, and medical history may impact health, identifying the often multifactorial root cause(s) of gut dysfunction. SIBO is a challenging condition that often relapses. Appropriate testing, gut-healing protocols, lifestyle intervention, support, and collaboration with other practitioners are essential to long-lasting relief. I have experienced chronic health and gut issues myself, and the conventional medical model failed to help me address them. However, I finally discovered answers and relief by getting to the root cause. That is why I am passionate about helping others discover root-cause solutions so they may reclaim hope, health, and healing from functional gut-related disorders.

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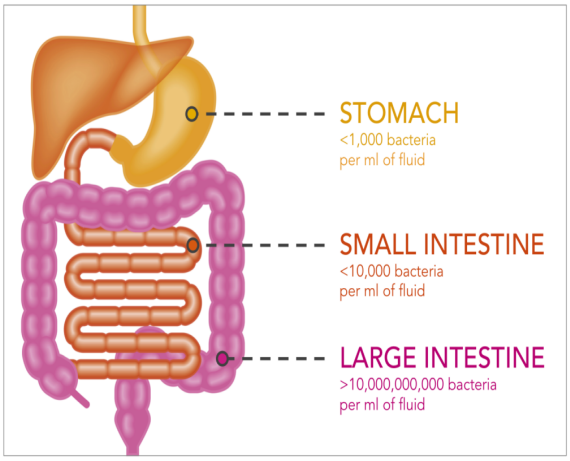
Images:




**Source**: *Gorbach SL. Microbiology of the Gastrointestinal Tract. Medical Microbiology. 4th edition. University of Texas; 1996*