
Chapter 5

Small Intestinal Bacteria Overgrowth (SIBO)

“SIBO is defined as an increase in the number and/or alteration in the type of bacteria in the upper gastrointestinal tract.” — [PubMed #PMC2890937](#) ⁶¹²



Until recently the small intestine (SI) was thought to be mostly a sterile environment, thus any bacteria in the SI was thought to cause illness. Now science understands that the small intestine is teeming with microorganisms, including probiotic bacteria. The small intestine has far fewer bacteria (total cultures) than the large intestine, but a significant amount nevertheless (up to 10^8 viable bacteria per gram of liquid at the ileum), 10,000 bacteria per milliliter of fluid (compared to 1,000,000,000 bacteria per milliliter of fluid in the large intestine). The strains of bacteria in the small intestine are also normally very different from those in the colon (at least they should be). It is often when the small intestine ends up with the wrong kind of bacteria (often colonic bacteria) that things go bad.

“Irritable bowel syndrome (IBS) is the most common gastrointestinal disorder, thought to affect approximately 15% of the population. Differences in gut microflora are evident between IBS sufferers and controls, with the former demonstrating significantly lower concentrations of bifidobacteria and lactobacilli, and higher concentrations of *Streptococcus*, *E. coli* and *Clostridia*. Small intestinal bacterial overgrowth (SIBO) occurs in up to 78% patients with IBS” — [PubMed #PMC2742929](#) ⁶¹³

“Bifidobacteria and lactobacill” bacteria are probiotic strains that are found in fermented foods and most probiotics. These bacteria keep out the bad players, like *Streptococcus*, *E. coli* and *Clostridia*, and help change the environment of the gut to make it hospitable to other probiotic strains, and inhospitable to most pathogenic and colonic strains. In other words, probiotic strains normalize the small intestine and help drive out the bad players.

Because of that word “overgrowth”, many doctors, even today, believe that adding probiotic bacteria to SIBO will make it worse, even though many major studies have shown otherwise (see [Appendix B](#) “Evidence for Using Probiotics in The Treatment of SIBO”). Also see the studies under “SIBO Testing” showing that SIBO usually starts as food poisoning (which can be the result of a weakened immune system, such as after antibiotics). Though an “overgrowth” of the wrong kinds of bacteria can certainly cause SIBO, probiotic bacteria cannot. SIBO is also sometimes known as “Blind Loop Syndrome (BLS).

“Initially thought to occur in only a small number of patients, it is now apparent that this disorder is more prevalent than previously thought. Patients with SIBO vary in presentation, from being only mildly symptomatic to suffering from chronic diarrhea, weight loss, and malabsorption.” — [PubMed #PMC309351](#) ⁶¹⁴

“In addition to the absolute number of organisms, the type of microbial flora present plays an important role in the manifestation of signs and symptoms of overgrowth. For example, a predominance of bacteria that metabolize bile salts to unconjugated or insoluble compounds may lead to fat malabsorption or bile acid diarrhea.” — [PubMed #PMC309351](#) ⁶¹⁵

“In addition to the absolute number of organisms, the type of microbial flora present plays an important role in the manifestation of signs and symptoms of overgrowth” — [PubMed #10235214](#) ⁶¹⁶

There is no doubt the human gut is a very complex environment, one that is nowhere near being fully understood.

“Aetiology (causes) of SIBO is usually complex, associated with disorders of protective antibacterial mechanisms” — [PubMed #PMC2890937](#) ⁶¹⁷

Even today, SIBO is far more prevalent than most doctors realize. A recent study found that up to 67% of patients with chronic diarrhea have SIBO ([PubMed #15242494](#) ⁶¹⁸).

In my case, not one of the last three doctors I've gone to knew what SIBO was, even when I told them what it stood for. One doctor rolled his eyes at me and smirked when he asked me what it was. He was a bit embarrassed when I told him it was diagnosed at their own gastroenterology center. But it just goes to show how ill-informed many doctors are about chronic gut diseases.

Updates at - <http://theguthealthprotocol.com>

Support at - <https://www.facebook.com/groups/The.Gut.Health.Protocol>

Another study found that up to 90% of alcoholics may have SIBO ([PubMed #9438608](#) ⁶¹⁹), that is a large number of people, people already struggling. Even amongst moderate drinkers

“moderate alcohol consumption was a strong risk factor for SIBO” — [PubMed #24323179](#) ⁶²⁰

“Due to the disruption of digestive processes by the overgrowth of intestinal bacteria malabsorption of bile salts, fat and fat soluble vitamins, protein and carbohydrates results in damage to the mucosal lining of the intestine by bacteria or via the production of toxic metabolites.” — [Wikipedia](#) (with references) ⁶²¹

Antibiotics – No discussion about SIBO would be complete without a thorough discussion of antibiotics. Because this topic affects more than just SIBO it has been moved to a Chapter of its own. Before making any decisions about whether to take antibiotics for SIBO please read Chapter 19.

SIBO Symptoms

The symptoms with SIBO are often the same as that for an intestinal candida infection, and many other gut issues. Symptoms are mostly caused by bacterial strains that don't belong in the small intestine creating harmful gasses (hydrogen and methane), gas pressure, and toxins. This can also create inflammation which causes much of the pain. Diagnosis of SIBO is often done through a “Lactulose Breath Test” (see below).

Symptoms of SIBO can include

- abdominal fullness
- diarrhea
- constipation (see Chapter 17)
- indigestion
- abdominal pain
- cramping pain after meals
- gas / bloating
- abdominal distension
- flatulence
- weakness
- fatigue
- excessive fullness after a meal

Secondary Conditions

- Rheumatoid Arthritis - “An important observation in this study is that patients with bacterial overgrowth had evidence of severe arthritis and marked disease activity, as evaluated by clinical and biochemical parameters. At present, there is increasing

evidence that the intestinal microflora may play a part in triggering or modulating RA”
— [PubMed #PMC1005088](#) ⁶²²

- Fatty stools (steatorrhea) - due to deconjugation of bile acids, see below
- Unintentional weight loss
- Rosacea - There is a very strong correlation between rosacea and SIBO. Studies show that nearly half of all patients with rosacea also have SIBO. Of those with SIBO rosacea either completely cleared or greatly improved for up to 93% of them.

“In persons with chronic rosacea, 46% had SIBO, vs 5% of healthy controls. After eradication of the SIBO, the cutaneous rosacea lesions cleared in 71% and greatly improved in 21%, whereas those treated with placebo remained unchanged in 90% or worsened in 10%” — [PubMed #PMC3396187](#) ⁶²³

“The prevalence of SIBO was higher in patients than controls (52/113 vs 3/60, P < .001). After eradication, cutaneous lesions cleared in 20 of 28 and greatly improved in 6 of 28 patients, whereas patients treated with placebo remained unchanged... This study demonstrated that rosacea patients have a significantly higher SIBO prevalence than controls. Moreover, eradication of SIBO induced an almost complete regression of their cutaneous lesions and maintained this excellent result for at least 9 months.” — [PubMed #18456568](#) ⁶²⁴

- Fibromyalgia - One study showed that 42 out of 42 fibromyalgia suffers tested positive for SIBO — [PubMed #PMC2890937](#) ⁶²⁵
- Vitamin B12 deficiency
- Iron deficiency
- Folate deficiency
- Magnesium deficiency
- Fat soluble vitamin deficiencies - Vitamins A, D, E, K, K2 may be poorly absorbed due to deconjugation of bile acids. The following study refers to all vitamin deficiencies mentioned in this section, not just fat soluble vitamins.

“Complications of SIBO range from mild, including diarrhea and minimal vitamin deficiencies, to severe, including malabsorption and neuropathies due to fat-soluble vitamin deficiencies. The nutritional consequences of SIBO result from maldigestion and malabsorption of nutrients in the intestinal lumen. The latter occurs secondary to microscopic damage to the small intestinal mucosa which diminishes the absorptive capacity of the microvilli.”
— [PubMed #PMC3099351](#) ⁶²⁶

- carbohydrate and protein malabsorption - due to bacteria fermentation and disruption of the intestinal brush border ([PubMed #PMC3099351](#) ⁶²⁷)

Updates at - <http://theguthealthprotocol.com>

Support at - <https://www.facebook.com/groups/The.Gut.Health.Protocol>