

The Roadmap Series

Mapping How To Use Probiotics In The Management Of SIBO

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Learning outcomes – the use of probiotics for SIBO

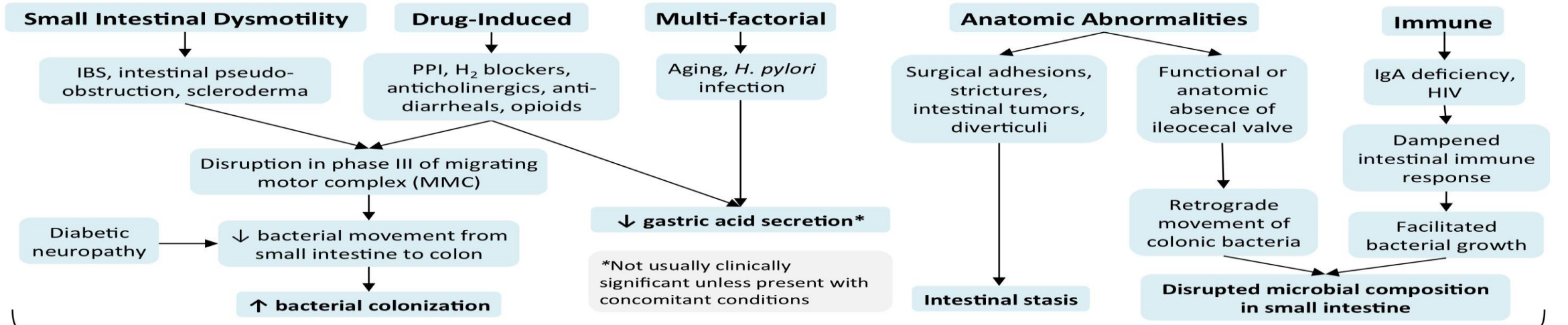
- Understand the role of gut microbiota in gastrointestinal health and the pathophysiology of Small Intestinal Bacterial Overgrowth (SIBO).
- Explore the mechanisms of action by which probiotics exert their effects on gut microbiota composition and function.
- Evaluate the current evidence regarding the efficacy and safety of probiotics in the management of SIBO.
- Discuss the potential benefits and limitations of probiotic therapy as an adjunctive treatment option for SIBO.
- Identify specific probiotic strains and formulations that have been studied for their potential role in SIBO management.
- Apply knowledge gained from the presentation to inform clinical decision-making and patient education regarding the use of probiotics in SIBO management.

**“It pays to keep an open mind.
but not so open that your brains
fall out”.**

Carl Sagan

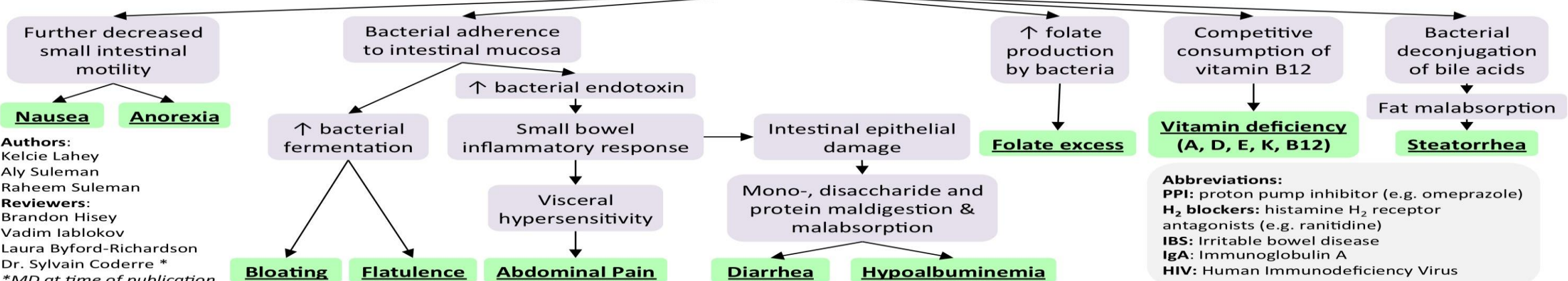
What is SIBO?a one-pager!

Small Bowel Bacterial Overgrowth: Pathogenesis and clinical findings



Common bacterial species:
Streptococci, Bacteroides, Escherichia, Lactobacillus

Small Bowel Bacterial Overgrowth
 Jejunal aspirate >10³ colony forming units/mL



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Abbreviations:
PPI: proton pump inhibitor (e.g. omeprazole)
H₂ blockers: histamine H₂ receptor antagonists (e.g. ranitidine)
IBS: Irritable bowel disease
IgA: Immunoglobulin A
HIV: Human Immunodeficiency Virus



Why use probiotics in the treatment of SIBO?

- **Restore Microbial Balance:** Probiotics help restore balance by competing with pathogenic bacteria for nutrients and colonisation sites to promote a healthier gut environment.
- **Modulate Gut Immunity and Inflammation -** Probiotics also improve gut barrier function and regulating immune signalling pathways
- **Improve Gut Motility and Function:** Certain probiotic strains, such as Lactobacillus and Bifidobacterium species, have been found to regulate gut motility and enhance intestinal transit.
- **Enhance Nutrient Absorption:** Probiotics help restore nutrient absorption by promoting a healthier gut epithelium and enhancing the activity of digestive enzymes, addressing nutritional deficiencies.
- **Minimise Antibiotic Resistance:** As an alternative or adjunctive therapy to antibiotics with minimal risk of antibiotic resistance and less impact on beneficial gut bacteria.

Evidence for the Use of Probiotics in the Treatment of SIBO (1)

Systematic Reviews and Meta-Analyses

The systematic review and meta-analysis ([1]) found that probiotic supplementation significantly improved the SIBO decontamination rate compared to no probiotics, based on 18 studies with 905 patients. This provides evidence that probiotics may be effective for treating SIBO, though study quality was variable.

The systematic review ([2]) found preliminary evidence that probiotics may have a role in SIBO treatment, though robust clinical trials are lacking. This provides some support for probiotics in SIBO but highlights the need for further high-quality studies.

1. Probiotics for Preventing and Treating Small Intestinal Bacterial Overgrowth: A Meta-Analysis and Systematic Review of Current Evidence. (Journal of clinical gastroenterology, 2017)

2. Alternative Treatment Approaches to Small Intestinal Bacterial Overgrowth: A Systematic Review. (Journal of alternative and complementary medicine (New York, N.Y.), 2021)

Evidence for the Use of Probiotics in the Treatment of SIBO (2)

Clinical Trials

The pilot study ([3]) found improved hydrogen breath test results and symptom relief with probiotics added to antibiotic therapy for SIBO patients (n=30). Provides limited evidence for probiotics as adjuvant therapy.

The clinical trial ([4]) found probiotics alone or combined with metronidazole improved symptoms and hydrogen breath test results for SIBO in systemic sclerosis patients. Provides evidence for probiotics in this population.

The randomized controlled trial ([5]) found gastrointestinal symptoms significantly improved with fecal microbiota transplantation (FMT) compared to placebo for SIBO patients (n=55). Provides preliminary evidence for FMT as a novel therapeutic approach for SIBO.

3. Evaluating the efficacy of probiotic on treatment in patients with small intestinal bacterial overgrowth (SIBO)--a pilot study. (The Indian journal of medical research, 2014)
4. Effectiveness of Saccharomyces boulardii and Metronidazole for Small Intestinal Bacterial Overgrowth in Systemic Sclerosis. (Digestive diseases and sciences, 2020)
5. Clinical efficacy of fecal microbiota transplantation for patients with small intestinal bacterial overgrowth: a randomized, placebo-controlled clinic study. (BMC gastroenterology, 2021)

Evidence for the Use of Probiotics in the Treatment of SIBO (3)

Other evidence

The comparative study ([6]) found probiotics or prebiotics as adjuvant therapy to antibiotics improved SIBO symptoms. Provides some evidence for probiotics.

The narrative review ([7]) suggests probiotics may improve SIBO symptoms, but optimal dietary patterns for SIBO treatment remain hypothetical due to limited research. Does not provide direct evidence for probiotics.

6. Effect of probiotic or prebiotic supplementation on antibiotic therapy in the small intestinal bacterial overgrowth: a comparative evaluation. (Current clinical pharmacology, 2013)
7. Efficacy of an Irritable Bowel Syndrome Diet in the Treatment of Small Intestinal Bacterial Overgrowth: A Narrative Review. (Nutrients, 2022)

Probiotics for Preventing and Treating Small Intestinal Bacterial Overgrowth: A Meta-Analysis and Systematic Review of Current Evidence"

by Zhong et al

This paper provides some evidence for the use of combination (multi-strain) probiotics in the treatment of SIBO:

- For SIBO treatment studies, multi-strain probiotic formulations were more effective than single-strain probiotics in improving the SIBO normalization rate.
- The relative risk (RR) of achieving SIBO normalization was significantly higher with multi-strain probiotics compared to control groups (RR 2.07, 95% CI 1.47-2.92).
- In contrast, single-strain probiotics did not show a significant benefit over control for SIBO normalization (RR 1.25, 95% CI 0.90-1.73).
- This suggests that using a combination of different probiotic strains may be more efficacious than single strains for treating SIBO.
- However, the authors note the high heterogeneity across studies in terms of the specific probiotic strains, doses, and treatment durations used. The most common strains evaluated in the included studies were:
 - Lactobacillus species (e.g. L. casei, L. acidophilus)
 - Bifidobacterium species (e.g. B. longum, B. infantis)
 - Saccharomyces boulardii

amrita

Combination probiotic products appeared more beneficial than single strains in this analysis, but more research is needed to determine optimal multi-strain formulation and dosing regimen for SIBO

What does the research say – specific strains

There are a few studies provide some evidence for potential effectiveness of specific strains:

- The Probiotic effects on intestinal fermentation patterns in patients with irritable bowel syndrome. (World journal of gastroenterology, 2008) found *Lactobacillus casei strain Shirota* reduced SIBO in IBS patients, suggesting this strain may be effective.
- Effect of Combined Live Probiotics Alleviating the Gastrointestinal Symptoms of Functional Bowel Disorders. (Gastroenterology research and practice, 2020) found *Bacillus subtilis* and *Enterococcus faecium* improved SIBO in patients with functional bowel disorders. Conclusion: Combined live probiotic supplementation after the bowel preparation can alter the gut microbiota, decontaminate SIBO, and alleviate the gastrointestinal symptoms of FBDs
- However, most studies did not evaluate individual strains or did not find evidence for strain-specific effects

S Boulardii

The study with [1] found that in patients with systemic sclerosis and SIBO, treatment with *S. boulardii* alone or in combination with metronidazole improved gastrointestinal symptoms and reduced hydrogen production on breath tests compared to metronidazole alone. **This provides evidence that *S. boulardii* may be effective for treatment of SIBO. However, the study was small with only 40 patients.**

The study with [2] found that in patients with IBS-D and SIBO, treatment with *S. boulardii* and dietary advice reduced hydrogen excretion on lactulose breath tests and improved IBS symptoms compared to dietary advice alone. **This provides some evidence that *S. boulardii* may help treat SIBO. However, the study was also small with only 54 patients.**

The study with [3] found that in patients with IBS and SIBO, treatment with a probiotic preparation including *S. boulardii* improved symptoms compared to those without SIBO. **This provides some evidence that *S. boulardii* may help treat SIBO. However, the preparation contained multiple probiotics so the effect cannot be attributed solely to *S. boulardii*.**

1. Effectiveness of *Saccharomyces boulardii* and Metronidazole for Small Intestinal Bacterial Overgrowth in Systemic Sclerosis. (Digestive diseases and sciences, 2020)

2. Impact of *Saccharomyces boulardii* CNCM I-745 on Bacterial Overgrowth and Composition of Intestinal Microbiota in Diarrhea-Predominant Irritable Bowel Syndrome Patients: Results of a Randomized Pilot Study. (Digestive diseases (Basel, Switzerland), 2023)

3. Effect of a Preparation of Four Probiotics on Symptoms of Patients with Irritable Bowel Syndrome: Association with Intestinal Bacterial Overgrowth. (Probiotics and antimicrobial proteins, 2019)



Bifidobacterium Lactis

Studies on probiotics containing *B. lactis* strains have shown promise in managing gastrointestinal conditions and dysbiosis, which are relevant to SIBO.

Ooi SL, Correa D, Pak SC. Probiotics, prebiotics, and low FODMAP diet for irritable bowel syndrome - What is the current evidence? *Complement Ther Med.* 2019;43:73-80. doi:10.1016/j.ctim.2019.01.020

This review article provides an overview of the current evidence on the use of probiotics, prebiotics, and a low FODMAP diet for managing irritable bowel syndrome (IBS) associated with SIBO. While the focus is on IBS, the findings suggest that certain probiotic strains, including *Bifidobacterium lactis*, may help alleviate gastrointestinal symptoms and improve gut microbiota balance.

Ringel Y, Ringel-Kulka T. The rationale and clinical effectiveness of probiotics in irritable bowel syndrome. *J Clin Gastroenterol.* 2015;49 Suppl 1:S60-S64. doi:10.1097/MCG.0000000000000352

This review discusses the rationale and clinical effectiveness of probiotics in managing irritable bowel syndrome (IBS), which shares some similarities with SIBO in terms of gastrointestinal symptoms and dysbiosis. While specific *Bifidobacterium lactis* strains are not mentioned, the findings suggest that probiotics containing *B. lactis* may have beneficial effects in alleviating IBS symptoms and improving gut health.

Hempel S, Newberry SJ, Maher AR, et al. Probiotics for the prevention and treatment of antibiotic-associated diarrhea: a systematic review and meta-analysis. *JAMA.* 2012;307(18):1959-1969. doi:10.1001/jama.2012.3507

This systematic review and meta-analysis evaluated the effectiveness of probiotics for the prevention and treatment of antibiotic-associated diarrhea. While the focus is on antibiotic-associated diarrhea, the findings suggest that certain probiotic strains, including *Bifidobacterium lactis*, may help restore gut microbiota balance and reduce gastrointestinal symptoms associated with dysbiosis.

Lactobacillus Plantarum

Lactobacillus plantarum is a well-studied probiotic strain with potential benefits for gut health and may indirectly support SIBO management by promoting a balanced gut microbiota.

Ruggiero P. Use of probiotics in the fight against Helicobacter pylori. World J Gastrointest Pathophysiol. 2014;5(4):384-391. doi:10.4291/wjgp.v5.i4.384

This review discusses the potential use of probiotics, including Lactobacillus plantarum, in the management of Helicobacter pylori infection, a common cause of gastritis and peptic ulcers. While the focus is on H. pylori, the findings suggest that certain probiotic strains may help restore gut microbiota balance and alleviate gastrointestinal symptoms associated with dysbiosis, which may be relevant to SIBO management.

Arslan AA, Tunçtürk Y, Sireli UT, et al. Effects of Lactobacillus plantarum 299V and Lactobacillus reuteri DSM 17938 on the Prevention of Aerodigestive Infections in Children Attending Day Care: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial. J Pediatr Infect Dis Soc. 2020;9(3):286-291. doi:10.1093/jpids/piy131

This randomized, double-blind, placebo-controlled clinical trial investigated the effects of Lactobacillus plantarum 299V and Lactobacillus reuteri DSM 17938 on the prevention of aerodigestive infections in children attending daycare. While the focus is on pediatric infections, the findings suggest that certain probiotic strains, including L. plantarum, may have immune-modulating effects and contribute to reducing the risk of gastrointestinal infections, which may be relevant to SIBO management.

Sanders ME, Merenstein DJ, Ouwehand AC, et al. Probiotic use in at-risk populations. J Am Pharm Assoc (2003). 2016;56(7):680-686. doi:10.1016/j.japh.2016.07.004

This review article provides an overview of probiotic use in at-risk populations, including individuals with gastrointestinal conditions and compromised immune function. While the focus is on at-risk populations, the findings suggest that certain probiotic strains, including Lactobacillus plantarum, may help support gut health and immune function in susceptible individuals, which may indirectly impact SIBO

Lactobacillus Acidophilus

There is a lack of research specifically on Lactobacillus acidophilus strains for the treatment of SIBO, but its mentioned as being likely effective.

Niedzielin K, Kordecki H, Birkenfeld B. A controlled, double-blind, randomized study on the efficacy of Lactobacillus plantarum 299V in patients with irritable bowel syndrome. Eur J Gastroenterol Hepatol. 2001;13(10):1143-1147.

doi:10.1097/00042737-200110000-00004

This study investigated the efficacy of Lactobacillus plantarum 299V, a strain closely related to L. acidophilus, in patients with irritable bowel syndrome (IBS). While the focus was on IBS rather than SIBO specifically, the findings suggest that certain probiotic strains may help improve symptoms in gastrointestinal disorders characterized by dysbiosis and gut dysmotility, which are also features of SIBO.

Kwak DS, Jun DW, Seo JG, Chung WS, Park YS, Lee KN, Lee HL, Lee OY, Yoon BC, Choi HS. Short-term probiotic therapy alleviates small intestinal bacterial overgrowth, but does not improve intestinal permeability in chronic liver disease. Eur J Gastroenterol Hepatol. 2014;26(12):1353-1359. doi:10.1097/MEG.000000000000198

doi:10.1097/MEG.000000000000198

This study evaluated the effects of short-term probiotic therapy on small intestinal bacterial overgrowth (SIBO) and intestinal permeability in patients with chronic liver disease. Although the focus was on liver disease, the findings suggest that probiotic therapy, including strains such as L. acidophilus, may help alleviate SIBO symptoms.

Bacillus Spp (soil-based probiotics)

Treatment with a spore-based probiotic containing five strains of Bacillus induced changes in the metabolic activity and community composition of the gut microbiota in a SHIME® model of the human gastrointestinal system. (Food research international (Ottawa, Ont.), 2021)

MegaSporeBiotic™ is an oral, spore-based probiotic comprised of five Bacillus spp. (*Bacillus indicus* HU36, *Bacillus subtilis* HU58, *Bacillus coagulans* SC208, *Bacillus licheniformis* SL307, and *Bacillus clausii* SC109). The effects of MegaSporeBiotic™ on gut microbiota activity and community composition were evaluated for the first time using an in vitro model of the human gastrointestinal tract, the simulator of the human intestinal microbial ecosystem (SHIME®), under healthy conditions. Following a stabilization period and a control period (2 weeks each), the reactor feed was supplemented with daily MegaSporeBiotic™ for 3 weeks (treatment period). Changes in microbial community activity and composition between the control and treatment periods were evaluated for each colon compartment (ascending [AC], transverse [TC], and descending colon [DC]). Propionate levels increased significantly in the TC (week 2, P = 0.02; week 3, P = 0.0019) and DC (week 2, P = 0.03) with treatment while lactate levels significantly decreased in the TC (week 3, P = 0.03). Ammonium levels were significantly decreased during the final week of treatment (TC, P = 0.02; DC, P = 0.03). Overall, Akkermansia muciniphila, Bifidobacteria spp., and Firmicutes increased with treatment while Lactobacillus spp. and Bacteroidetes decreased. The Firmicutes:Bacteroidetes ratio increased with treatment in the AC compartment. MegaSporeProbiotic™ treatment resulted in changes in metabolism and increased bacterial diversity.

Bacillus Spp (soil-based probiotics)

Evaluating the efficacy of probiotic on treatment in patients with small intestinal bacterial overgrowth (SIBO) - A pilot study

Indian J Med Res 140, November 2014, pp 604-608

A.R. Khalighi¹, M.R. Khalighi², R. Behdani³, J. Jamali⁴, A. Khosravi¹, Sh. Kouhestani¹, H. Radmanesh⁵, S. Esmaeelzadeh⁶ & N. Khalighi⁷

"Results: the result of hydrogen breath test and the clinical symptoms in patients receiving the maintenance regimen with lactol probiotic showed a better response. *The hydrogen breath test turned negative in 93.3 per cent of those receiving lactol compared to 66.7 per cent of the controls. In all the cases receiving lactol, the abdominal pain disappeared completely (p=0.002). In addition, other GI problems including flatulence, belching and diarrhoea significantly improved in the study group (p<0.05)*".

NB: Lactol is Bacillus Coagulens plus FOS.

Bifidobacterium Infantis

Bifidobacterium infantis is a well-studied probiotic strain that has shown potential benefits in managing various gastrointestinal conditions, including irritable bowel syndrome (IBS) and dysbiosis, associated with SIBO.

Whelan K, Quigley EM. Probiotics in the management of irritable bowel syndrome and inflammatory bowel disease. *Curr Opin Gastroenterol*. 2013;29(2):184-189. doi:10.1097/MOG.0b013e32835a750d

This review article provides an overview of the role of probiotics in the management of irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD).

Turroni F, Milani C, Duranti S, et al. Bifidobacterium bifidum and the infant gut microbiota: an intriguing case of microbe-host co-evolution. *Environ Microbiol*. 2018;20(11):3699-3713. doi:10.1111/1462-2920.14331

This review article discusses the role of Bifidobacterium bifidum, a species closely related to Bifidobacterium infantis, in the infant gut microbiota.

Ford AC, Quigley EM, Lacy BE, et al. Efficacy of prebiotics, probiotics, and synbiotics in irritable bowel syndrome and chronic idiopathic constipation: systematic review and meta-analysis. *Am J Gastroenterol*. 2014;109(10):1547-1561. doi:10.1038/ajg.2014.202

This systematic review and meta-analysis evaluated the efficacy of prebiotics, probiotics, and synbiotics in managing irritable bowel syndrome (IBS) and chronic idiopathic constipation.

Stronger together – the synergistic effects of multiple probiotic strains

Synergistic Effects: Combining multiple strains with distinct mechanisms of action, such as competitive exclusion of pathogenic bacteria, production of antimicrobial compounds, and modulation of immune response, it's possible to achieve a more comprehensive and potent therapeutic effect than with a single strain alone.

Targeting Multiple Pathways: SIBO is a complex condition involving dysregulation of gut microbiota, immune function, gut motility, and barrier integrity. A combination of probiotic strains can target multiple pathways involved in SIBO pathogenesis, addressing various aspects of the disorder simultaneously and providing a more holistic approach to treatment.

Enhanced Colonization and Persistence: Probiotic strains differ in their ability to colonize and persist in the GI tract. A combination of strains with diverse colonisation properties may enhance the establishment and longevity of beneficial bacteria in the gut, leading to sustained improvements in gut microbiota composition and function.

Individualised Treatment: Combining multiple probiotic strains allows for individualised treatment approaches tailored to each patient. Strain selection with demonstrated efficacy for specific symptoms improve treatment outcomes.

Reduced Risk of Resistance: Mitigates the risk of bacterial resistance compared to single-strain therapies.



What does the research say for combination probiotics?

Evidence of the Beneficial Impact of Three Probiotic-Based Food Supplements on the Composition and Metabolic Activity of the Intestinal Microbiota in Healthy Individuals: An Ex Vivo Study. (Nutrients, 2023)

This ex vivo study investigated the effects on the composition and metabolic activity of the intestinal microbiota of three probiotic-based food supplements, containing, respectively, (1) *Bifidobacterium longum* ES1, (2) *Lactobacillus acidophilus* NCFM[®], and (3) a combination of *L. acidophilus* NCFM[®], *Lactobacillus paracasei* Lpc-37[™], *Bifidobacterium lactis* Bi-07[™], and *Bifidobacterium lactis* BI-04[™]. This study employed fecal samples from six healthy donors, inoculated in a Colon-on-a-plate[®] system. After 48 h of exposure or non-exposure to the food supplements, the effects were measured on the overall microbial fermentation (pH), changes in microbial metabolic activity through the production of short-chain and branched-chain fatty acids (SCFAs and BCFAs), ammonium, lactate, and microbial composition. The strongest effect on the fermentation process was observed for the combined formulation probiotics, characterized by the significant stimulation of butyrate production, a significant reduction in BCFAs and ammonium in all donors, and a significant stimulatory effect on bifidobacteria and lactobacilli growth. Our findings suggest that the combined formulation probiotics significantly impact the intestinal microbiome of the healthy individuals, showing changes in metabolic activity and microbial abundance as the health benefit endpoint.

What does the research say for combination probiotics?

Effect of a Preparation of Four Probiotics on Symptoms of Patients with Irritable Bowel Syndrome: Association with Intestinal Bacterial Overgrowth

[Konstantinos Leventogiannis¹](#), [Paraskevas Gkolfakis²](#), [Georgios Spithakis¹](#), [Aikaterini Tsatali¹](#), [Aikaterini Pistiki¹](#), [Athanasios Sioulas²](#), [Evangelos J Giamarellos-Bourboulis^{3,4}](#), [Konstantinos Triantafyllou²](#)

The study involved a group of patients diagnosed with IBS who were administered a probiotic preparation consisting of four probiotic strains. Probiotics used were: *Saccharomyces boulardii*, *Bifidobacterium lactis*, *Lactobacillus acidophilus*, and *Lactobacillus plantarum* (Lactolevure[®]) every 12 h for 30 days. The researchers evaluated the effects of the probiotic intervention on IBS symptoms and explored its potential association with SIBO.

The findings of the study suggest that the probiotic preparation led to improvements in symptoms among patients with IBS. Specifically, participants experienced reductions in abdominal pain, bloating, and overall symptom severity following probiotic supplementation.

This is the first study that prospectively demonstrated superior clinical efficacy of probiotics in patients with IBS with SIBO. Analysis also showed considerable benefit from probiotic intake regarding certain symptoms of patients with diarrhea-predominant and constipation-predominant IBS

Effect of Combined Live Probiotics Alleviating the Gastrointestinal Symptoms of Functional Bowel Disorders. (Gastroenterology research and practice, 2020)

Aim:

To evaluate the efficacy of a combined probiotic formulation (Lactobacillus acidophilus, Bifidobacterium lactis, and Bifidobacterium longum) in alleviating gastrointestinal symptoms in patients with FBDs.

Methods:

Double-blind, randomized, placebo-controlled trial involving 60 patients with FBDs (IBS, functional constipation, or functional diarrhea).

Patients received either the probiotic formulation or placebo for 8 weeks. Gastrointestinal symptoms (abdominal pain, bloating, flatulence, and stool consistency) were assessed using validated questionnaires at baseline, 4 weeks, and 8 weeks.

Conclusions:

- The combined probiotic formulation was effective in alleviating gastrointestinal symptoms, particularly abdominal pain, bloating, and flatulence, in patients with FBDs.
- The probiotic formulation was safe and well-tolerated.
- Probiotics could be a promising adjunctive therapy for managing FBDs, but larger studies are needed to confirm these findings.

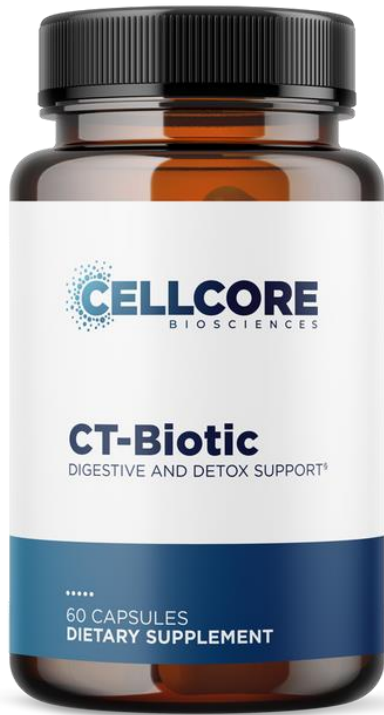
Limitations:

- Small sample size (60 patients)
- Relatively short duration (8 weeks)
- Specific probiotic strains and dosages may vary in efficacy

In summary

- There was high heterogeneity across the studies on probiotics for SIBO, FGD and IBS in terms of the specific probiotic strains, doses, and treatment durations used.
- The use of multiple strains (combination) of probiotics seems to be more effective than single strains for the treatment of small intestinal bacterial overgrowth (SIBO).
- The most evaluated strains were from the Lactobacillus, Bifidobacterium, and Saccharomyces genera.
- There is some research to support the use of soil-based bacteria.
- There is research to support the use of probiotics as an adjunct to either a low FODMAPS diet and also as an adjunct to Antibiotics (Rifaximin) for SIBO.

CT-Biotic – Cellcore



Supplement Facts

Serving Size 1 Capsule
Servings Per Container 60

Amount Per Serving

Probiotic Blend (3.5 Billion CFU) 300 mg***

Bifidobacterium infantis, Saccharomyces boulardii, Lactobacillus rhamnosus, Lactobacillus reuteri, Bacillus subtilis DE111®, Bifidobacterium bifidum, Lactobacillus plantarum, Lactobacillus acidophilus, Lactobacillus casei, Bacillus coagulans, Bacillus clausii CS108 MuniSpore®

Proprietary Blend 6 mg*

Humic Acid, Fulvic Acid, Citric Acid

*Daily Value not established.

**At time of manufacture.

Other ingredients: HPMC (Capsule), Polysaccharides, Rice Dextrin, Microcrystalline Cellulose.



Spore-forming and non-spore-forming bacteria combined with Carbon Technology. It provides 11 bacterial strains that are essential for supporting detoxification, digestive function, and immunity.

Dose – 1 cap twice daily with or without food.

Suggested combinations

(Choose one from each category)

Soil based

- Bacillospore Select
- Megaspore
- Curaspore



S Boulardii

- Many to choose from



Lacto/bifido blend

- Probiotic Select
- Probiota HistaminX (histamine intolerance)
- Biome Relief Probiotic

RestorFlora



Per cap:

S Boulardii – 5 Bn
Bacillus clausii (sc-109) 1Bn
Bacillus subtilis, HU58 1Bn

RestorFlora is the first probiotic bacteriotherapy product that has combined 3 of the world's most well studied and widely used probiotic strains: Saccharomyces Boulardii, Bacillus Subtilis HU58 and Bacillus Clausii..

Dose : 1-2 capsule per day with a meal, or as directed by your physician

BacilloSpore Select – Moss Nutrition



Supplement Facts		
Serving Size: 1 Capsule		
Servings Per Container: 100		
	Amount Per Serving	% Daily Value
Lactospore® <i>Bacillus coagulans</i> MTCC 5856	18.75 mg (1.5+ billion CFUs)	**
OPTI-BIOME® <i>Bacillus subtilis</i> MB4D	18.75 mg (1.5+ billion CFUs)	**
** Daily Value not established.		

BacilloSpore Select™ contains two proprietary strains of shelf stable, spore-producing probiotic bacteria: *Bacillus coagulans* (as Lactospore®) and *Bacillus subtilis* (as OPTI-BIOME®).

Dose: 1 capsule per day with a meal

MegaSpore



5 Billion Spore Cells (5x10⁹)

- Bacillus clausii (SC-109)
- Bacillus subtilis HU58
- Bacillus coagulans (SC-208)
- Bacillus licheniformis (SL-307)

MegaSporeBiotic™ is a 100% spore-based, broad-spectrum probiotic clinically shown to maintain healthy gut barrier function. This unique all-spore formula effectively reconditions the gut by promoting microbial diversity and maintaining key health-promoting, commensal gut bacteria.

- Start with 1/2 capsule or 1 full capsule with food and slowly increase to 2 capsules per day using the following protocol.
- Week 1 - 1 capsule every other day
- Week 2 - 1 capsule daily
- Week 3+ - 2 capsules daily
- If 1 capsule every other day is too strong, try starting with 1/2 capsules or even 1/4 capsule in some cases. Possible symptoms may include abdominal cramping, loose stools, and changes in bowel movements. Though these symptoms may be uncomfortable, they are a sign that the product is working! Symptoms should resolve within 2-3 days.

CuraSpore



Ingredients

Proprietary Active Bacteria Blend 3 Billion CFU.
Bacillus subtilis HU58[®], Bacillus coagulans SC-208[®],
Bacillus clausii SC-109[®], Beta Carotene 1mg (20% RDA)
(Lyc-O-Beta™)(from Blakeslea trispora),
Lycopene 1mg (Lycobeads[®])(from tomato),
Lutein 1mg (Lyc-O-Lutein™)(from marigold flowers),
Astaxanthin VBAF 1mg (from Haematococcus pluvialis
microalgae), Cellulose (hypoallergenic plant fibre),
HPMC vegan capsule. **Serving Size:** 1 Capsule

Dosage: Adults and children (aged 3+): 1 capsule per day with food or as directed by your healthcare practitioner. Do not exceed the recommended daily intake. If you are pregnant or nursing or have any serious medical conditions, consult your doctor before use. **Keep out of reach of children.** Food Supplements should not be used as a substitute for a healthy diet and lifestyle. **Imported by Cura Nutrition Ltd** Admiral Way, Keighley, BD21 3LN, UK. CuraNutrition.com
Europe - De Giesel 5, 6081 PG, Haelen, NL



The *Bacillus* spore strains found in Cura Sporebiotics (*Bacillus coagulans*, *Bacillus clausii*, and *Bacillus subtilis* HU58[®]) are abundant environmental organisms that have evolved to be consumed by humans.

Dose: 1 capsule per day with food.

Probiota HistaminX – Seeking Health



- *ProBiota HistaminX* is a unique probiotic supplement designed for those sensitive to histamine. It excludes strains known to produce high levels of histamine in the gut.
- *ProBiota HistaminX* is a histamine-friendly probiotic. Unlike most probiotics, it has been meticulously formulated to exclude species of bacteria known to produce histamine. It is a great option for those struggling with histamine intolerance or looking for a probiotic that avoids producing excess histamine in the gut.
- The targeted strains of bacteria are encased in a delayed-release (acid-resistant) capsule. This helps ensure the probiotics are delivered intact to your lower digestive tract, where they are needed.

Bifidobacterium infantis, Bifidobacterium bifidum, Bifidobacterium longum, Lactobacillus salivarius, Lactobacillus plantarum, Bifidobacterium lactis, Bifidobacterium breve

Bifidobiotics – Allergy Research



New Formulation' The bifidobacteria group are the most common probiotics found in the large intestine. They are comparatively delicate however, and their numbers can easily be depleted. *Lactobacillus sporogenes* is a probiotic strain uniquely "pre-encapsulated" in spores that resist the action of gastric juices. Lyophilized (freeze-dried).

Per 1 cap:

Lactobacillus Rhamnosus Lr-32 2.2 Bn

Bifidobacterium Breve Bb-03 1.23Bn

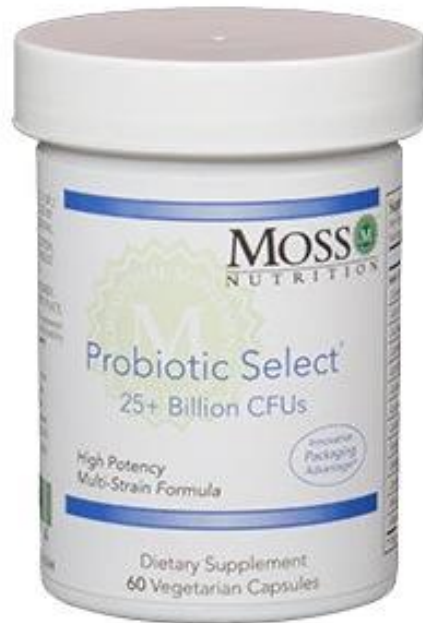
Bifidobacterium Longum BI-05 1.23Bn

Bifidobacterium Lactis BI-04 1Bn

Lactobacillus Acidophilus La-14 240 Million CFU's

Dose: 1-2 caps daily.

Probiotic Select – Moss Nutrition



Supplement Facts		
Serving Size: 1 Capsule		
Servings Per Container: 60		
	Amount Per Serving	%DV
Select 12-Strain Probiotic Blend - providing 25+ Billion Colony Forming Units (CFUs) at time of manufacture:		
<i>Lactococcus lactis</i> A200	4.5+ billion CFUs	**
<i>Lactobacillus plantarum</i> A987	3.4+ billion CFUs	**
<i>Lactobacillus paracasei</i> A234	3.35+ billion CFUs	**
<i>Lactobacillus casei</i> A179	2.68+ billion CFUs	**
<i>Lactobacillus rhamnosus</i> A119	2.68+ billion CFUs	**
<i>Lactobacillus acidophilus</i> A118	2.0+ billion CFUs	**
<i>Lactobacillus salivarius</i> A862	1.68+ billion CFUs	**
<i>Streptococcus thermophilus</i> A336	1.68+ billion CFUs	**
<i>Bifidobacterium lactis</i> A026	1.68+ billion CFUs	**
<i>Lactobacillus brevis</i> A216	0.67+ billion CFUs	**
<i>Bifidobacterium bifidum</i> A910	0.34+ billion CFUs	**
<i>Bifidobacterium longum</i> A730	0.34+ billion CFUs	**

V.1220.14

** Daily Value (DV) not established.

Probiotic Select® provides a highly potent combination of researched probiotic microorganisms to help support a healthy balance of GI microflora and help benefit digestive and immune health. It contains 12 strains of researched microorganisms and provides 25+ billion colony forming units (CFUs) per capsule.

Dose – 1 capsule, 1 or 2 times per day.

Biome Relief – Activated Probiotics



Lactobacillus
plantarum 299v 10 BLB*
(DSM 9843)

Lactobacillus
rhamnosus GG 10 BLB*
(ATCC 53103)

Bifidobacterium
breve BR03 3 BLB*
(DSM 16604)

Clinical trials in patients with IBS have demonstrated the efficacy of two key probiotic strains for the reduction of the symptoms of IBS: Lactobacillus plantarum 299v and Lactobacillus rhamnosus GG. Biome IBS™ Probiotic contains these two key probiotic strains, each at a therapeutic dose supporting by the clinical research (10 Billion Live Bacteria), and is indicated for the management of the symptoms of medically diagnosed Irritable Bowel Syndrome.

Dose – take 1 capsule daily (with or without food)

Case Study – Probiotics used for SIBO

- 25-year-old, female
- Constipation
- Gurgling and tummy sounds
- Reflux and burping
- Fibromyalgia
- Epilepsy (controlled with surgery and drugs)
- Depression/anxiety

Case Study – Probiotics used for SIBO

Tests - SIBO Breath test

Diet - FODMAPS diet

Supplements (whilst waiting for SIBO results):

The FODMAPS diet alongside the following probiotics can minimise discomfort and prepare the gut for antimicrobials, which may be warranted later. It is ideal to “prep” the gut for approximately 4 weeks before adding antimicrobials.

You are recommended to take the following probiotics, there are 3 types, as follows:

- Optibac Every Day Max (Lacto-Bifido blend) 1 cap per day ideally with breakfast.
- Saccharomyces boulardii: 1 cap per day with or without food.
- BacilloSpore Select: (Spore-based probiotic.) 1 cap twice a day with or without food.

Please take all 3 probiotics, they are all different types and each performs a slightly different function in the body.

Case Study – Probiotics used for SIBO

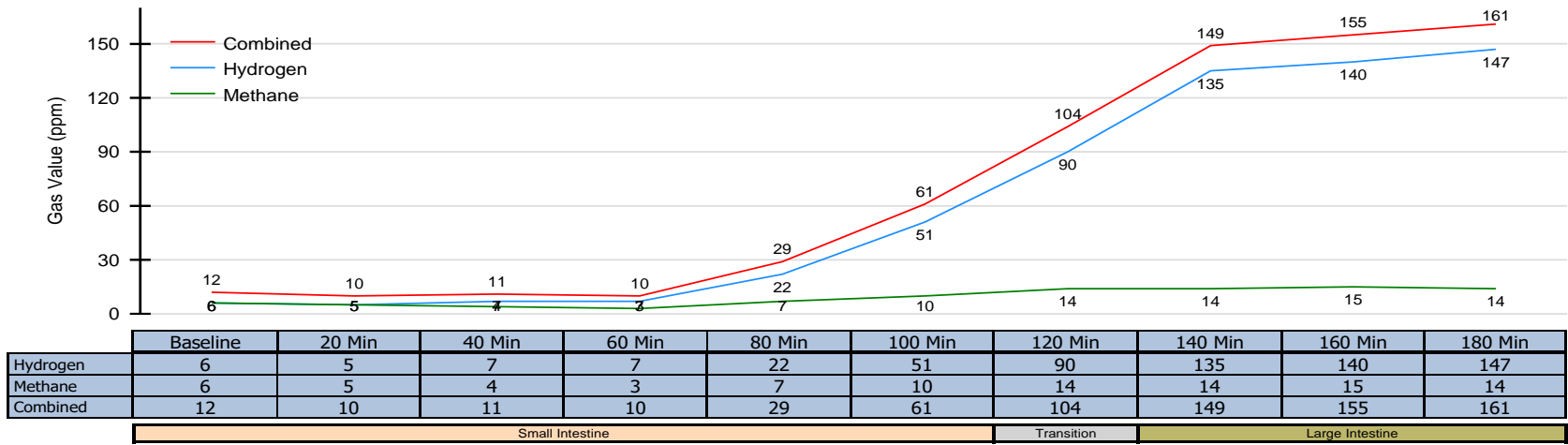
Date of test:
18/08/2023

Summary Report of Hydrogen & Methane Breath Analysis with Carbon Dioxide Correction

Gasses Analyzed	Patient Result	Expected
Increase in Hydrogen (H ₂)	85 ppm (high)	< 20 ppm
Increase in Methane (CH ₄)	11 ppm (normal)	< 12 ppm (< 3 ppm ²)
Increase in combined H ₂ & CH ₄	96 ppm (high)	< 15 ppm ³
Analysis of the data suggests	Bacterial overgrowth is suspected ^{2,3}	

Number	Expected Location	Collection Interval	ppm H ₂	ppm CH ₄	Combined	Sample Normalization ¹	
						ppm CO ₂	fCO ₂
1	Small Intestine	Baseline	6	6	12	3.9	1.41
2		20 Min.	5	5	10	4.3	1.27
3		40 Min.	7	4	11	4.6	1.19
4		60 Min.	7	3	10	5.1	1.07
5		80 Min.	22	7	29	4.9	1.12
6		100 Min.	51	10	61	4.3	1.27
7	Transition	120 Min.	90	14	104	4.3	1.27
8	Large Intestine	140 Min.	135	14	149	4.3	1.27
9		160 Min.	140	15	155	4.7	1.17
10		180 Min.	147	14	161	4.3	1.27

Small Intestinal Bacterial Overgrowth (SIBO)
Hydrogen & Methane Breath Results



Important Information - Please Read:

Case Study – Probiotics used for SIBO

Recommendations of : 28/09/2023

FODMAPs Diet TBC

Include fibre

Protein at every meal

Diversify diet

Meal spacing – no beverages with calories

Case Study – Probiotics used for SIBO

Supplement Chart

Supplement	Upon rising	With breakfast	Mid-morning	With lunch	Mid-afternoon	With dinner	After dinner	Before bed
RestorFlora 50's Microbiome Labs, 50 Capsules								2 caps
Pylopass L.Reuteri DSM17648 120's Nouveau Health, 120 Capsules		2 caps						2 caps
Nutrigest 90's Nutri Advanced, 90 Capsules		1 cap		1 cap		1 cap		
A.D.P (Oregano) 120's Biotics Research, 120 Tablets		2 Tabs		2 Tabs		2 Tabs		
Berberine + Grapefruit Seed 120's Nutri Advanced, 120 Capsules		1 cap		1 cap		1 cap		
Allimed Capsules 100's Allimed, 100 Capsules		1 cap		1 cap		1 cap		
Magnesium Citrate 90's Allergy Research, 90 Capsules		1-2 caps		1-2 caps		1-2 caps		1-2 caps

Case Study – re-test

Gas Analysed	Patient Result 0-100 mins	Expected difference 0-100 mins
Increase in Hydrogen (H ₂)	5	< 20
Increase in Methane (CH ₄)	3	< 12
Increase in Combined H ₂ & CH ₄	8	< 15

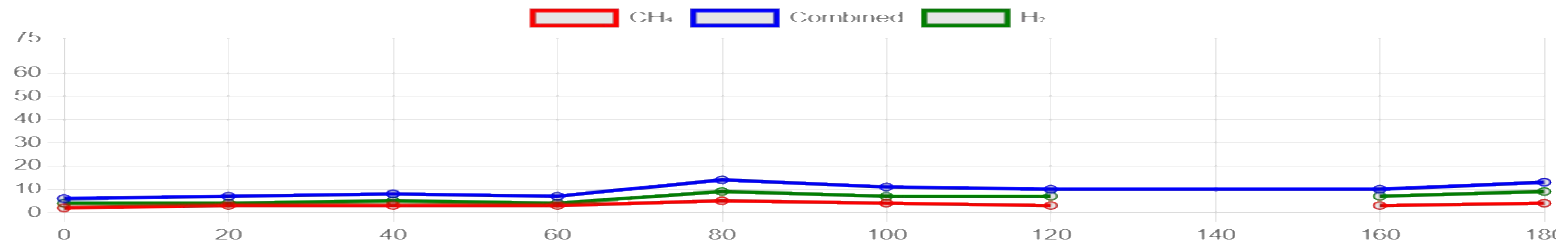
Analysis of data suggests:

Results do not indicate small intestinal bacterial overgrowth

Small Intestinal Bacterial Overgrowth (SIBO) Hydrogen and Methane Breath after Lactulose consumption

Number	Expected Location	Interval	ppm H ₂	ppm CH ₄	Combined	% CO ₂	fCO ₂ ¹
1	Small Intestine	Baseline	4	2	6	4.6	1.2
2		20 min	4	3	7	3.8	1.4
3		40 min	5	3	8	4.1	1.3
4		60 min	4	3	7	3.8	1.4
5		80 min	9	5	14	4.2	1.3
6		100 min	7	4	11	3.7	1.5
7	Transition	120 min	7	3	10	3.7	1.5
8	Large Intestine	140 min				0.0	
9		160 min	7	3	10	3.7	1.5
10		180 min	9	4	13	3.8	1.4

Date of
test:
10/12/2023



Time (Min)	0	20	40	60	80	100	120	140	160	180
H ₂	4	4	5	4	9	7	7		7	9
CH ₄	2	3	3	3	5	4	3		3	4
Combined	6	7	8	7	14	11	10		10	13
CO ₂ (%)	4.6	3.8	4.1	3.8	4.2	3.7	3.7	0.0	3.7	3.8
fCO ₂ ¹	1.2	1.4	1.3	1.4	1.3	1.5	1.5		1.5	1.4

Additional Comments

Case Study – Probiotics used for SIBO

Follow up session (yesterday)

- Constipation – only occasional
- Gurgling and tummy sounds – no longer apparent
- Reflux and burping – none
- Depression/anxiety – feels OK at present

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A shameless plug....!

SIBO and Beyond!

Unravel your complex cases with my functional SIBO clinical mentoring programme

We start on Friday 12th April 2024
places are limited

Tracey Randell, Dip BCNH, IFMCP
Functional medicine IBS/SIBO specialist

ibs clinics
APPLIED NUTRITIONAL THERAPY



6 x 90-minute sessions – All forms of SIBO covered + discuss your own cases - cost £219 – recorded if you cannot attend in person

<https://www.eventbrite.co.uk/e/sibo-and-beyond-clinical-mentoring-programme-tickets-851513910027>

amrita