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The gut microbiome, probiotics and irritable bowel syndrome: What does the evidence say?



The gut microbiome consists of 10^{13} - 10^{14} bacteria, fungi and viruses - more cells than we have in our own bodies [1]. Research over the past 15 years has shown that the gut flora affects digestion, the immune system, metabolism and probably our mood as well. But what do we really know about probiotics, prebiotics and their role in irritable bowel syndrome (IBS)?

What is the gut microbiome?

The microbiome is as individual as a fingerprint and is influenced by:

- **Method of birth** (vaginal vs. caesarean section)
- **Breastfeeding** in the first few months

- **Diet** - especially fibre intake
- **Antibiotics**, particularly repeated courses
- **Age, stress, exercise and sleep**

A healthy gut microbiome is characterised by high **diversity** - many different species of bacteria [2].

IBS and the microbiome

Irritable bowel syndrome (IBS) affects 5-10% of the population [3]. In a large proportion of patients, changes are seen in the gut microbiome:

- Reduced diversity and lower levels of *Bifidobacterium* and *Faecalibacterium prausnitzii* [4]
 - Increased intestinal permeability ("leaky gut")
 - Low-grade inflammation of the intestinal lining
 - Up to 10% develop IBS symptoms after an acute stomach infection (post-infectious IBS) [5]
 - Small intestinal bacterial overgrowth (SIBO) is seen in a subgroup
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Probiotics: What works?

Probiotics are live microorganisms that, when administered in adequate amounts, can confer a health benefit on the host [6]. The effect is **strain-specific** - it is not enough to know whether a bacterium is a *Lactobacillus* or a *Bifidobacterium*.

Evidence-based strains for IBS:

- **Bifidobacterium infantis 35624** - the most well-documented for IBS [7]
- **Lactobacillus plantarum 299v** - reduces bloating and pain [8]
- **Multi-strain products** (e.g. VSL#3/Visbiome) - best documented for ulcerative colitis and pouchitis [9]

Cochrane meta-analyses (Ford et al. 2018) show that probiotics overall provide moderate symptom relief in IBS (NNT ~7), but the effect varies significantly between strains [10].

Where probiotics do NOT have a documented effect:

- As routine prevention in healthy individuals
 - For weight loss
 - For acute autoimmune bowel disease (except for pouchitis)
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Prebiotics and diet

Prebiotics are fibres that nourish the good bacteria - particularly inulin, FOS and GOS. In IBS patients, however, large amounts can worsen bloating.

The **low FODMAP diet** has solid evidence, showing 50-70% symptom improvement in IBS across several randomised studies [11]. The diet should be followed in a structured way with a dietitian over 3 phases (elimination for 2-6 weeks → reintroduction → personalised maintenance).

General recommendations:

- 25-30 g of fibre daily from varied sources (oats, legumes, fruit, vegetables)
 - Fermented foods (yoghurt, kefir, sauerkraut, kimchi)
 - Limited intake of ultra-processed foods, artificial sweeteners and alcohol [12]
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Faecal microbiota transplantation (FMT)

FMT is an established treatment for recurrent *Clostridioides difficile* infection, with a cure rate of >85% [13]. For IBS, the evidence is more mixed - some studies show an effect, while others do not, and FMT is **not** a routine treatment for IBS in Denmark [14].

Practical advice

- If you want to try probiotics for IBS: choose a product with a documented strain and use it for at least 4 weeks.
 - Take probiotics during and after courses of antibiotics (especially *Lactobacillus rhamnosus GG* or *Saccharomyces boulardii*) to reduce antibiotic-associated diarrhoea [15].
 - Eat a varied, fibre-rich diet - it is the best long-term investment in your gut microbiome.
 - See a doctor if you have blood in your stool, weight loss, nocturnal diarrhoea or other alarm symptoms.
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References

1. Sender R, et al. *Revised estimates for the number of human and bacteria cells in the body*. PLoS Biol 2016;14(8):e1002533.
2. Lozupone CA, et al. *Diversity, stability and resilience of the human gut microbiota*. Nature 2012;489(7415):220-30.
3. Sperber AD, et al. *Worldwide prevalence and burden of functional gastrointestinal disorders, results of Rome Foundation Global Study*. Gastroenterology 2021;160(1):99-114.
4. Pittayanon R, et al. *Gut microbiota in patients with irritable bowel syndrome - a systematic review*. Gastroenterology 2019;157(1):97-108.
5. Klem F, et al. *Prevalence, risk factors, and outcomes of irritable bowel syndrome after infectious enteritis*. Gastroenterology 2017;152(5):1042-54.
6. Hill C, et al. *The International Scientific Association for Probiotics and Prebiotics consensus statement on the scope and appropriate use of the term probiotic*. Nat Rev Gastroenterol Hepatol 2014;11(8):506-14.
7. Whorwell PJ, et al. *Efficacy of an encapsulated probiotic Bifidobacterium infantis 35624 in women with irritable bowel syndrome*. Am J Gastroenterol 2006;101(7):1581-90.
8. Ducrotté P, et al. *Clinical study: Lactobacillus plantarum 299v (DSM 9843) improves symptoms of irritable bowel syndrome*. World J Gastroenterol 2012;18(30):4012-8.

9. Mardini HE, Grigorian AY. *Probiotic mix VSL#3 is effective adjunctive therapy for mild to moderately active ulcerative colitis: a meta-analysis*. Inflamm Bowel Dis 2014;20(9):1562-7.
 10. Ford AC, et al. *Systematic review with meta-analysis: the efficacy of prebiotics, probiotics, synbiotics and antibiotics in irritable bowel syndrome*. Aliment Pharmacol Ther 2018;48(10):1044-60.
 11. Black CJ, et al. *Efficacy of a low FODMAP diet in irritable bowel syndrome: systematic review and network meta-analysis*. Gut 2022;71(6):1117-26.
 12. Valdes AM, et al. *Role of the gut microbiota in nutrition and health*. BMJ 2018;361:k2179.
 13. van Nood E, et al. *Duodenal infusion of donor feces for recurrent Clostridium difficile*. N Engl J Med 2013;368(5):407-15.
 14. Halkjær SI, et al. *Faecal microbiota transplantation alters gut microbiota in patients with irritable bowel syndrome: results from a randomised, double-blind placebo-controlled study*. Gut 2018;67(12):2107-15.
 15. Goldenberg JZ, et al. *Probiotics for the prevention of pediatric antibiotic-associated diarrhea*. Cochrane Database Syst Rev 2019;(4):CD004827.
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