

## Probiotics and Inflammatory Bowel Disease

by Stacie Townsend, MS, RD, CSP, LDN

Dietitians are often asked whether probiotics are beneficial in the treatment of Crohn's disease and ulcerative colitis (also known as Inflammatory Bowel Disease or IBD). Before reviewing the research, let's discuss what probiotics are.

The human gut is host to thousands of organisms such as bacteria, fungi, yeast, and bacteriophages collectively known as the *gut microbiota*. There are at least 15,000 different species of bacteria in our gut, which makes up over 1 kg of our total body weight. The primary location of bacteria in our gut is the colon, or large intestine.

There is some evidence that suggests changes in our gut microbiota can affect our risk of developing IBD, and that some therapies for the treatment of IBD can affect the gut microbiota. For example, antibiotics can kill some of the healthy bacteria in our gut. Therefore, it is important for us to replenish our bodies with this healthy bacteria after an insult, like antibiotic therapy, diarrhea, or other GI symptoms.

Replenishing a depleted microbiota is where probiotics come into the picture. According to the World Health Organization (WHO), probiotics are live microorganisms (bacteria) that, when given in appropriate amounts, confer a health benefit to the host. There are many different strains of probiotics, and each type may have a different use. Therefore, not all probiotics are created equal. You may be familiar with the names Lactobacillus and Bifidobacteria, which are two of the most common strains of probiotics.

When taking probiotics to replenish lost gut bacteria it is important to remember that they are living organisms and they need food to survive. Prebiotics are their food. Prebiotics are non-digested food ingredients that stimulate the growth of bacteria. They cannot be absorbed until they reach the colon, where they are fermented by probiotics. Examples of prebiotics include fructooligosaccharides, galactooligosaccharides, lactulose, and inulin. It is often useful to take a prebiotic and probiotic together for maximum benefit to your gut microbiota.

Most evidence for probiotic use in IBD is in patients with ulcerative colitis. You'll remember the primary location of bacteria in the gut is the colon or large intestine, and ulcerative colitis is isolated to the colon, whereas Crohn's disease can affect the entire digestive tract. The probiotic called VSL#3 (a combination of strains of Bifidobacteria, Lactobacillus, and Streptococcus) has been shown to prevent pouchitis and maintain remission in patients with recurrent or refractory pouchitis (UC)<sup>1</sup>.

Unfortunately, probiotics have not been shown to be beneficial in maintaining remission and preventing flares in Crohn's disease. The most beneficial aspect of probiotics in Crohn's seems to be during antibiotic therapy (since antibiotics and other GI symptoms deplete healthy bacteria, replenishing the gut microbiota is important).

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<sup>1</sup> Once daily high dose probiotic therapy (VSL#3) for maintaining remission in recurrent or refractory pouchitis; Gut 2004; 53:108-114

Like the diseases themselves, each patient is different. That means the response to something like probiotics can vary greatly between individuals. When considering the use of probiotics it is always important to have a conversation with your gastroenterologist.

Keep reading to learn how one patient-doctor team used the [Personalized Learning System](#) to test whether different probiotics had any effect on the urgent need to use the restroom.

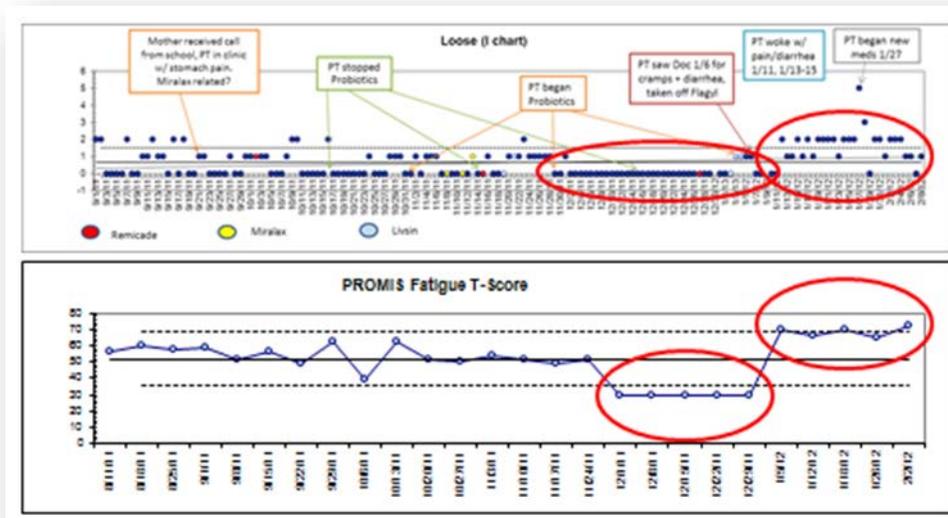
### Personalized Learning System: Testing Probiotic Effect on Stool Urgency

by Sarah Nocito and Shehzad Saeed, MD

In this single patient experiment, an 11-year-old patient with Crohn's disease (and her parents) teamed up with Shehzad Saeed, MD of Cincinnati Children's Hospital Medical Center to test whether a change in probiotic therapy would improve the patient's stool urgency (sudden, irresistible need to have a bowel movement).

The hypothesis was that probiotics were reducing the patient's urgent need to use the bathroom. In order to learn more, Dr. Saeed and the patient used the Personalized Learning System (PLS) – a web-based platform that enabled them to co-design the experiment, collect data in a variety of ways (SMS messaging, email, web-survey, and/or biosensors like the Fitbit), and review the data together to look for associations between symptoms and probiotic therapy.

Over the course of 3 months, the patient was on and off different probiotics. During that time the data show a gradual improvement in urgency and PROMIS Fatigue scores, neither of which seem to be related to the use of probiotics.



After 3 months of monitoring, the patient developed an exacerbation of disease, with diarrhea and increased urgency. While urgency and PROMIS fatigue scores both increased, it again seemed to be unrelated to the use of probiotics.

As a result of this PLS experiment, the patient and Dr. Saeed determined that probiotics were not having a positive or negative effect on urgency and fatigue. The results of this experiment may be inconclusive,

but the relationship between patient/family and provider was enhanced. And in the future they may continue to use PLS to track real-time symptoms, assess responses to interventions, and capture day-to-day symptoms to look for patterns that may predict a flare of disease activity so it can be prevented.

For more information on the PLS and patient experiments read the HBR Blog Network post [here](#).

If you are interested in patient self-tracking, the Passive PRO innovation is currently recruiting. [Learn more >>](#)