

Research aims to improve treatment for chronic bowel conditions

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In Canada, one in every 150 people has inflammatory bowel disease (IBD). There are more than 10,000 new diagnoses of IBD each year, and the number of Canadian children diagnosed with Crohn's disease has almost doubled in the last 20 years.

The Maritimes have the highest rates of IBD in the world, and it's not clear why.

"We know genetics play a role, and likely there's some [environmental factor](#) that we haven't identified," says Dr. Tony Otley, professor of [pediatrics](#) in the Division of Gastroenterology & Nutrition at Dalhousie Medical School.

IBD can cause stomach pain, diarrhea, nausea and vomiting, anxiety, depression, and other health problems.

Irritable bowel syndrome (IBS) is another chronic bowel condition. And while it isn't caused by inflammation like IBD, it can trigger similar symptoms in the one in five Canadians who have it.

Investigating the microbiome

Over the next five years, \$36 million will be invested into a pan-Canadian gastrointestinal research network that will connect 70 researchers from across the country with patients and policy-makers.

"Humans are made up of more bacterial cells than we are human cells. There's promising evidence to show that by altering the balance of bacteria in our guts – our microbiome – we can decrease IBD-related inflammation," says Dr. Otley, principal investigator for the pediatric component of the study. "This funding will increase our research capacity at Dalhousie. Collaborations are already happening, but this will super-charge what we're able to do."

By understanding gastrointestinal bacteria better, it's hoped doctors will eventually be able to manipulate people's microbiomes through food, medications, or fecal transplantation.

"Within 24 hours of changing your diet, you make changes to your microbiome," says Dr. Otley, a gastroenterologist at the IWK Health Centre, where he and his colleagues follow about 300 children and teenagers with IBD. "We're trying to understand if there's a way to tweak the microbiome so that we can create a healthier one."

Improving the treatment plan

Currently, many IBD symptoms are treated with drugs. But the drugs can have negative side effects when used long-term.

"As a pediatric gastroenterologist, IBD is a lifelong condition for my patients. So when you've got a child or a teen diagnosed, parents worry about the impact medications might have on their kids when used over many years."

"With IBD, for example, you want to dampen down inflammation, which means dampening down the immune response. But we know that when the immune system is dampened, people are more prone to certain infections. Also, our immune systems are an important surveillance for cancer. Immune suppressant drugs are a real concern for families."

If a person's microbiome can be changed safely and effectively, it's possible future IBD treatments will be personalized.

"Rather than telling someone they have IBD and then providing them with a list of treatments, we hope that we'll be able to tailor treatment plans based on what an individual's microbiome looks like," says Dr. Otley. "Ideally, we'll be able to fine-tune diet and other approaches to optimize patient outcomes."

While one of the main goals of the [gastroenterology](#) network is to find better ways to treat IBD and IBS, researchers will also be looking at the mental health implications associated with these chronic conditions.

"Anxiety and depression are common in people living with IBD and IBS. And I think often we operate in silos, where we have the gastroenterologists doing their research and our psychiatry colleagues doing their research – each in isolation from each other. But with this Canadian network, we're really going to gain from everybody working together."

The research network is funded by the Canadian Institutes of Health Research, with partnership funding from Dalhousie Medical Research Foundation, Dalhousie University, IWK Health Centre, Ascenta Skin, and the Department of Pediatrics.

Provided by Dalhousie University

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