



All About Your Gut Microbiome

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The human body is incredible when it works properly. There are so many different systems that intertwine, depend on one another, and work together to help the body function optimally. Something that has gotten researchers' attention more recently is the intestinal microbiome, or the tiny organisms that exist inside your digestive system.¹

This is often referred to as the “good bacteria” that helps with various processes in the human body. There is a lot of research underway to try and figure out exactly how the microbiome affects the body, and what things affect the microbiome.

What does the microbiome have to do with diabetes?

The onset of type 1 diabetes and other autoimmune illnesses typically involves some environmental trigger combined with a genetic risk. Some researchers believe that the microbiome and its health could affect the development of autoimmune conditions. According to recent research, imbalances in the gut microbiome can lead to diabetes, celiac disease, Chron's disease, and even autism spectrum disorder.²

One recent study at six clinical centers in the U.S. and Europe looked at the stool of 783 children from ages three months to five years.³ The study showed that short-chain fatty acids were protective in early-onset type 1 diabetes. Short-chain fatty acids are the byproduct of the microbiome processing fiber and starch. Therefore, to have more short-chain fatty acids in the body, the microbiome would need to be at least healthy enough to process starches and fibers.

What things affect the gut microbiome?

Lots of things, of course! As far as negative impacts, many environmental chemicals or toxins disrupt the microbiome, different genetic risks, medications such as antibiotics, and of course any condition that affects the gastrointestinal (digestive) system.² These can increase the risk for a variety of conditions and challenges due to the imbalance of the microorganisms.

There are also ways to positively impact the microbiome, such as prebiotic supplements. In one recent study, 17 children took a prebiotic for three months and 21 participants took a placebo.⁴ The children who were on the prebiotic were more likely to have a higher C-Peptide measurement and an improvement in intestinal absorption after the three months. Also being studied is something called Fecal Matter Transplants (FMTs), which have shown to preserve C-peptide after being newly diagnosed, among other disease treatments.

Additionally, one study from 2022 looked at probiotics for people with type 1 diabetes, and found that the probiotics may regulate GLP-1, which could have a large impact on diabetes management.⁵ Many people with t1d take medications that are GLP-1 agonists, and it helps reduce post-meal glucose levels by slowing the absorption of food in the intestines.

How much do we really know about the microbiome and type 1 diabetes?

Not enough, and almost all the studies cited below mention the need for further studies. Two of the studies, while showing positive data, had such a small number of participants that it's hard to tell if the data is representative of the broader population. Since it is a newer area of research, the tools that are used to study the microbiome are still relatively early in development.

This is something a lot of us with diabetes understand well – the first generation is never the best one. (Picturing my old, giant insulin pump from the 1990's. Did the job, but not all the bells and whistles we have today.) Hopefully more research will be completed, and it will help with T1D, celiac, and many more conditions.

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