Xylan improves gut microbiome effects of low dietary fiber in pigs

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Abstract

While indigestible to us, dietary fiber feeds the trillions of microbes that inhabit our gastrointestinal tract. So low fiber in the diet can spell trouble for gut health. To clarify the effects of low fiber, researchers monitored microbial communities in pigs fed a fiber-free diet. The similarity between humans and pigs in terms of gut ecosystem and fiber breakdown makes pigs a useful model for studying fiber intake. Within 1 week, fiber deprivation led to the gradual extinction of “good” bacteria such as *Lactobacillus* and *Bifidobacterium*, which are found in certain fermented foods. A diet rich in xylan, a natural plant fiber, was found to promote gut balance versus a fiber-free diet, largely by promoting the gut-friendly bacterium *Bifidobacterium pseudocatenulatum* and boosting the production of short-chain fatty acids (SCFAs), which fuel microbial activity. While more work is needed to understand the interaction between dietary fiber and gut microbes in humans, these findings could lead to diet-based strategies for combating the health effects of low dietary fiber.