Corn bran fiber modulates gut microbiota in individuals with overweight and obesity

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Video Byte

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Abstract

Increasing evidence links dietary fiber consumption to a reduced incidence of obesity-related diseases, including diabetes, cancer, and cardiovascular disease. That's especially true of fermentable fibers like arabinoxylan, which is derived from whole grains and cereals like corn and stimulates the growth of beneficial gut bacteria. But in clinical studies, the benefits appear to vary between individuals. To understand what drives that variability, researchers recently tested the effects of arabinoxylan versus microcrystalline cellulose (a non-fermentable fiber control) on the communities of microbes colonizing the guts of 31 adults with overweight and obesity. Over 6 weeks, arabinoxylan significantly altered the makeup of the fecal bacteria community and increased fecal concentrations of propionate, a short chain fatty acid linked to beneficial effects on metabolism and the immune system. However, the propionate response was highly individualized and linked to both compositional shifts and baseline composition of the fecal microbiota. These results were made visible by adopting an ecological framework that considered features of the wider gut microbial community. This perspective could provide a basis for personalizing the use of dietary fiber supplements and account for differences in health effects in human clinical trials.