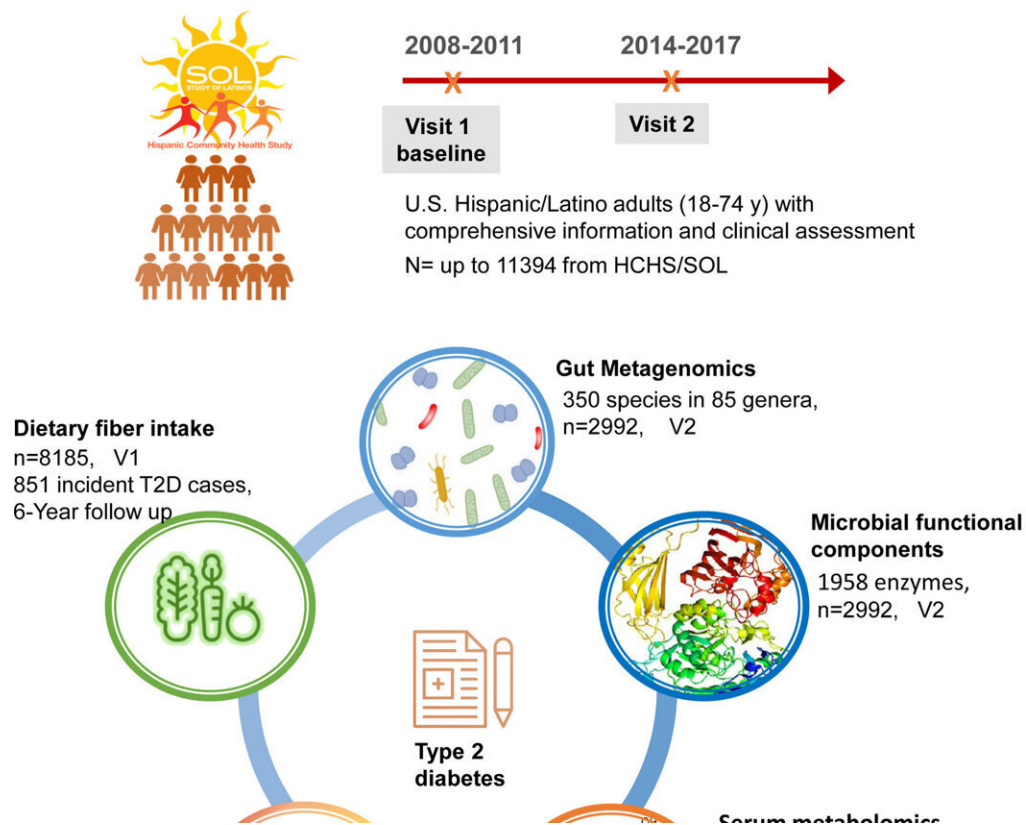


How might fiber lower diabetes risk? Your gut could hold the clues

March 29 2024, by Carolyn Bernhardt



Credit: *Circulation Research* (2024). DOI: 10.1161/CIRCRESAHA.123.323634

Eating more dietary fiber may help prevent type 2 diabetes by promoting beneficial gut bacteria and substances produced during metabolism, according to [new research](#) in Hispanic adults.

"Consistent evidence suggests [diabetes](#)-protective effects of [dietary fiber](#) intake, but exactly how that protection occurs remains unclear," said Dr. Zheng Wang, a study co-author and research assistant professor in the department of epidemiology and population health at Albert Einstein College of Medicine in New York City.

Discovering the connections between dietary fiber, [gut bacteria](#), metabolites and type 2 diabetes—a leading risk factor for [heart disease](#), stroke and [kidney disease](#)—could lead to more effective prevention of the condition, Wang said. For example, identifying which bacteria and metabolites in the body are linked to type 2 diabetes risk paves the way for personalized diets and treatments to improve gut and metabolic health for people at risk, he said.

The study, published in *Circulation Research*, looked at data from up to 11,000-plus participants in the ongoing Hispanic Community Health Study/Study of Latinos. Hispanic adults in the U.S. have a higher chance of developing type 2 diabetes than the overall population, according to the Centers for Disease Control and Prevention.

The researchers found that higher fiber intake was associated with specific "good" gut bacteria and certain favorable metabolites in the blood—some of which were actually produced by gut bacteria. Those gut microbes and metabolites were associated with lower risk of developing type 2 diabetes during an average follow-up of six years.

"This is new evidence of why a higher intake in dietary fiber is

beneficial, specifically to reduce the incidence of new-onset type 2 diabetes in Hispanic adults," said Dr. Robert H. Eckel, a professor emeritus in the Division of Endocrinology, Metabolism and Diabetes and the Division of Cardiology at the University of Colorado Anschutz Medical Campus in Aurora. He was not involved in the study.

"The recommendations for more dietary fiber intake can be further promoted based on this study, but validation in other (racial and ethnic) populations is needed," Eckel said.

According to [federal dietary guidelines](#), the majority of U.S. adults do not eat enough fiber. The recommended daily amount varies by age and gender, but women in their 40s, for example, need 25 grams while men of the same age need 31 grams.

Dietary fiber is mostly found in fruits, vegetables, nuts, whole grains and cereals. It cannot be broken down, and much of it passes through the system undigested. Its most well-known job is to promote regular bowel movements. But the new research suggests fiber might also be feeding bacteria in the gut.

"What really surprised us—and turned out to be the most interesting part of our study—was how complex the communication is between gut bacteria and their human hosts," Wang said.

"We learned that bacteria can affect disease risk through a vast array of mechanisms. The complexity was both surprising and fascinating, revealing the deep and nuanced interactions within our gut microbiome." He said lab-based studies are needed to dive into the underlying mechanisms at play.

Although the study's observational design means it could not prove cause and effect, Wang said "the findings possess strong biological plausibility

since some of the specific metabolites highlighted in this study can only be produced by bacteria and not by the human body."

The study also relied on self-reported dietary fiber intake from participants, which can influence results since people might not always perfectly remember or accurately describe what they ate.

Eckel said future research should look at how else fiber might be exerting its beneficial effects in the body, possibly related to reducing inflammation, improving metabolism and the secretion and action of insulin, a hormone that regulates blood sugar in the body.

"Dietary fiber is important to metabolic health, and we're beginning to understand why," Eckel said.

More information: Zheng Wang et al, Gut Microbiota and Blood Metabolites Related to Fiber Intake and Type 2 Diabetes, *Circulation Research* (2024). [DOI: 10.1161/CIRCRESAHA.123.323634](https://doi.org/10.1161/CIRCRESAHA.123.323634)

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