



'Heart in the gut': Stomach bacteria shape cardiac health

By

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Bacteria living in a person's gastrointestinal tract can influence the health of their heart by affecting their weight, blood lipids and cholesterol levels, a new study reports.

Researchers estimated that the composition of a person's gut bacteria community could explain 4 percent of the variations seen in people's HDL "good" cholesterol levels, nearly 5 percent of the differences seen in people's body weight and up to 6 percent of the variation in people's triglycerides (blood fats). These effects held true even after researchers took into consideration a person's age, gender and genetics.

"The study provides solid evidence for a role of gut microbes in body mass index (BMI) and blood lipids," said Jingyuan Fu, an associate professor of genetics at the University Medical Center Groningen in the Netherlands and lead author of the new study. The research was published today (Sept. 10) in the journal *Circulation Research*.

No study had previously estimated how much of the variation in people's BMI and blood lipids could be explained by gut bacteria, Fu said. [5 Ways Gut Bacteria Affect Your Health]

Understanding to what extent the gut microbiome controls blood lipid levels could help scientists develop treatments to prevent heart disease, she said. Such treatments would use this bacterial community as a "druggable" target, Fu said.

In the study, the researchers looked at data collected from about 900 men and women in the Netherlands, ages 18 to 80.

Each participant in the study was weighed and had their blood drawn to measure their levels of HDL ("good") and LDL ("bad") cholesterol, total cholesterol, and triglycerides. The subjects also submitted fecal samples, which were analyzed to identify the bacteria they contained, as well as to determine the microbial diversity and richness of gut bacteria in each individual.

The participants additionally completed questionnaires about their diets, lifestyle habits, medical histories and the medications they were taking. These factors can all affect the amount and types of bacteria in the gut.

Heart in the gut

The researchers identified 34 microorganisms in the human digestive tract that may influence a person's weight and blood lipids. The findings also showed that people who had healthy blood-lipid levels were more likely to have higher levels of microbial diversity in their guts, compared with people with less healthy blood-lipid levels.

In addition, researchers found an association between bacteria in the gut and people's body weight, triglyceride levels and HDL cholesterol levels. But the investigators observed no link between gut bacteria and people's LDL cholesterol or total cholesterol levels.

This was a very surprising observation, because epidemiological studies have found that lipid levels usually have a high degree of correlation, Fu told Live Science. For example, a person with a high level of HDL cholesterol often has a low level of LDL.

But she said that because lipid metabolism is very complicated, it will take more research to establish the effect of gut bacteria on specific types of lipids, as well as to understand how diet can alter microbial composition.

"The research on gut bacteria is still in its infancy," Fu said. The gut microbiome is a complex system that can be shaped by a person's diet and environment, along with other factors, she explained.

Some researchers have referred to the bacterial community in the human gut as an "extra organ" in the body because of its important influence on a person's health.

Scientists can probably also call gut bacteria "the heart in the gut," Fu said.

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