What makes up the American gut?

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(HealthDay)—Want a healthy gut? New research suggests you should eat plenty of fruits and veggies, avoid antibiotics and take care of your mental health.

These are the latest findings from The American Gut, part of an ongoing global project that has analyzed the bacterial makeup of the digestive tracts of more than 11,300 people so far.

The project was launched in 2012 by three scientists from the University of California, San Diego's School of Medicine. The goal is to shed new light on human microbiomes—the types and amounts of bacteria that reside in people's guts—and how they are affected by diet, lifestyle and disease.

"It's really amazing that more than 10,000 people—members of the public who want to get involved in science whether or not they work in a lab or have a Ph.D.—have mailed their poop to our lab so that we can find out what makes a difference in somebody's microbiome," said project researcher Rob Knight. He directs the Center for Microbiome Innovation at UC San Diego.

As of mid-2017, the scientists had analyzed data from thousands of samples provided anonymously by people from the United States, the United Kingdom, Australia and 42 other countries or territories.

The volunteers paid $99 to receive a collection kit through the mail and they provided fecal, oral or skin swab samples. The participants also completed a survey about their health, lifestyle and diet.

The data collected are already publicly available, allowing teams of outside researchers to look for new links between external factors such as diet and exercise, and the composition of bacteria in the human gut.

Several observations have already been made. For example, those who eat more than 30 types of plant-based foods per week have more diverse microbiomes than those who eat 10 or fewer types of plants.

The volunteers who ate more than 30 plants a week also had fewer drug-resistant genes in their gut microbiomes than people who ate 10 or fewer plants. It's unclear exactly why this is the case.

Researchers speculate that people who eat fewer fruits and vegetables may, in turn, be eating more meat from antibiotic-treated animals or processed foods with antibiotics added as a preservative. This could help antibiotic-resistant bacteria thrive in the digestive tract.

Antibiotic use also affects the types of bacteria found in the gut: People who reported taking these medications within the past month had less bacterial diversity in their gut than those who didn't.

The researchers also found a link between mental health and the human gut.

After matching volunteers who reported having depression, bipolar disorder, schizophrenia or post-traumatic stress disorder (PTSD) with a similar person who didn't have these conditions, the study authors found the guts of those with a mental health disorder were more closely related to other people with mental health problems than a peer who didn't have a mental illness.

"The human microbiome is complex, but the more samples we get, the sooner we will be able to unravel the many ways the microbiome is associated with various health and disease states," Knight said in a university news release.

"The American Gut Project is dynamic, with samples arriving from around the world daily," he said.

"The analysis presented in this paper represents a single snapshot, but we want eventually to go beyond making maps of the microbiome to making

a microbiome GPS that tells you not just where you are on that map, but where you want to go and what to do in order to get there in terms of diet, lifestyle or medications," Knight added.

The findings were published in the May 15 issue of *mSystems*.

More information: Harvard Medical School provides more on the link between gut bacteria and human health.