Coming soon: A test to gauge your obesity risk?

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Certain digestive byproducts could point to trouble, best treatments -- someday, researchers say.

(HealthDay)—Researchers say they have successfully linked certain byproducts of digestion to the risk of excess body fat.

Eventually, these findings might lead to more personalized interventions for people who are identified as "at-risk" for obesity, including diet, exercise or supplements, such as probiotics.

The team of international researchers constructed an in-depth biochemical "map" that tracked the way food is processed and broken down by the body. This enabled the investigators to take a snapshot of the end product of digestion: molecules known as metabolites.

More than two dozen of these metabolites were highly correlated with diet. Some were associated with having a high body mass index (BMI),

an estimated measure of body fat, while others were associated with having a low BMI.

The study authors said their research suggests that obesity risk is actually driven by many factors. They include "amino acids and muscle metabolism, energy metabolism, and [the] involvement of gut bacterial metabolism," said study lead author Paul Elliott, who heads the department of epidemiology and biostatistics at Imperial College London (ICL) in England.

"Getting a better understanding of the mechanisms involved may point to ways to find future preventive approaches and treatments," he said.

The findings were published April 29 in the journal *Science Translational Medicine*.

For the study, more than 2,300 American and British participants provided urine samples, as well as information regarding their diet, exercise habits, blood pressure and BMI.

Ultimately, nine metabolites appeared to be linked to having high body mass index. These particular metabolites had been produced by bugs (microbes) commonly found in the human gut that are involved in the digestion process.

Another metabolite described as a sign of consumption of red meat was also linked to a high BMI. By contrast, a different metabolite that indicates the consumption of citrus fruits was linked to having a low BMI, according to the study.

About half the cited molecules had not previously been linked to obesity risk, said study co-author Jeremy Nicholson. He heads ICL's department of surgery and cancer, and is the director of its Medical Research

Council-National Institute for Health Research National Phenome Centre.

What's more, his team's mapping effort suggests that about 5 to 6 percent of obesity risk can be explained by the activity of microbes in the gut. "That means that the bugs in our gut, and the way they interact with the food we ingest, play a three to four times more important role in obesity risk than our genetic background," Nicholson said.

While Nicholson expressed hope that his team's findings might eventually point the way toward new approaches to obesity prevention, he said no one should anticipate a single magic bullet.

"Our work shows that obesity is really very complex," he said. "To adjust an underlying physiological problem, for example, there are dozens of targets that would have to be addressed. In fact, it's such a complex environment that it's very unlikely that there will ever be a single drug to safely combat it."

At the same time, Nicholson stressed that most people become obese not because they have an underlying physiological issue but simply because they eat badly and don't get enough exercise.

"Genetics gets you almost nowhere," he said. "Yes, it has a statistically significant role to play. But the contribution of genetics is incredibly small, accounting for just 1.4 percent of obesity risk in total."

Lona Sandon, an assistant professor of clinical nutrition with the University of Texas Southwestern Medical Center at Dallas, seconded that opinion.

"It's true that we're all predisposed to obesity just because of how the human body works," she said. "We're built to store calories to prevent us

from starving too quickly if food becomes unavailable.

"But the bigger problem is our environment," Sandon added. "Identifying obesity metabolites and the mechanisms by which obesity works is very interesting. But social influence and human behavior override nature. If you sit around watching TV and eating all the cheap and unhealthful food that is all around us all the time you are going to become obese."

More information: There's more on managing weight from the American Heart Association.