

New link between gut bacteria and obesity

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Researchers at Lund University in Sweden have discovered a new link between gut bacteria and obesity. They found that certain amino acids in the blood are connected to obesity and the composition of the gut microbiome.

Researchers know less about the significance of the microbiome than reporting on the subject seems to suggest. A lot of the research on the topic is based on animal studies that cannot be directly applied to humans. Also, a healthy gut flora for one person may not necessarily be good for someone else.

However, an increasing number of studies indicate that the [gut microbiota](#) does play an important role in health. It affects the metabolism and can be linked to obesity, cardiovascular disease and type 2 diabetes.

Previous studies have shown that people with these diseases have varying occurrences of metabolites, i.e., small molecules or metabolic residues, in the bloodstream. The aim of the new study was therefore to identify metabolites in the blood that can be linked to obesity and to investigate whether these obesity-related metabolites affect the composition of the bacterial flora in stool samples.

The researchers analysed blood plasma and [stool samples](#) from 674 participants in the Malmö Offspring Study, MOS. They found 19 metabolites that could be linked to the person's BMI; glutamate and so-called BCAA (branched-chain and aromatic [amino acids](#)) had the strongest connection to obesity. They also found that the obesity-related metabolites were linked to four intestinal bacteria (Blautia, Dorea and Ruminococcus in the Lachnospiraceae family, and SHA98).

"The differences in BMI were largely explained by the differences in the levels of glutamate and BCAA. This indicates that the metabolites and gut bacteria interact, rather than being independent of each other," says Marju Orho-Melander, professor of genetic epidemiology at Lund University.

By far the strongest risk factor for obesity in the study, glutamate, has

been associated with obesity in previous studies, and BCAA has been used to predict the future onset of type 2 diabetes and cardiovascular disease.

"This means that future studies should focus more on how the composition of [gut bacteria](#) can be modified to reduce the risk of obesity and associated metabolic diseases and [cardiovascular disease](#)," says Marju Orho-Melander. "To get there, we first need to understand what a healthy normal gut flora looks like, and what factors impact the bacterial composition. This requires large population studies, like the Malmö Offspring Study, as well as intervention studies," she concludes.

More information: Filip Ottosson et al, Connection between BMI related plasma metabolite profile and gut microbiota, *The Journal of Clinical Endocrinology & Metabolism* (2018). [DOI: 10.1210/jc.2017-02114](#)

Provided by Lund University

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