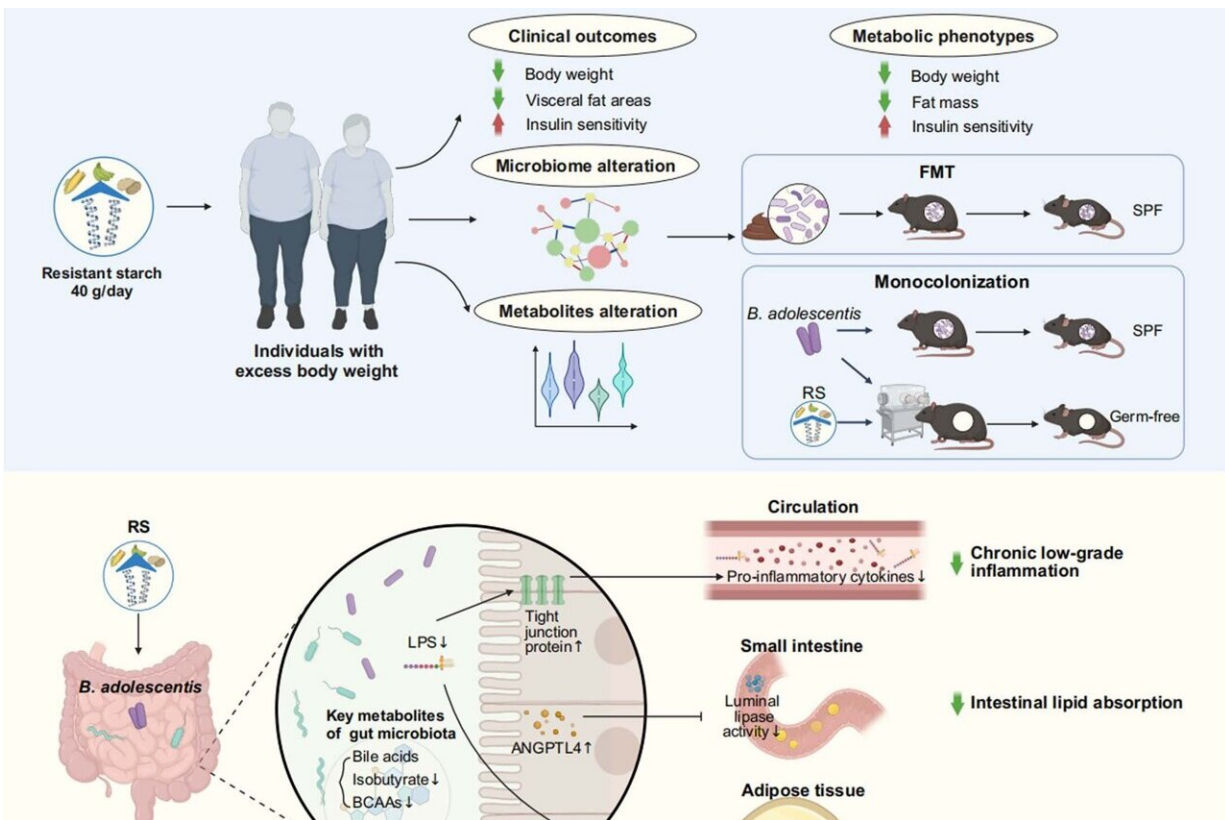


Fiber against pounds: Resistant starch found to support weight loss

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RS intake facilitates weight loss in humans by reshaping the gut microbiota. Credit: *Nature Metabolism* (2024). DOI: 10.1038/s42255-024-00988-y

A diet based on resistant starch promotes a favorable composition of the gut microbiome in obese people. This leads to weight reduction and

measurable positive health outcomes such as improved insulin sensitivity.

These are the findings of an international research team led by Professor Weiping Jia from Shanghai Jiao Tong University, Professor Aimin Xu from the University of Hong Kong and Professor Gianni Panagiotou from Friedrich Schiller University Jena. [The study](#) has been published in the journal *Nature Metabolism*.

Metabolic diseases such as type 2 diabetes and cardiovascular diseases are an increasing global health problem. Weight reduction correlates often with reducing the negative consequences of such diseases. Studies have proposed that certain foods that can selectively modify the [gut microbiota](#) could benefit human metabolism and health, including obesity. A promising approach is foods containing resistant starch, a dietary fiber found in wholegrain products and pulses.

"In the study, we performed a clinical trial in overweight and obese participants. All participants were provided three meals a day with identical diets supplemented by resistant starch in the form of a powder dissolved in water throughout the trial," says Panagiotou, Professor of Microbiome Dynamics at the "Balance of the Microverse" Cluster of Excellence at the Jena University and group leader at the Leibniz Institute for Natural Product Research and Infection Biology, both Germany.

Significant loss of weight

"Using [analytical methods](#), we were able to show that the composition and metabolic output of the study participants' gut microbiome had changed into a favorable direction for the host," Panagiotou continues. The researchers observed significant weight loss and improved sensitivity of cells to insulin after consuming a diet rich in resistant

starch.

In order to prove if the gut microbiota act as a link between the intake of resistant starch and the associated positive metabolic effects, the scientists transferred fecal microbial transplantations of their study participants after the consumption of resistant starch to obese mice. "In this experiment, the mice also lost weight, which proves the causal relationship," says Panagiotou.

The researchers also identified a type of bacteria that is crucial for the beneficial effects of resistant starch in the diet: *Bifidobacterium adolescentis*. "In a further experiment with mice, feeding *B. adolescentis* alone was sufficient to prevent intestine absorption of fat from the diet and protect mice against diet-induced obesity," says Panagiotou.

According to the scientist, this indicates that this particular bacterial species within the gut microbiota of people makes a decisive contribution to counteract obesity. Nevertheless, preventive use is currently not recommended.

"Our study will provide a [practical approach](#) to treat obesity and its related metabolic disorders by resistant starch," continues Panagiotou. To confirm the potential efficacy of a diet supplemented with [resistant starch](#) for weight loss in obese people via modulation of the gut microbiome, further trials with more participants are required. It is crucial to also monitor the sustainability of weight loss over a longer period to confirm the robustness and long-term success of this dietary intervention.

More information: Huating Li et al, Resistant starch intake facilitates weight loss in humans by reshaping the gut microbiota, *Nature Metabolism* (2024). [DOI: 10.1038/s42255-024-00988-y](https://doi.org/10.1038/s42255-024-00988-y)

Provided by Friedrich Schiller University of Jena

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