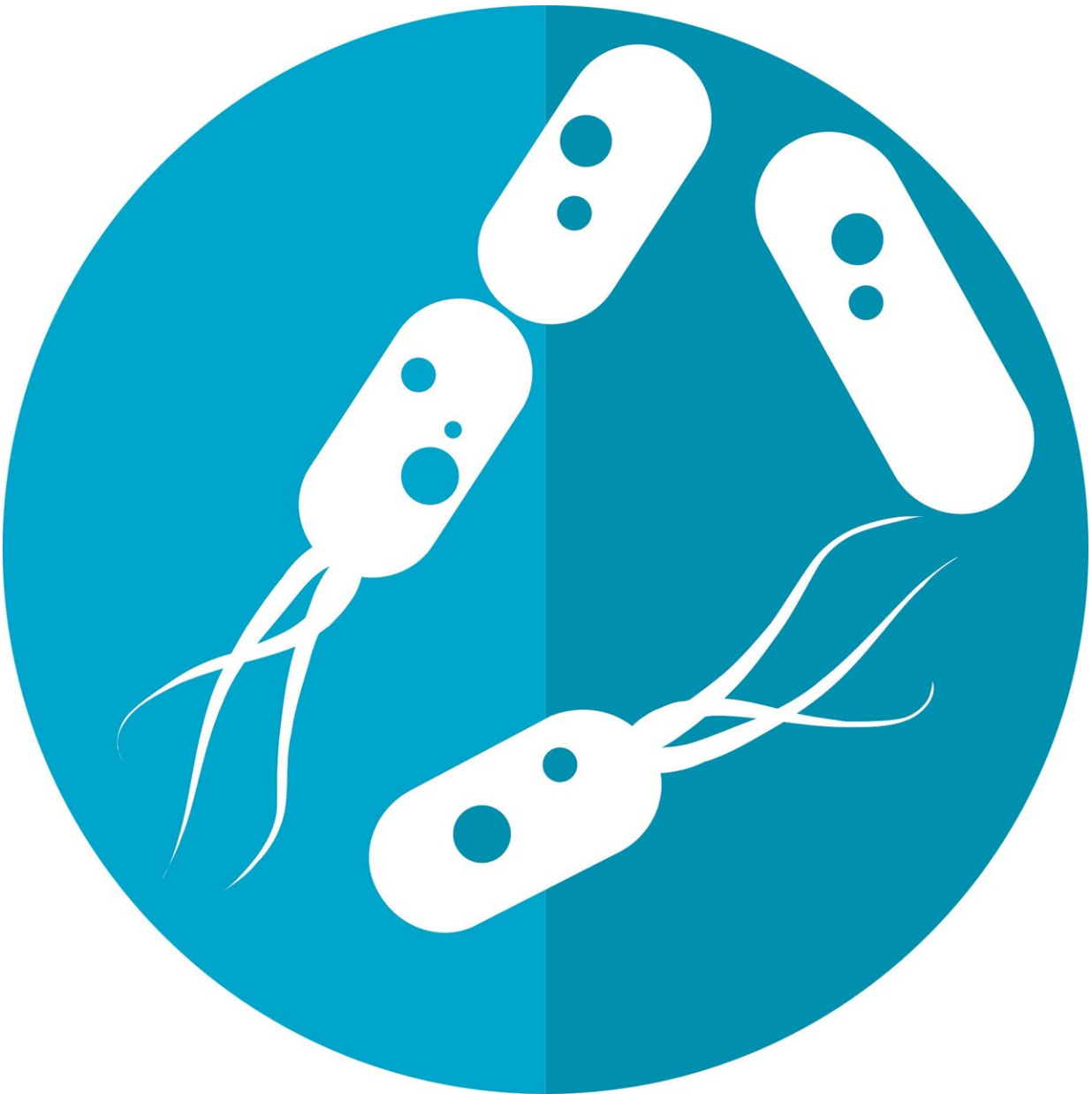


Evidence for the health benefits of consuming more live microbes

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Safe live microorganisms are found in a variety of foods we eat every day, from yogurt and other fermented foods, to raw fruits and vegetables. Despite the widespread idea that these mixtures of live microbes contribute to health, convincing evidence linking live dietary microbes to health benefits has been lacking.

A new study provides some of the first real-world evidence that higher consumption of live microbes may promote health.

A group of scientists led by the International Scientific Association for Probiotics and Prebiotics (ISAPP) classified over 9,000 individual foods listed in the US National Health and Nutrition Examination Survey (NHANES) into three categories based on their abundance of live microbes, and then used NHANES participants' reported [food intake](#) to quantify the [food](#) they ate that contained medium or high levels of microbes. Then they determined how these intakes correlated with various markers of health such as [blood pressure](#) and weight.

The scientists found that increased consumption of live microbes in the diet was linked with multiple measurements of better health: more favorable blood pressure, better blood glucose and insulin, lower inflammation, as well as lower waist circumference and body mass index. This established that those who consumed higher quantities of live dietary microbes showed tangible, if modest, [health benefits](#).

While the scientific approach did not allow researchers to conclude that the live dietary microorganisms directly caused the health benefits, the results are consistent with plausible arguments that dietary exposure to live microorganisms in general could benefit health by increasing the

diversity of microbes in the gut or by supporting immune function.

In the past century, a reduction in the amount of fermented foods in the diet and increased consumption of processed foods has led to a dramatic reduction in the number of microbes most people consume on a daily basis. This trend may be reversing, however, since the dietary data used in the study showed that US adults have gradually increased their live microbe consumption over the 18-year study period. This may bode well for the health of the population.

This study built on two previous published papers, which conducted the preliminary work necessary to make this assessment of live dietary microbes and health.

"Although the dose-response associations we found were relatively modest, it was notable that these estimated benefits applied to several plausible and important health outcomes and were robust to adjustment for available confounders, including [body mass index](#)," says co-lead author Prof. Dan Tancredi, Ph.D., of University of California—Davis.

"More research that extends these findings to other populations and research that uses study designs that permit stronger causal claims is needed, especially given the [potential benefits](#) that might be available by simply substituting into the diet more foods that have safe live microbes."

ISAPP Executive Science Officer Mary Ellen Sanders, Ph.D., points out the research focused not just on probiotics, but on all microbes in foods, including environmental microbes associated with raw fruits and vegetables as well as [lactic acid bacteria](#) associated with fermented foods. Thus, the study differs from probiotic research, which focuses on microbes defined to the strain level, specific dose and proven health benefits.

Co-first author Prof. Colin Hill, Ph.D., of University College Cork, Ireland, says it's possible that dietary advice of the future could include a recommendation for the daily consumption of high levels of live dietary microbes. "Those foods with high levels of microbes (fermented foods, raw vegetables and fruits) are all nutritionally valuable parts of a healthy and diverse diet," he says.

"Secondly, these same foods could be providing an additional, hitherto unrecognized, [health](#) benefit due to live microbes themselves that enter the gut and interact with the host microbiome, immune system and even the enteric nervous system."

The research is published in *The Journal of Nutrition*.

More information: Colin Hill et al, Positive health outcomes associated with live microbe intake from foods, including fermented foods, assessed using NHANES database, *The Journal of Nutrition* (2023). [DOI: 10.1016/j.tjnut.2023.02.019](https://doi.org/10.1016/j.tjnut.2023.02.019)

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