

Quantifying the live microbes on your plate

May 18 2022



Credit: Pixabay/CC0 Public Domain

Many have hypothesized that bacteria and other "friendly" live microorganisms consumed through the diet can play an important role in health. Reduction in dietary microbe consumption has likely contributed to an "impoverished" gut microbiota, which may lead to improper immune system development and an increase in chronic diseases, among

other negative health outcomes. But one of the first steps toward understanding the role of dietary microbes in health is to quantify the number of live microorganisms we consume today in our diets, through foods as well as probiotic supplements.

A group of scientists has completed the first large-scale estimate of how many live microbes are consumed by Americans daily. The results are published in the *Journal of Nutrition*.

To create the estimate, the scientists turned to a well-established US health and dietary database, the National Health and Nutrition Examination Survey (NHANES). While this database contains extensive information on the foods consumed by Americans daily, it lacks information on how many live microbes those foods contain. As a first step, [food science](#) and fermentation experts assigned each [food](#) in the database an estimated range of live microbes per gram, creating categories of foods with low, medium and high levels of live microbes. The foods in the "high" category (more than 10^7 colony-forming units per gram, or cfu/g) were primarily fermented dairy foods such as yogurt, fermented pickles or kimchi. Fresh, uncooked fruits and vegetables were also good sources of live microorganisms, represented in the "medium" category (10^4 to 10^7 cfu/g).

Using the NHANES data from 2001 to 2018 for nearly 75,000 children and adults, the scientists found that around 20% of children and 26% of adults consumed foods with high levels of live microorganisms in their diet. Both children and adults increased their consumption of these foods over the 18-year study period.

The NHANES analysis was funded by a grant from the International Scientific Association for Probiotics and Prebiotics (ISAPP) and the idea was an extension of an expert discussion group held at ISAPP's 2019 annual meeting. A previous publication by a subset of these same

authors describes the hypothesis behind this idea.

ISAPP Executive Science Officer, Dr. Mary Ellen Sanders, says the publication is part of a larger global effort among scientists to determine how live dietary microbes might contribute to health.

Sanders notes that the microorganisms quantified in this study are not necessarily probiotics. "By definition, a probiotic must be well-defined and have a demonstrated health benefit at a quantified dose. Live microbes associated with food as a category, however, do not generally meet the criteria of a probiotic."

According to co-author Prof. Colin Hill, APC Microbiome Ireland, University of College Cork, "There is no doubt that the microbes we eat affect our health. When we think of microbes in our food, we often think of either foodborne pathogens that cause disease or probiotics that provide a documented health benefit. But it's important to also explore dietary microbes that we consume in fermented and uncooked foods. It is very timely to estimate the daily intake of microbes by individuals in [modern society](#) as a first step towards a scientific evaluation of the importance of dietary microbes in human health and well-being."

Next steps for this group are to determine the association of live dietary microbes with health endpoints collected in the NHANES database.

More information: Maria L Marco et al, A Classification System for Defining and Estimating Dietary Intake of Live Microbes in US Adults and Children, *The Journal of Nutrition* (2022). [DOI: 10.1093/jn/nxac074](https://doi.org/10.1093/jn/nxac074)

Maria L Marco et al, Should There Be a Recommended Daily Intake of Microbes?, *The Journal of Nutrition* (2020). [DOI: 10.1093/jn/nxaa323](https://doi.org/10.1093/jn/nxaa323)

Provided by International Scientific Association for Probiotics and Prebiotics

Citation: Quantifying the live microbes on your plate (2022, May 18) retrieved 27 June 2024 from <https://medicalxpress.com/news/2022-05-quantifying-microbes-plate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.