

Global gut health experts guide growth of synbiotics

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Credit: University of Illinois at Urbana-Champaign

Chances are you've heard of or even taken probiotics: supplements delivering "good microbes" to the gut, providing a wide range of health benefits. If you're really up on your gut health, you may also be aware of prebiotics: supplements designed to fuel the good microbes already living in our guts.

The next wave of gut-[health](#) supplements, known as synbiotics,

essentially combine pre- and probiotics. To keep research and development efforts on the right track, an international panel of experts—including two from the University of Illinois—recently redefined the term and developed guidelines on the scientific investigation of the supplements.

The consensus report, published in *Nature Reviews: Gastroenterology & Hepatology*, is expected to serve as the definitive reference in the development of new synbiotic products.

"Synbiotics are starting to gain traction in the marketplace, but there's a lot of confusion around the term, even among scientists," says Kelly Swanson, consensus panel chair and professor in the Department of Animal Sciences at Illinois. "The panel's main goal was to clarify what synbiotics are and provide guidance for future research and innovation."

The general idea of synbiotics was first proposed in 1995 when prebiotics were defined. But the concept was left open to interpretation, and since the U.S. Food and Drug Administration regulates supplements loosely, companies can sell products that may or may not provide health benefits.

"This consensus statement provides guidance for different stakeholders, including scientists in academia and industry, consumers, and even journalists. We want to remind each group that these terms should be used consistently, avoiding sensationalizing or overstating health claims," says Hannah Holscher, panel member and assistant professor in the Department of Food Science and Human Nutrition at Illinois.

The updated definition for synbiotics is "a mixture comprising live microorganisms and substrate(s) selectively utilized by host microorganisms that confers a health benefit on the host."

The terms prebiotic and [probiotic](#) have their own definitions and standards. By omitting those specific terms from the definition of synbiotic, the expert panel allows for the use of microorganisms and selectively utilized substrates that may work together to elicit a health benefit but may not fit the definitions of pre- and probiotics when administered independently.

"The old definition of synbiotic included pre- and probiotics, which may have restricted innovation," Holscher explains.

Pre- and probiotics can still be combined under the new definition, as long as they're tested together and shown to still provide positive, if not necessarily related, health outcomes. For example, a prebiotic might aid in digestive health while a probiotic may boost immunity after a flu vaccine. As long as they still provide those benefits in the host, they can be considered complementary synbiotics.

"The key there is testing. Even if the pre- and probiotics work separately, there could be some antagonism when put together. So really, they need be tested together in the target animal or human. We don't want companies just randomly throwing things together," Swanson says.

In contrast, the ingredients in synergistic synbiotics are additive, working together to produce a single, targeted health benefit. These are most likely to be made with novel ingredients not already categorized under the current definitions of pre- and probiotics.

"In synergistic synbiotics, the substrate would support probiotic survival," Holscher says. "For example, providing an energy source for the probiotic or changing the microbiome to support the survival of the probiotic."

In either case, testing the ingredients together is critical. The consensus

panel lays out testing protocols for multiple hosts, including humans, pets, and livestock animals, and encourages researchers to consider the effects of age, health status, sex, and other important factors.

With better guiding documentation, the market for synbiotics is likely to grow. But before plunging into the new supplements, the researchers advise consumers to consult with medical professionals to choose the right product for their specific needs.

"Just because there's a pre-, pro-, or synbiotic on the market, that doesn't mean they'll work across the board from infants to adults to geriatrics, from heart disease to gastrointestinal health. They're all really there for a specific purpose," Swanson says.

Holscher adds, "The question is not whether you should take a pre-, pro-, or synbiotic. The question is, 'what do you need those products to do?' We know a lot about the specific health outcomes of these products, so it's a matter of finding what you need rather than thinking of them as a blanket cure-all."

More information: Kelly S. Swanson et al, The International Scientific Association for Probiotics and Prebiotics (ISAPP) consensus statement on the definition and scope of synbiotics, *Nature Reviews Gastroenterology & Hepatology* (2020). [DOI: 10.1038/s41575-020-0344-2](https://doi.org/10.1038/s41575-020-0344-2)

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