



The new face of fermented foods

Why innovation now looks a lot like biology

Fermenting foods – that age-old process of preserving foods that produced such nose-holding childhood avoidances as sauerkraut – is back with a vengeance.

Like an old dog with a new trick, these products are gaining momentum as surprising new stars of the food and beverage world. This is largely because they lie squarely at the center of important mega food trends, including the globalization of flavors, demand for natural and label-friendly products, and healthy foods – specifically those for digestive wellness.

It turns out that fermented foods contain bacteria, enzymes and yeasts that contribute to the health of naturally occurring microflora in the gut (the microbiome), which is why fermented products like kimchi, kombucha and kefir are not only seeing rising popularity on store shelves, but also creative and innovative usage in restaurants and among foodies.

The trend is so prevalent that the global category saw sales of

\$24 billion

in 2017, and is expected to reach

\$28.4 billion

by 2022, according to data from BCC Research.¹

The trend has caught on so quickly that big-name food companies are getting in on the action and product developers may now feel that they need a degree in enzymology to keep up.

For the rest of us, the concept is pretty simple. The process of fermentation dates back to 6000 B.C.² It was originally used to prevent food spoilage, but the method also creates healthful attributes.

Fermented foods are created using an anaerobic process (low- to no oxygen) that involves natural microorganisms like bacteria and yeast, which feed on the starch and sugar in the food to produce lactic acid. The lactic acid then targets components in the food that can cause spoilage.

Although fermented foods have not always been hugely popular (nor even recognized as products of fermentation) in the United States, the process has always been used in foods and beverages like cheese, yogurt, beer and wine. Other fermented foods have enjoyed more consistent prevalence and popularity in many other countries. The concept actually transcends cultural boundaries, with nearly every civilization around the world, from Africa to Russia, having at least one fermented food in its heritage. These fermented foods include iconic international dishes such as Japanese natto, Hawaiian poi, and the Indian yogurt drink lassi.

Probiotics and more

The health benefits of fermentation are based on the presence of bacteria, which serve as the body's healthy microbes, or probiotics. These probiotics are particularly beneficial because they have proven to be resistant to stomach acid, arriving in the gut intact. What's more, it has been suggested at least anecdotally that the bacteria in these foods can produce a more positive outcome than taking probiotic supplements.³

That is not to say that all fermented foods are packed with probiotics. What is a bit harder to understand is that not all fermented foods contain live microbial cultures, and therefore may not offer the purported health benefits of those that do. For example, some foods that are fermented are then further processed through baking, filtration or pasteurization, so they are no longer sources of active probiotics.

While this is generally not a problem in fresh kimchi or sauerkraut, yogurt or kefir; other fermented products, like sourdough bread, jarred sauerkraut or pickles, beer and wine most likely don't contain live cultures. These processing steps are taken to extend a product's shelf life, but they often inactivate or remove the organisms, according to Robert Hutkins, Ph.D., author of *Microbiology and Technology of Fermented Foods*, and a professor of food science at the University of Nebraska, Lincoln.⁴

It is important to note that probiotics and the microbes used in fermentation are not necessarily one and the same. "Probiotics are known species with known functions and benefits," Hutkins wrote in a blog for the International Scientific Association for Probiotics and Prebiotics (ISAPP).⁵ In other words, not all fermented foods contain probiotics, but there are some fermentation microbes that share some of the traits known in probiotics.

Nevertheless, fermented foods have plenty of attributes to recommend them. They include beneficial components such as enzymes, omega-3 fatty acids and B vitamins, and are now being credited with a wide variety of

health benefits – from improving foods' digestibility and increasing overall vitamin and mineral levels, to supporting microbiome balance and boosting immunity.⁶

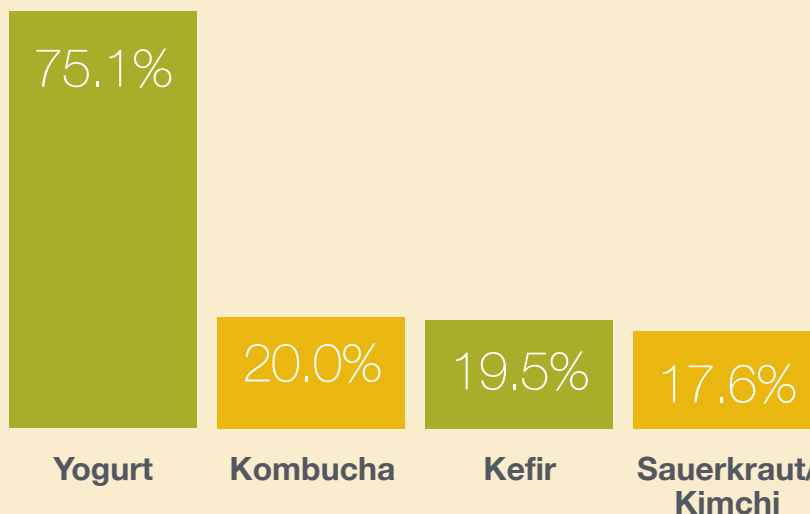
Behind the Market Success

So it's little wonder that as consumers gain knowledge and awareness about the importance of diet to general health – and specifically gut health – in improving the microbiome for overall wellness, immunity and brain function, they are seeking out these products in ever-greater numbers.

The success of probiotics in dairy products has been a key element of the category's overall success, according to Julian Mellentin, editor of *New Nutrition Business* and author of the annual report, *Ten Key Trends in Food, Nutrition and Health 2019*. "This helped familiarize people with the concept of fermentation and 'good bacteria.'" The report names digestive wellness as one of the key trends for 2019, as well as one of the most important food trends in the past 25 years.

% of U.S. consumers who believe these foods are good for digestive health

Although yogurt, fruit and vegetables are most closely associated with digestive wellness, fermented foods beyond yogurt are now being linked to improved digestive health.



Source: Mellentin, J. "Ten Key Trends in Food, Nutrition and Health 2019." *New Nutrition Business*.

Another reason that fermented foods are seeing so much popularity is their appeal to millennials, who have fueled the growth of fermented foods and beverages like kombucha (a fermented tea), which has served as an introductory product to many U.S. consumers.⁷ This product was barely known as recently as 10 years ago, but it is now found in most supermarkets, as well as bars and restaurants around the world.⁸ The increased acceptance of fermented foods and flavor profiles aligns with the trends of palate globalization and acceptance of new flavors from around the world.



As consumers persist in their search for healthy products, Hutkins believes that fermented foods will continue to be hot commodities on store shelves as people branch out and try other fermented categories such as olives, kimchi and miso.⁹

As understanding of the value of fermented foods grows, product developers will also continue to push the envelope in using fermentation technology to meet demands for quality processed foods and vegetables that are nutritious, fresh and free of synthetic chemicals. These innovations portend a bright outlook for these products.

In fact, Mellentin predicts that the fermented food market may be today where probiotic yogurts were 15 years ago.¹⁰ What remains to be seen, he notes, is which categories will be most embraced by consumers and how companies can best capitalize on the emerging trends. “Given how rapidly ideas spread in our connected world, and how quickly big companies are learning to take risks on emerging categories,” he writes in the *Ten Key Trends* report, waiting to see how these trends play out is probably the one strategy that is not a good one.

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