



Deliver the full benefits of cultures

Fermented milk products could arguably be one of the most convenient, tasty, economic and healthy foods we have today.

Consumer's acceptance of the idea that yogurt, a fermented (cultured) milk, is "good for you" has been so widespread that it has attracted other marketers who are trying to figure out how to capitalize on its popularity.

There has been a proliferation of all kinds of products that attempt to suggest they can provide the health benefits associated with fermented milk products simply by stating that such new "good for you" products contain certain micro-organisms. Just by adding a probiotic cocktail to the product (and often not at levels deemed efficacious), marketers hope that consumers believe that traditional cheeses, frozen desserts, milks and other dairy beverages have been transformed into better-for-you dairy foods.

This may have some merit from a health viewpoint because of the symbiotic nature of all things dairy and lactic acid bacteria. But this does not necessarily crossover to other food and non-food systems. Nonetheless, now there are extra-healthy nutrition bars with probiotics and probiotic pills. But we all know that in the process of manufacturing yogurt, cheese and other fermented milk products, the addition of the culture is just one step in a multistep process.

After culture addition, we create conditions that facilitate uptake of the many nutrients in the milk by the microbial culture. As a result, these beneficial micro-organisms proliferate and produce metabolic products. Some of the metabolic products cause substantial changes in the food structure, taste, texture and appearance, and importantly, the environment in which the culture now resides.

Be careful in storage, handling

Storage and handling may enhance or detract from the good-for-you outcomes of the fermentation process. While the marketing department focuses on the specific strains of the cultures added during manufacturing, producing a healthy fermented milk product

can and should be much more involved than making a claim on the package. For example, many pickles and sauerkraut go through a lactic fermentation like yogurt, but then they are commonly hot-packed or retorted to allow a long shelf life without refrigeration. That processing step kills any viable good-for-you bacteria that could have been developed as a result of fermentation.

Fortunately, most fermented dairy products (with the exception of many commercial cream cheeses, processed cheese and pasta filata cheese products) would not go through a high heat process post-fermentation sufficient to kill the desired micro-organisms of interest.

While specific microbial strains are important in the discussion of the health benefits of probiotics and fermented foods, the food delivery system is often overlooked. According to M.E. Sanders and M. L. Marco in the *Annual Review of Food Science and Technology* (2010), "the delivery vehicle is likely to influence probiotic functionality in many ways including inducing changes in the cell composition and physiological status of the probiotic; providing other complementary physiologically active ingredients, such as fibers, known bioactive compounds, fermentation end-products such as organic acids, bacteriocins or bioactive peptides; or improving the likelihood of regular consumption through product palatability and incorporation of that product into the diet. These factors could also be expected to affect cell fitness throughout product shelf life. Ideally, cells in the product are consistently functional all throughout the shelf life of the product." They go on to state that "the few studies that have been performed comparing food matrices suggest that fermented milk might augment probiotic functionality."

Why dairy delivers

Bioactive compounds from milk — like calcium, oligosaccharides, glycosphingolipids and immunoglobulins — might explain why

dairy is the preferred delivery system. These and other compounds in milk may also be complementary to the specific health benefits associated with the cultures and/or their fermentation products.

Research using molecular expression techniques also indicates that probiotic bacteria adapt to food product systems like milk and enhance their survival and interactions in the human gut where digestive health benefits are maximized.

Regular consumption of fermented milk, particularly yogurt, is one of the few food matrices that have been studied repeatedly in controlled clinical trials and has been shown to improve digestive health and is suggestive of other health benefits. Despite these studies, there is a clear need for additional research to better document the role of the delivery system on probiotic health benefits.

Fermented milk products could arguably be one of the most convenient, tasty, economic and healthy foods we have today. There is still opportunity to develop and market products for "yet to be satisfied" consumers. Many of the established and potential health benefits have been clearly linked to more than just the organisms used in the fermentation but also to the fact they are part of a dairy/milk system.

Continuing to support new scientific studies that clarify the link between fermented milks and their health benefits will only strengthen this message. By making sure consumers know this and delivering on other desired consumer attributes by investing in parallel product research efforts, there is no reason to not expect yogurt and other fermented milk product sales to continue to soar to new heights and for consumers to derive the full health benefits from their consumption. ■

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