

Fish oil added to yogurt may help consumers meet daily nutritional requirements

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Many consumers want to increase their intake of heart-healthy n-3 fatty acids, found naturally in fish and fish products, but find it difficult to consume the levels recommended by the American Heart Association. Scientists at Virginia Tech have demonstrated that it may be possible to achieve the suggested daily intake in a single serving of a savory-flavored yogurt, providing an easily incorporated dietary source for these valuable fatty acids. Their work is detailed in the April issue of the *Journal of Dairy Science*.

"The international popularity of [yogurt](#) and the health-promoting properties associated with probiotics, minerals, vitamins, and milk proteins suggest yogurt could be an excellent vehicle for the delivery of n-3 fatty acids," says lead author Susan E. Duncan, PhD, Professor and Director of the Macromolecular Interfaces with Life Sciences Program, [Food Science](#) and Technology, Virginia Tech. "Recent innovations in exotic yogurt [flavors](#) provide innovation opportunities. We tested different levels of fish oil in a savory chili and lime flavored yogurt, and found that a 1% concentration of fish oil, which provides more than the suggested daily intake, could be acceptable to a large proportion of the general population, and have a potential market among health- and nutrition-conscious consumers."

In a preliminary study, tasters could not differentiate between low levels of fish and butter oils in unflavored yogurt, but they could discern yogurt flavored with oxidized fish oil, which has a strong fishy taste. A second panel underwent 6 hours of training so that they could accurately

describe and measure lime, sweet, heat, acid, and oxidized flavor attributes. They found the fish flavor more pronounced than the lime and acid characteristics in a chili-lime flavored yogurt fortified with 1% oxidized fish oil, compared with yogurts containing .43% or 1% fresh fish oil. The oxidized flavor was higher in chili-lime yogurts containing oxidized fish oil and a high level (1%) of fresh fish oil.

In a second study, 100 untrained consumers who were generally nutritionally motivated and aware of the health benefits of n-3 fatty acids evaluated the overall acceptance and flavor acceptance of chili lime yogurt enriched with butter oil or fish oil. Fifty percent of the tested group rated chili-lime flavored yogurt fortified with 1% butter oil or [fish oil](#) in the positive end of the scale ("liked extremely" to "neither liked nor disliked"). Thirty-nine percent reported they would be highly likely or likely to consume the chili-lime flavored yogurt on a regular basis. The low overall acceptance of the product by the remaining 50% of the tested group may be attributed to the chili-lime flavor or the lack of sweetness in the product.

These studies demonstrate the potential for consumption of the entire suggested daily intake of n-3 fatty acids in a single serving of savory-flavored yogurt, providing an alternative and easily incorporated dietary source of these heart-healthy fatty acids.

"Innovation of unsweetened, savory flavoring in combination with the powerful health functionality of n-3 [fatty acids](#) and dairy components is of interest to a large segment of the health- or nutrition-aware population. A potential market exists for this population," Dr. Duncan concludes.

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