

People not hooked on fish could get their omega-3 through dairy, study finds

November 30 2012, by John David Pastor

(Medical Xpress)—Not everyone has a taste for fish, even though it is a natural source of heart-healthy omega-3 fatty acids.

And while a growing number of omega-3 enriched foods may net health benefits for people who resist the lure of salmon or sashimi, milk remains the product that has gotten away in what has become a billion-dollar [health industry](#).

But now, [food science](#) researchers at Virginia Tech may have reeled milk into the omega-3 delivery system, showing it is possible to incorporate [fish oil](#) into milk and dairy-based beverages in amounts sufficient to promote heart health, without destroying the product's taste or limiting its lifespan.

Even better, the milk passes the sniff test. Twenty-five volunteers evaluated one-ounce cups of standard 2 percent milk alongside samples of skim milk containing 78 parts butter oil to 22 parts fish oil in institutionally approved study conditions.

"We couldn't find any aroma differences," said Susan E. Duncan, a professor of food science and technology in the College of Agriculture and Life Sciences. "We were concerned the fish oil would undergo a chemical process called oxidation, which would shorten the milk's shelf life, or the milk would acquire a cardboard or paint flavor by reacting with the fish oil. It appears we have a product that is stable, with no chemical taste or smell issues."

The study, featured in the November issue of the *Journal of Dairy Science*, tested four different ratios of butter oil to fish oil in the production of pasteurized, fatty acid-fortified beverages.

The aroma-free formulation delivered 432 milligrams of heart-healthy fatty acids per cup, close to the 500 milligram daily target for healthy people suggested by a broad range of health studies. The U.S. [Department of Agriculture](#) suggests daily consumption of 250 milligrams per day in healthy adults.

Research has shown omega-3 fatty acids are helpful for preventing [coronary disease](#), reducing inflammation, assisting [infant brain development](#), and maintaining brain function.

Meanwhile, the American Heart Association recommends eating two servings of fatty fish per week, citing research that has shown [omega-3 fatty acids](#) decrease the risk of potentially fatal heart arrhythmias, decrease triglyceride levels, slow growth of atherosclerotic plaque, and slightly lower blood pressure.

But fish hasn't caught on with everyone, making room for new foods and beverages fortified with omega-3s in an expanding marketplace. Sales are expected to reach more than \$3 billion in 2016, according to marketing analysts.

"I think the dairy industry can look at our study and determine whether it is plausible to modify its products," Duncan said. "I would like to help people who love milk, yogurt, and dairy, which have intrinsic nutritional value, address an additional need in their diets, especially if they don't like to eat fish or can't afford it. One of these dairy servings a day apparently is enough to sustain enough continuous omega-3 to benefit [heart health](#)."

If such a product catches on with consumers, Duncan said the next step for researchers is to follow groups of volunteers in an epidemiological study of whether the food improves health outcomes.

"Milk was first fortified with Vitamin D as a way to fight rickets—a disease that leads to soft or weak bones," said Kerry E. Kaylegian, a dairy foods research and extension associate with Penn State's College of Agricultural Sciences, who was not involved in the research. "It was a good approach to address a dietary deficiency disease, because so many people drink milk, which is already loaded with nutrients. This study describes fortification of milk with omega-3 [fatty acids](#) EPA and DHA. We can't say lack of those compounds definitively causes cardiac disease, but there is evidence that they protect us and contribute to heart and brain health. [Milk](#) would be a good delivery vehicle for those nutrients."

More information:

www.journalofdairyscience.org/article/S0022-0302%2812%2900671-6/abstract

Provided by Virginia Tech

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