

Recommendation to eat more fish may not be environmentally sustainable

MARCH 16, 2009 | [Marlene Busko](#)

Toronto, ON - Evidence for health benefits from eating more servings of oily fish is not conclusive—especially for primary prevention of coronary events—and must be balanced against projections that worldwide fish stocks will be depleted in 40 years if current consumption continues, a review concludes [[1](#)].

Study researchers, led by **Dr David Jenkins** (University of Toronto, ON), suggest that until alternative sources of omega-3 fatty acids from plants, algae, or yeast become more available, "it would seem responsible to refrain from advocating to people in developed countries that they increase their intake of long-chain omega-3 fatty acids through fish consumption."

On the other hand, the **AHA** still stands by its recommendation to consume two servings of fish—preferably fatty fish—per week to reduce risk of cardiovascular disease, **Dr Penny M Kris-Etherton** (University of Pennsylvania, University Park), a member of the AHA Nutrition Committee, told **heartwire** when asked to comment on the study.

The study is published in the March 17, 2009 issue of the *Canadian Medical Association Journal*.

"If you are already leading a healthy lifestyle—if you are eating a heart-healthy diet, exercising, and you have a healthy body weight—there is certainly no evidence from randomized controlled trials to support a benefit" from fish oil for primary prevention of CVD, study author **Dr John L Sievenpiper** (University of Toronto) told **heartwire**.

Meta-analyses and individual trials are divided about the value of fish oils for prevention of CAD, the authors write. The **Prevenzione** trial reported a 15% benefit in a four-way analysis for a combined outcome of all-cause mortality, nonfatal MI, or nonfatal stroke. However, the **Diet and Angina Randomized Trial** (DART-2) showed that men with angina who were advised to consume fish oil had an increased risk of cardiac death. Similarly, a meta-analysis of three major studies of implantable defibrillators documented that some individuals benefitted while others were adversely affected by taking fish oil.

Fish stocks threatened

In contrast to the uncertainty over the value of omega-3 fish oils in the scientific literature, there is scientific consensus about the rapid worldwide decline in fish stocks. Since 1950, the number of fish stocks that have collapsed—shrunk to 10% of their historic maximum yield—has grown exponentially, and there are now over 100 confirmed cases of marine-population extinctions. If this trend continues, all commercially exploited stocks of fish will likely be collapsed by 2048, said Sievenpiper.

"Yet the dire status of fisheries resources is largely unrecognized by the public, who are both encouraged to eat more fish and are misled into believing that we still sail in the sea of plenty," the authors write.

Developed countries are importing fish from the developing world, while in the developing world, where people depend on fish for protein, population growth is also increasing demand for fish, **Dr Ussif Rashid Sumaila** (University of British Columbia Fisheries Centre, Vancouver) told **heartwire**. Large demand—for example, for shrimp—is also a factor behind bycatch—when fish other than the targeted species are just discarded—which can be destructive to the marine habitat, he added.

Potential solutions

Fish farming, as currently practiced in developed countries, is unlikely to resolve the problem, the authors write, since the fish are raised on fishmeal and fish oils from smaller fish. According to Sievenpiper, "the equation is quite unfavorable, because it requires an input of more fish than you get out."

On the other hand, nonmarine-based sources of the two long-chain omega-3 fatty acids in fish

oil—docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA)—might be viable solutions. Martek Biosciences (Colombia, MD) produces DHA from algae, which is added to foods, and other companies are exploring using yeast to produce EPA, said Sievenpiper. In addition, the plant-derived shorter-chain fatty acid alpha-linolenic acid (ALA) might be an alternative in populations with low intake of omega-3 fatty acid.

"We should be increasing our efforts in exploring these alternatives," he said.

Significant health benefits

Kris-Etherton concurs that alternate sources of omega-3 fatty acids need to be investigated. In the meantime, depletion of fish stocks is not a reason to stop recommending eating more fish, she said, since current fish consumption is low.

Despite negative research results, most evidence clearly shows benefits of fish oil in cardiac patients, she added. The negative **DART-2** study has been criticized for study limitations. On the other hand, the Prevenzione trial documented benefits that included a 45% reduction in sudden death. The many reported heart and brain benefits from omega-3 fatty-acid consumption include a significant decrease in age-related memory loss and Alzheimer's disease.

"Americans on average eat about one serving of fish per week. If the population—more than 300 million—were to increase this even a little bit, this would have very significant health benefits," she said.

Sievenpiper and Sumaila disclosed having no conflicts of interest; disclosures of the other authors are listed in the paper. Kris-Etherton disclosed having no conflicts of interest.

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Source

1. Jenkins DJA, Sievenpiper JL, Pauly D, et al. Are dietary recommendations for the use of fish oils sustainable? *CMAJ*2009; 180:633-637.

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