

Mercury in Seafood: Facts and Discrepancies

A disparity exists between what we read in the popular press and what researchers are discovering about the value of eating seafood.

Confusion stems mainly from two questions: "What levels of methylmercury (MeHg) exposure may cause demonstrable harmful effects for humans, especially the fetus?" and "When do potential risks of MeHg in seafood outweigh the well-documented benefits of seafood consumption?"

Two major epidemiological studies followed more than 500 families in the Faroe and Seychelles Islands over an extended period. They measured maternal MeHg levels and conducted extensive cognitive testing on the offspring. The Faroe study showed some negative effects of MeHg, while the Seychelles study found no detrimental effects.

Critics of the Faroe study point out that the main source of MeHg is pilot whale meat and blubber, which contains high levels of MeHg and organochlorides and only low levels of selenium, which counters the toxic effects of MeHg, whereas in the Seychelles, people consume 12 servings of fish/week and do not eat whale or sea mammals. Critics of the Seychelles study say that the cognitive endpoints tested (more than 40 globally accepted tests) were not sensitive enough to pick up nuances of MeHg toxicity. Therefore, the jury is still out on whether

there are low-level toxic effects from MeHg in seafood.

The Environmental Protection Agency (EPA) used the Faroe data as the basis for its reference doses for MeHg exposure, taking the position that a reference dose cannot be determined from a study (Seychelles) where the data showed no adverse effects.

Recent work shows that the benefits from seafood consumption greatly outweigh the risks. Numerous scientific publications have reported diverse health benefits of

consuming fish regularly from early childhood through old age. In contrast, there is no evidence that Americans are harmed by the small amount of seafood they consume. While the positive link between seafood consumption and reduction of coronary heart disease is well known, the role of seafood and its long-chain omega-3 polyunsaturated fatty acids (LC-PUFAs) in improving cognitive function in infants and mental health in the general population is becoming more evident.

A series of papers in the November 2005 issue of the *American Journal of Preventive Medicine* compared the consequences of reducing seafood consumption with the perceived benefits of avoiding hypothetical risks and found that there are so many beneficial compounds

in seafood that it would be detrimental to human health to reduce consumption levels.

Unfortunately, the message about health benefits from eating seafood was lost in the 2004 EPA/Food and Drug Administration advisory for women of child-bearing age (www.cfsan.fda.gov/~dms/admehg3b.html). Americans are risk-adverse in their food habits, and the media focused on hypothetical risks and the warnings in the advisory, such as avoiding certain species of fish (shark, swordfish, tilefish, and King mackerel).

health-care professionals.

Articles such as "Mercury in Tuna" in the July 2006 issue of *Consumer Reports* cause further confusion among consumers. The article claimed that their (anonymous) "fish-safety experts" found that even light tuna might prove risky to pregnant women and the fetus. They called on pregnant women to "avoid canned tuna entirely," needlessly scaring women away from one of the best sources of health-promoting LC-PUFAs in the diet. This type of non-scientific analysis and advice,

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The advisory urges women of child-bearing age to eat 12 oz of a variety of low-MeHg fish/week because of the health benefits. Because canned albacore (white) tuna has higher levels of MeHg than canned light tuna, the advisory recommends consuming only 6 oz of albacore/week, but up to 12 oz of light tuna/week. Considering that Americans are currently eating only 5 oz of fish/week, the advisory is actually recommending that this targeted group of consumers more than double their seafood consumption.

However, the advisory may be having the opposite effect. After FDA issued a similar advisory in 2001, one study showed a 17% decrease in seafood consumption among pregnant women. The wrong message was getting out, even among

while generating headlines, only enhances fear and mistrust among consumers and does a disservice to society as a whole.

The National Academy of Sciences will soon issue its expert-panel review on seafood consumption and its risks and benefits. In the meantime, I take heart in the words of Susan Carlson of the University of Kansas Medical Center, who, when recently asked at a forum on seafood consumption what she would recommend to her pregnant daughter, said, "I would tell her to follow the EPA/FDA Advisory and be sure to eat a variety of fish twice a week, and enjoy a healthy pregnancy." **FT**

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