



Issue Brief

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Can Eating Fish Be Dangerous? The Facts about Methylmercury

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What is methylmercury?

Mercury is a mineral that exists naturally in the environment. In addition, thousands of tons are released into the air each year through pollution and waste. Bacteria and natural processes can transform mercury into the organic mercury compound methylmercury (MeHg), which is a poisonous substance.

Unfortunately, this toxin is in the fish we eat. Methylmercury can accumulate in streams and oceans. It also accumulates in the food chain, as each fish absorbs all the mercury of the smaller fish or organisms it has eaten. That is why the oldest and largest fish, such as shark or swordfish, have the highest levels. Methylmercury levels are higher in people who regularly eat fish.

Who is at risk?

No one is immune to the potential dangers of high levels of mercury accumulated in their body tissues. The Centers for Disease Control and Prevention (CDC) reports that people most sensitive to mercury are pregnant and nursing women, children under the age of six (especially up to the age of three), people with impaired kidney function, and those with very sensitive immune responses to metals.

Methylmercury easily crosses the placenta

and accumulates in the blood and tissues of the developing fetus. It can be passed to newborns through breast milk, and a baby's growing brain and nervous system are even more sensitive to this toxin than an adult's. Children remain particularly vulnerable for at least several years because, compared to adults, they eat more food relative to their body size.

According to a 2005 EPA study, women living in US coastal communities - and presumably eating more fish than inland residents do - had higher average blood levels of methylmercury. Women living on the Atlantic coast had the highest average levels, followed by women on the Pacific and then women on the Gulf coasts. Many had methylmercury levels that the EPA considers unsafe for adults.

Which fish are harmful? There is limited information about methylmercury in fish because there is no national or statewide system in place to monitor amounts. Most states, Native American tribes, and U.S. territories issue advisories that warn people when they are aware of methylmercury contamination. The advisories indicate what types, size, and amounts of fish are of concern. Pollution can result in high mercury levels in fish. Otherwise, methylmercury levels for many fish are

relatively low, ranging from less than 0.01 part per million (ppm) to 0.5 ppm.

A few fish are so high in methylmercury that they should be totally avoided by pregnant or nursing women, young children, and other at-risk populations. (Please see chart below.) In March 2004, the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) issued a joint Consumer Advisory warning about methylmercury in fish. The advisory continues a previous warning against four particular species of fish and for the first time includes a specific warning about the consumption of tuna.

The advisory recommends that women who might become pregnant, who are pregnant or nursing, and young children:

- Avoid eating shark, swordfish, king mackerel, and tilefish (also known as golden bass or golden snapper);
- Limit consumption of all other types of fish to 12 ounces per week;
- Limit their consumption of canned albacore ("white") tuna or fresh tuna to no more than 6 ounces per week;
- Limit the fish eaten by young children to even smaller portions per week (no specific advice is given);
- Check local advisories about the safety of fish caught in local lakes, rivers, and coastal areas. If no advice is available, eat no more than 6 ounces per week of locally caught fish, and do not consume any other fish during that week;
- If more than the recommended amount of fish is eaten in one week, eat less in the following weeks.

The previous advice given by the EPA was more cautious, but they compromised with the FDA's less cautious approach. In the past, the EPA calculated safe levels of

methylmercury based on individual body weight. Based on that previous standard, 6 oz of canned albacore tuna or fresh tuna per week could expose a pregnant or nursing woman to too much mercury, especially if she also ate other fish. Many experts and consumer groups recommend caution by using the earlier EPA standards instead of the current advisory.

Tuna: A cause for concern

Levels of methylmercury in tuna are lower than in the four fish on the "do not eat" list but higher than many other fish. Since Americans eat so much tuna the risk could be greater. There are two types of canned tuna generally found in the U.S. market - albacore white and "light". Fresh tuna and canned albacore white tuna are 3 times as high in methylmercury as canned light tuna, which comes from smaller fish. The amount of mercury in canned tuna varies from can to can, with canned albacore white tuna sometimes exceeding the danger zone of 1 part per million.

While tuna is high in omega 3 acids, low in saturated fat and high in protein and vitamin E, and can therefore be a part of a healthy diet, we recommend that women who may become pregnant, pregnant women, and nursing mothers avoid fresh tuna and canned albacore white tuna and eat no more than one 6 oz. can of light tuna per week. (For most women, that would be two or three tuna salad sandwiches, depending on what the tuna salad contains.) If a woman in these high-risk categories does eat tuna steak, tuna sushi or canned albacore white tuna, we recommend that she reduce her consumption of fish over the next weeks to reduce her mercury intake. We recommend that young children consume no fresh or canned albacore tuna and less than 6 oz. per week of canned light tuna or other fish with

moderate mercury levels. It is possible that eating more could result in neurological damage to children.

The risks

The effects of methylmercury toxicity include paraesthesia (a pricking, tingling or creeping sensation on the skin), depression, and blurred vision. Research also suggests neurobehavioral effects on fetuses and developing infants, including attention span, language, visual-spatial skills, memory, and coordination. The National Academy of Sciences estimates that nearly 60,000 children each year are born at risk for neurological problems due to

methylmercury exposure in the womb.

Unless there is an advisory about fish in your area, the FDA and EPA have not expressed concern about methylmercury exposure from fish consumption for men or for women who are beyond reproductive age. However, people with impaired kidney function, and those with very sensitive immune responses to metals should avoid mercury. It makes sense to consider moderation for anyone who likes to eat the fish that are higher in mercury. See the charts below for a summary of the risks of specific types of fish.

Fish to be avoided by women who are/may be pregnant or nursing, and young children:

- Shark
- Swordfish
- King Mackerel
- Tilefish (a.k.a. Golden Bass,
- Golden Snapper)

Lower in mercury but still to be avoided:

- Tuna Steak (also used in sushi and sashimi)
- Canned Albacore White Tuna

Fish to be eaten in limited quantities by women who are/may be pregnant or nursing, and young children:

- Canned Light Tuna
- Sea Bass
- Gulf Coast Oysters
- Eastern Oyster
- Marlin
- Halibut
- Channel Catfish (Wild)
- Haddock
- Mahi Mahi
- Largemouth Bass
- Blue Mussel
- Cod
- Pollack
- Gulf Coast Blue Crab

- Pike
- Great Lakes Salmon
- Lake Whitefish
- White Croaker
- Walleye

Fish lowest in methylmercury:

- Catfish (Farmed)
- King Crab
- Scallops
- Fish Sticks
- Flounder (Summer)
- Trout (Farmed)
- Salmon (Wild Pacific)
- Shrimp
- Tilapia
- Sardines

REMEMBER!

Women who may become pregnant, and pregnant and nursing women should eat no more than 12 oz of fish per week, and young children should eat less than 6 oz, regardless of the type of fish. (This does not include fish in the 'to be avoided' category.)