



Mercury in Fish and Your Health

Q: How can I be exposed to mercury by eating fish?

A: The mercury in fish described here is methylmercury. It is not the same type of mercury found in some thermometers or in dental fillings.

- Mercury is a naturally occurring element in the environment and also is released into the air through industrial pollution.
- Mercury that falls from the air can accumulate in streams and oceans. Bacteria in the water cause chemical changes that **transform mercury into methylmercury**. Fish absorb the methylmercury as they feed in these waters.
- Methylmercury builds up in the tissue of fish. Methylmercury builds up more in some fish than others, depending on what they eat, how long they live and how high up the food chain they are.
- Because mercury is tightly bound to the fish muscle tissue, there is no method of cooking or preparation that will remove or reduce mercury once it is in fish.

Q: What is the health risk of eating fish with methylmercury?

A: Methylmercury in fish can affect your health if you eat excessive amounts of fish over time. While methylmercury can affect several organs in the body, the major target is the central nervous system. Research suggests the cardiovascular system also may be an important target for methylmercury toxicity at low exposure levels.

**Don't stop eating fish!!!
Fish are an excellent source of high-quality protein and omega-3 fatty acids, and are low in saturated fat.**

Unborn babies and young children especially are sensitive while their brains are growing.

Pregnant women can pass methylmercury to their babies through the placenta.

Infants and young children also are at high risk from methylmercury-contaminated fish and possibly contaminated breast milk.

If a pregnant woman eats large amounts of fish contaminated with methylmercury, her unborn child may develop damage to vision, hearing, taste, smell, memory and mental ability. Children and unborn babies may suffer permanent damage from mercury poisoning. Increased blood pressure in children exposed prenatally to methylmercury has also been reported. These effects can be seen even when the exposed mother exhibits no symptoms of mercury poisoning.

Methylmercury exposure prior to pregnancy is as critical as exposure during pregnancy because it persists in the body and is slowly excreted from the body. Therefore, women of child bearing age, pregnant women and nursing mothers are the most important members of the population in terms of methylmercury exposure.

Methylmercury also can harm older children, adult men, and older women, but this requires larger amounts. Usually, the harmful effects can be corrected if a person stops eating fish that contain high levels of mercury. The mature nervous system can be permanently affected by methylmercury, causing various symptoms that often do not show up until months after exposure. The severity of effects increases with increased exposure. Effects of low-to-moderate mercury exposure include paresthesias (abnormal sensations such as tingling and numbness of toes, fingers, mouth and lips); ataxia (stumbling); generalized weakness; decreased vision and hearing; muscle spasms; and tremors. Cardiovascular system also may be an important target for methylmercury toxicity at low exposure levels.

Q: Why is it important to eat fish?

A: Fish contains beneficial nutrients called “omega-3 fatty acids” that are good for the heart and support brain development.

A well-balanced diet that includes a variety of fish and shellfish can contribute to heart health and children’s proper growth and development. So women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.

Q: How can I eat fish safely to get the benefits?

A: You still can get the benefits of eating fish by using moderation in how much you eat and by varying the type of fish you eat.

Most commercial fish have relatively low amounts of methylmercury and can be eaten safely in moderate amounts.

Several types of fish such as large, predatory, long-lived fish have high levels of methylmercury, and could cause overly high exposure to methylmercury if eaten often.

Smaller fish of a species will usually have lower chemical levels than larger fish in the same location because some of the chemicals may become more concentrated in larger, older fish.

Additional information can be found

at <http://www.cdphe.state.co.us/HM/mercury/envhealthissues.htm>

<http://www.epa.gov/waterscience/fish/advice/factsheet.html#general>

<http://www.epa.gov/waterscience/fish/advisories/index.html> (for national fish advisories)

Eat smaller amounts of several different types of fish rather than a large amount of one type that may be high in contaminants.

Q: If I am pregnant or have young children, how do I know which fish are good for us to eat?

A: The Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) are advising women who may become pregnant, pregnant women, nursing mothers and young children to avoid some types of fish and to eat fish and shellfish that are lower in mercury.

- *Do not eat fish that are high in mercury:* shark, swordfish, king mackerel or tilefish.
- Eat up to 12 ounces (two average meals) a week of a variety of fish and shellfish that are lower in mercury.
- *Eat fish that are low in mercury:* Four of the most commonly eaten fish are shrimp, salmon, pollock and catfish. (See Attachment 1 for details.)

- *Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don't consume any other fish during that week.*

Q: So how much tuna can I eat?

A: Fresh and frozen tuna have higher levels of mercury than other fish. In addition, canned tuna, especially albacore or white tuna, may be high in mercury. Because tuna steak generally contains higher levels of mercury than canned light tuna, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of tuna steak per week and avoid eating more fish during that week. You may eat up to 6 ounces (one average meal) of albacore tuna per week. **As a precaution, women who may become pregnant, pregnant women, nursing mothers and young children should avoid eating tuna.**

Q: What about fish sticks and fast food sandwiches?

A: Fish sticks and fast-food sandwiches commonly are made from fish that are low in mercury.

Q: Is there methylmercury in all fish?

A: Nearly all fish contain traces of methylmercury. However, larger fish that have lived longer have the highest levels of methylmercury, because they've had more time to accumulate it. These large fish (swordfish, shark, king mackerel and tilefish) pose the greatest risk to pregnant women. Other types of fish are safe to eat in the amounts recommended by FDA and EPA.

If you want more information about the levels in various types of fish, see Attachment 1, the FDA food safety website or the EPA website at www.cfsan.fda.gov or www.epa.gov/ost/fish.

Q: I'm not pregnant, so why should I be concerned about methylmercury?

A: If you regularly eat types of fish that are high in methylmercury, it can accumulate in your blood stream over time. Methylmercury is removed from the body naturally, but it may take more than a year for the levels to drop significantly. Thus, it may be present in a woman even before she becomes pregnant. This is one of the reasons why women who are trying to become pregnant should avoid eating certain types of fish.

Q: What about the fish caught by my family or friends in freshwater lakes and streams? Are they safe to eat?

A: There can be a risk of contamination in fresh water from either natural or industrial causes that would make the fish unsafe to eat. The Environmental Protection Agency provides current advice on fish consumption from freshwater lakes and streams. Also check with your state or local health department to see if there are special advisories on fish caught from waters in your local area.

The Colorado Department of Public Health and Environment has listed fish advisories for specific lakes and rivers at the following website:

<http://www.cdphe.state.co.us/wq/FishCon/Analyses/>

Q: What meal sizes should I use?

A: Keep in mind that for adults, one meal is 6 ounces of cooked fish or 8 ounces uncooked fish; for a young child, one meal is 2 ounces cooked fish or 3 ounces uncooked fish.

You can adjust meal sizes for uncooked fish as provided in examples below:

Adult: 176 lbs (80 kg) = 9 oz; 154 lbs (70 kg) = 8 oz; 132 lbs (60 kg) = 6.6 oz

Additional information can be found at the following websites:

<http://www.cdphe.state.co.us/wq/FishCon/Analyses/>

<http://www.epa.gov/waterscience/fish/files/MethylmercuryBrochure.pdf>

<http://www.cfsan.fda.gov/~dms/admehg3.html>

<http://www.epa.gov/ost/fishadvice/advice.html>

Attachment-1

**Fish Types per Food and Drug Administration (FDA) Guidance
(at <http://www.cfsan.fda.gov/~frf/sea-mehg.html>)**

Fish With Highest Levels of Mercury (DO NOT EAT)

| | | | |
|---------------|-----------|-------------------------------|-------|
| MACKEREL KING | SWORDFISH | TILE FISH (Gulf Of Mexico) | SHARK |
|---------------|-----------|-------------------------------|-------|

Fish With Lower Levels of Mercury — It is safe to eat two servings of 6 ounce each per week but REMEMBER to check local and state fish advisories.)

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|---------------|-----------------------------------|------------------------------|----------------------------|--------|-------------------|
| ANCHOVIES | BUTTERFISH | CATFISH | CLAM | COD | CRAB ¹ |
| CRAWFISH | CROAKER ATLANTIC (Atlantic) | FLATFISH ² | HADDOCK (Atlantic) | HAKE | HERRING |
| JACKSMELT | MACKEREL CHUB (Pacific) | LOBSTER (Spiny) | MULLET | OYSTER | WHITEFISH |
| POLLOCK | MACKEREL ATLANTIC (N.Atlantic) | SALMON (CANNED) | SARDINE | SQUID | WHITING |
| SCALLOP | PERCH OCEAN | SALMON (FRESH/FROZE N) | TUNA (CANNED, LIGHT) | SHRIMP | TILAPIA |
| SHAD AMERICAN | TROUT (FRESH WATER) | | | | |

¹ Includes: blue, king, snow

² Includes: flounder, plaice, sole

Fish with Medium Levels of Mercury

The FDA does not provide a list of fish with medium levels of mercury. However, the FDA provides additional information on levels of mercury in other fish species, which is available at <http://www.cfsan.fda.gov/~frf/sea-mehg.html>.

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