

Methylmercury in Fish

This sheet is about exposure to methylmercury in pregnancy and while breastfeeding. This information is based on available published literature. It should not take the place of medical care and advice from your healthcare providers.

What is methylmercury?

Methylmercury is an organic form of mercury. Methylmercury is found in water, soil, plants, and animals. Methylmercury is different from elemental mercury, the type of mercury found in thermometers and some dental amalgams (tooth fillings). It is also different from inorganic mercury, which can be found in some industrial/occupational settings.

Where does methylmercury come from?

Methylmercury is made from mercury. Mercury gets into the air from natural sources, like volcanic eruptions and forest fires, and man-made sources, like coal-fired power plants. When mercury from the air enters bodies of water (oceans, lakes, rivers, streams) the mercury is changed into methylmercury.

How can I be exposed to methylmercury?

People can be exposed to methylmercury in many ways. Most methylmercury exposure comes from eating fish, shellfish, and marine animals. These animals absorb methylmercury from the water through their gills and from the food they eat. Almost all fish contain some methylmercury. Methylmercury in small amounts is not likely to be harmful. However, high exposure can be toxic to humans.

Do some fish have more methylmercury than others? Are there fish that I should avoid eating?

Eating fish is an important part of a healthy diet and is a good food choice for pregnancy. However, the U.S. Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA) advise anyone who could become pregnant, anyone already pregnant, those who are nursing, and children under the age of 6 years to avoid eating fish with high levels of methylmercury.

Fish that are more likely to have high levels of methylmercury are large fish, fish that have long lifespans, and fish that eat other fish. The list below has the highest levels of methylmercury and should be avoided during pregnancy and breastfeeding:

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- bigeye tuna,
 - shark,
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- king mackerel,
 - swordfish,
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- marlin,
 - tilefish from the Gulf of Mexico,
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- orange roughy,
 - whale meat and whale blubber (fat).
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If I am planning a pregnancy or I am already pregnant, what kind of fish can I eat, and how much?

Anyone who is pregnant or could become pregnant are advised to follow the FDA and EPA guidelines for fish consumption. The FDA and EPA have created a chart that categorize fish as “Best Choices,” “Good Choices,” and “Choices to Avoid” which can be found here: <https://www.fda.gov/food/consumers/advice-about-eating-fish>.

A typical serving of fish is 4 ounces, weighed before cooking. The FDA & EPA suggest eating up to 12 ounces (340 grams) of fish a week for people who could become pregnant or who are currently pregnant. This would equal 2 to 3 servings from their list of fish that fall under their “Best Choices” category, or 1 serving per week from the “Good Choices” category.

There are different types (species) of tuna. So you will find different varieties of tuna listed for each category of choices. Canned light tuna (including skipjack) is listed under “Best Choices.” Albacore (white) tuna and yellowfin tuna can have higher mercury levels and are under “Good Choices.”

Can I eat fish caught by family and friends from local waters?

Freshwater fish caught from local waters may contain high levels of methylmercury or other local pollutants and might not be safe to eat. The EPA and state and local health departments monitor freshwater lakes and streams. Check with your local agency to see if the fish is safe to eat. If you eat fish caught by family or friends, check for fish advisories, which can be found here: <https://fishadvisoryonline.epa.gov/Contacts.aspx>. If there is no advisory, the recommendation is to eat only 1 serving and no other fish that week.

Are there tests that can tell if I have high levels of methylmercury in my body?

Blood and hair can be tested to determine exposure to methylmercury. Blood tests are good for detecting methylmercury right after exposure occurs. Hair testing might be able to detect ongoing (chronic) mercury exposure. However, these tests can be hard to interpret. A urine test may not be as helpful in testing for methylmercury. Discuss your exposure concerns with your healthcare providers to determine if testing would be appropriate for you and what type of testing is recommended. There is no standard recommendation to screen for methylmercury levels before or during pregnancy.

I was exposed to methylmercury. Can this make it harder for me to become pregnant?

Some studies have suggested that mercury exposure might increase fertility problems. One study found blood levels of mercury were higher among females with infertility than among females without infertility.

Does exposure to methylmercury increase the chance for miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. It is not clear if exposure to methylmercury increases the chance for miscarriage as this has not been well studied. However, 1 study that measured blood levels of mercury did not find a higher chance for miscarriage.

Does exposure to methylmercury increase the chance of birth defects?

Birth defects can happen in any pregnancy for different reasons. Out of all babies born each year, about 3 out of 100 (3%) will have a birth defect.

Methylmercury at high levels can affect a developing baby. Methylmercury crosses the placenta and can be found in the baby’s blood at levels higher than those in the person who is pregnant. The baby’s brain is the most sensitive organ to the effects of methylmercury exposure. The brain continues to develop throughout the entire pregnancy, so high exposure at any time in the pregnancy can be concerning.

The effects of methylmercury on human pregnancy have been documented by several events that occurred many years ago in Japan and Iraq. Children were born with birth defects following the contamination of the food supply by methylmercury. These were extreme situations where a number of adults also became sick and died from the contamination. The birth defects reported were small head size, brain damage, developmental delay, intellectual disability, blindness, muscle weakness, and seizures.

Does exposure to methylmercury increase the chance of other pregnancy complications?

Some studies have suggested a chance for preterm delivery (birth before week 37) or low birth weight (weighing less than 5 pounds, 8 ounces (2500 grams) at birth). However, not all studies have reported this.

Does exposure to methylmercury in pregnancy affect future behavior or learning for the child?

Very high levels of methylmercury in the diet, as seen from contamination of food supplies, were able to affect brain development. These high levels of exposures are not typical. People in the U.S., who generally do not depend upon fish as their main source of protein are unlikely to eat enough fish to cause harmful effects in a pregnancy. A study from

another country, where people eat much more fish than is typically consumed in the U.S., reported that methylmercury from a balanced diet that includes fish is not likely to affect the development of the child from prenatal exposure. Another study found that children born to people who ate fish during pregnancy had higher IQ levels. This included persons who had somewhat increased levels of mercury; suggesting that other nutrients in fish might have had a protective effect.

One study suggested that having exposure to higher levels of mercury in pregnancy might increase the chance of children maturing to puberty at a slightly younger age (called precocious puberty). This study has several limitations, so it is not proven that prenatal exposure to mercury was really the cause.

What are the benefits of eating fish during pregnancy?

Fish can provide beneficial protein, long chain polyunsaturated fatty acids (such as omega-3 fatty acids), iodine, selenium, and vitamin D. These are all important for your health and the growth and development of a fetus. Some studies have found that people who eat fish during pregnancy have better pregnancy outcomes than those who do not eat fish, and a study found that children born to people who ate fish during pregnancy had higher IQ levels. You can maximize the benefits of fish by choosing fish with low mercury levels.

Are there concerns about eating raw fish during pregnancy?

People who are pregnant should not eat raw fish, such as that found in sushi and sashimi. This is because raw fish can contain bacteria or parasites that could cause serious illness. Please see our fact sheet on eating meats and seafood at <https://mothertobaby.org/fact-sheets/eating-raw-undercooked-or-cold-meats-and-seafood/> for more information. Cooking fish can reduce the risk of illness from bacteria and pathogens, but cooking fish does not reduce the levels of methylmercury in the fish.

What if I ate more than the recommended amount of fish in a week during my pregnancy?

Food eaten in 1 week probably would not greatly change the level of methylmercury in your body. Accidentally eating fish from the "Choices to Avoid" section 1 time, or eating more than the recommended amount of fish during 1 week, is unlikely to increase the chance for birth defects or pregnancy complications. If you ate a lot of fish 1 week, you can limit your fish consumption for the next week or so.

What if I am breastfeeding my baby?

Follow the same FDA & EPA guidelines described above. When the dietary guidelines are followed, the level of methylmercury is considered compatible with breastfeeding. Very few studies have been done to evaluate breastfed infants exposed to high levels of methylmercury in breast milk; and the results are not clear. If tests during pregnancy or after delivery show high levels of methylmercury in your system, then you should discuss the safety of breastfeeding with your healthcare provider. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a male is exposed to methylmercury, can it affect fertility or increase the chance of birth defects?

Some studies have suggested that high levels of mercury might cause infertility (make it harder to get a partner pregnant) while other studies have not. There is no information suggesting that a father's exposure to methylmercury can cause birth defects or learning difficulties in their children. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/>.

Please click here for references

For additional reading on eating fish during pregnancy, you may also be interested in reading the MotherToBaby baby blog on this topic: [Eating Fish during Pregnancy: What's the Current Hook, Line, and Sinker?](#)

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

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