

Mercury in fish

Mercury is a naturally occurring element that is found in air, water and food. Most people are exposed to mercury via food. Fish take up mercury from streams and oceans as they feed. This mercury is in the more toxic, methylmercury form. It binds to a person's tissue proteins (such as muscle). Food processing, preparation and cooking techniques don't significantly reduce the amount of mercury in fish.

Pregnant women - or, rather, their unborn babies - are at the greatest risk. Babies developing in the uterus (womb) seem to be most vulnerable to the effects of mercury on their nervous systems. The mercury may slow their development in the early years. Research is ongoing, but women should be selective about the kinds and amounts of fish they eat during pregnancy. Infants and young children should also be limited in the amount of fish with high levels of mercury that they eat.

Methylmercury is the most hazardous

Mercury is common in the environment and has three forms: organic, inorganic and metallic. The organic form of mercury, particularly methylmercury, is the most dangerous.

Fish absorb methylmercury

Methylmercury in fish mainly comes from mercury in ocean sediment that is transformed into methylmercury by microorganisms. This organic form of mercury is absorbed by the tissues of fish through their gills as they swim and through their digestive tracts as they feed.

Some fish contain more mercury than others

Mercury levels differ from one species of fish to the next. This is due to factors such as the type of fish, size, location, habitat, diet and age. Fish that are predatory (eat other fish) are large and at the top of the food chain, and so tend to contain more mercury.

Fish that contain higher levels of mercury include:

- Shark
- Ray
- Swordfish
- Barramundi
- Gemfish
- Orange roughy
- Ling
- Southern bluefin tuna.

Fish with lower mercury levels

Examples of fish that contain lower levels of mercury include:

- Shellfish including prawns, lobsters and oysters
- Salmon
- Canned tuna.

Fish as part of the diet

Fish is an important part of a healthy diet. Some of the health benefits of fish include that it is:

- High in protein
- Low in saturated fat
- High in unsaturated fat
- High in omega-3 oils.

Mercury from most fish sold in Australia is not a health risk, when fish is consumed as part of a normal diet. However, for healthy adults (who are not pregnant) and older children (six years and over), fish with high levels of mercury should probably not be eaten more than once a week.

Mercury and the unborn baby

Unborn babies are at increased risk from mercury. The mercury in fish can lead to raised mercury levels in the mother. This mercury can be passed on through the placenta to her developing baby.

The fetus appears to be most sensitive to the effects of mercury during the third and fourth months of a pregnancy. The effects on the brain and nervous system may not be noticed until developmental milestones - such as walking and talking - are delayed. Memory, language and attention span may also be affected.

International researchers recommend reducing safe levels of mercury

Studies of the brain development of children whose mothers ate significant amounts of fish with high mercury levels during pregnancy have been carried out in New Zealand, the Faroe Islands and the Seychelles.

The Joint Food and Agriculture Organization (FAO) and World Health Organization (WHO) Expert Committee on Food Additives (JECFA) reviewed these studies in June 2003. These researchers recommended reducing the amount of fish known to contain mercury in the diet, particularly for pregnant women.

Australian research shows that mercury levels in some fish, particularly shark, could be even higher than in the areas studied for this research. In fact, it seems that mercury levels in some shark species caught in Victorian waters are particularly high.

Australian guidelines for safe levels of mercury in the diet

The Australian guidelines for safe levels of mercury in the diet were revised in 2004 by Food Standards Australia New Zealand (FSANZ). Advice on the consumption of fish was updated to reflect the Joint FAO and WHO Expert Committee (JECFA) research. Advice was extended to cover pregnant women, women intending to become pregnant within the next six months, young children and the general population.

Pregnant women should limit the amount of fish they eat

It is suggested that pregnant women eat 2–3 serves of fish every week for the good health of themselves and their developing baby. However, pregnant women or women intending to become pregnant within the next six months should be careful about which fish they eat. Some types of fish contain high levels of mercury, which can be harmful to the developing fetus.

Pregnant women should:

- **Limit to one serve (150g) per fortnight** – billfish (swordfish, broadbill and marlin) and shark (flake), with no other fish eaten in that fortnight.
- **Limit to one serve (150g) per week** – orange roughy (deep sea perch) or catfish, with no other fish eaten that week.
- **Eat 2–3 serves per week** – of any other fish or seafood (for example, salmon or tuna).

Note: 150g is equivalent to approximately two frozen crumbed fish portions.

Women should not be worried if they've had the odd meal of fish with high levels of mercury. It is only a potential problem when that type of fish is eaten regularly, which causes a build-up of mercury in the mother's blood.

Mercury and breastfeeding

Methylmercury from fish eaten by women during pregnancy seems to only pose a health threat to the baby while it is in the womb. Once the baby is born, the levels of mercury in the mother's milk are not high enough to be a risk to the infant.

Infants and children

Parents and carers of infants and young children (up to six years of age) are advised to:

- **Limit their child to one serve (75g) per fortnight** – billfish (swordfish, broadbill and marlin) and shark (flake), with no other fish eaten in that fortnight.
- **Limit their child to one serve (75g) per week** – orange roughy (deep sea perch) or catfish, with no other fish eaten that week.
- **Encourage their child to eat 2–3 serves per week** – of any other fish or seafood (for example, salmon or tuna).

Note: 75g is approximately three fish fingers.

Our body does clear out the mercury

It's important to remember that the body can and does get rid of mercury over time. So people only go over the safe levels if they eat a lot of high mercury-containing fish regularly over many months.

Where to get help

- Your doctor
- An Accredited Practising Dietitian, contact the Dietitians Association of Australia
- For further information contact Food Standards Australia New Zealand on Tel. (02) 6271 2222, email: info@foodstandards.gov.au or visit the website

Things to remember

- Fish that contain high levels of mercury include shark, orange roughy, swordfish and ling.
- Mercury is a naturally occurring element that is found in air, water and food.
- The unborn baby is most sensitive to the effects of mercury, particularly during the third and fourth months of gestation.
- Pregnant women, women planning a pregnancy and young children (up to six years) should avoid consumption of fish that contain high levels of mercury.

This page has been produced in consultation with, and approved by:

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