sydney health & fertility

Mercury in Fish – information sheet

The information contained in this information flyer has been collated from fact sheets developed by the New Zealand Food and Drug Administration (NZFDA), Canadian Food Inspection Agency (CFIA) and the World Health Organisation (WHO). It also contains information collected from a number of research papers.

Introduction

The purpose of this statement is to provide information on the mercury content of certain types of fish and to advise couples planning to conceive, and pregnant women, on the amount and types of fish they can safely consume during pregnancy and breastfeeding. This advice is subject to ongoing research. It is not intended to discourage consumption of fish, rather provide recommendations on amounts of certain fish that can safely be consumed.

Benefits from eating fish

There are numerous nutritional benefits to be gained from regularly eating fish. Fish is an excellent source of protein, is low in saturated fat and is high in healthy omega 3 oils. The Heart Foundation recommends consuming fish 2x a week to gain cardio-vascular health benefits.

Mercury in fish

We are exposed to mercury through air, water, the food supply and dental amalgum fillings. For most individuals, fish and seafood is the principal source of exposure to mercury. The level of mercury varies in different fish species because each have different habitats and feeding patterns. Fish such as shark/flake, ray, swordfish, barramundi, gemfish, orange roughy, ling, and southern bluefin tuna tend to accumulate higher levels of mercury because they are large, live longer and are at the top of the food chain. Freshwater fish in geothermal lakes and rivers in New Zealand may also accumulate higher levels of mercury. Canned tuna has lower levels of mercury than fresh bluefin tuna because the tuna used for canning is a different, smaller species & is generally caught when less than 1 year old.

Concerns regarding mercury

Mercury can be harmful to the nervous and reproductive systems. It has been shown that higher blood mercury levels are associated with male and female infertility. Research indicates foetuses may be more sensitive than adults to the effects of mercury from food consumption. These effects are generally not apparent until after the baby is born and typically manifest as delays in the achievement of developmental milestones, for example, delayed onset of walking, talking, decreased attention, learning and memory. The level of mercury exposure producing these effects does not appear to produce any harmful effects in the mother. Studies on the possible effects of mercury on unborn children are still on-going and until they are completed, caution regarding excessive consumption of mercury-containing foods during pregnancy & breastfeeding is warranted. Regulations are already in place that set the maximum level of mercury that can be present in fish that is sold. These limits ensure that the vast majority of people in the community are not exposed to excessive amounts, however cumulation of this toxic element over time is possible.

Advice for couples and pregnant women

There are numerous nutritional benefits to be gained from regularly eating fish but given the ongoing and unresolved concerns regarding mercury exposure, it is recommended that consumers should limit their consumption of –

• barramundi	• pike
• billfish (marlin, swordfish, broadbill)	• ray
• catfish (bassa)	• seabass
• gemfish	• shark (flake)
• king mackerel	• southern bluefin tuna
• ling	• tilefish
• mahi mahi	• walleye and white croaker
• orange roughy	• fish caught in geothermal waters

to 1 – 2 portions per fortnight (an average portion is about 150 g or 75g for children under 6yo) AND NO OTHER FISH THAT FORTNIGHT.

For children under 6 and for pregnant or breastfeeding women, the limit of these fish is one meal per month. Other fish, including canned fish, can be consumed 3 times/week. Where possible, choose to eat a variety of fish (eg. alternate tinned salmon, tuna and sardines).

Another concern – pollutant chemicals

The terms "dioxins and furans" are used to refer to a group of polychlorinated substances which are highly persistent in the environment. Seventeen members of this group have been studied extensively and are considered "toxic". PCBs are also persistent pollutants, some of which resemble the chemical structure of "dioxin-like" compounds. PCBs differ from dioxins and furans in that they are manufactured for transformers, insulators, capacitors etc., while dioxins and furans are produced unintentionally, as unwanted by-products from various industrial processes and from natural events like forest fires and volcanic eruptions.

These chemicals have been detected throughout the food chain in varying levels. The higher levels have been found in animal products, since the chemicals tend to accumulate in fatty tissue. Fish and shellfish appear to be the worst affected, followed by farmed red meat, chicken, eggs and dairy products. Unfortunately, these chemicals have also been found in animal feed and so there is growing concern regarding the levels in farmed animals versus wild animals. Relatively high concentrations of dioxins, furans and PCBs have been detected in farmed Scottish salmon. The results indicate that high consumption of salmon, particularly by children under 5 years, could lead to intakes above the tolerable daily intake (TDI) and tolerable weekly intake (TWI) for these chemicals. (Jacobs M, Ferrario J, Byrne C. Chemosphere 2002;47(2):183-91)

Another study confirms previous reports of relatively high concentrations of PCBs and moderate concentrations of organochlorine pesticides and PBDEs in farmed Scottish and European salmon. Comparison of the samples for all groups of contaminants showed an increase in concentration in the order fish oil < feed < salmon. (Jacobs MN, Covaci A, Schepens P. Environ Sci Technol. 2002;36(13):2797-805)

Based on this information, it is best advised to consume organic animal products and chose wild fish whenever possible.

Australia is currently implementing a National Dioxins Program to measure and reduce dioxins in the environment and hence in the food supply. Food Standards Australia New Zealand (FSANZ) is continuing to monitor emerging data on dioxins in our food supply & is maintaining close contact with other countries' food regulatory authorities on this issue.

FAQ's about mercury in Fish

1. Are canned fish a higher risk than fresh fish?

No. The mercury content of fish is not affected by processing techniques such as canning or freezing. In fact, canned tuna has lower levels of mercury than southern bluefin tuna because the tuna used for canning is a different, smaller species and is generally caught when less than 1 year old. However, tinner salmon is an even better option.

2. Does cooking affect the level of mercury?

No, cooking does not change the amount of mercury present in fish or shellfish.

3. Should I be concerned about breast-feeding my baby if I eat a lot of fish?

Yes and No. The critical period of mercury exposure for your baby is while it is still developing in the womb. By restricting your consumption of certain types of fish before conceiving you can limit exposure to the foetus. Once the baby is born, the risk is much lower since less is transferred to the breast milk, however it is best to continue to avoid those fish high in mercury.

4. Why do some fish have higher levels of mercury?

The species and age of the fish is the main determining factor for mercury levels. The fish which are more likely to contain high levels of mercury tend to be longer living, larger, and at the top of the food chain. The amount of mercury in the environment also affects the levels in the fish, for example, freshwater fish in geothermal waters tend to accumulate higher levels of mercury.

5. What about fish oil products?

Fish oil products and supplements are generally not a major source of dietary mercury due to rigorous testing procedures. It is best to follow the advice of your healthcare practitioner.

6. Are shellfish a concern?

Shellfish (including prawns, lobsters, oysters, and crabs) generally contain low levels of mercury. Unfortunately they may be sources of other contaminants, namely pollutants from industrial outflow. DO NOT consume fish or shellfish that has been caught in the Sydney Harbour.

7. Are there foods or nutrients I can ingest that can protect me from mercury I consume in fish?

There are a number of 'antagonistic' nutrients that help prevent the body accumulating mercury and aid in its elimination. Mercury levels tend to halve in the blood stream over 4-6 months if your elimination/detoxification processes are effective.

Nutrients: Selenium, Iron, Zinc, Vitamin C, Methionine, Cysteine, N-Acetyl-cysteine, Lipoic acid, Sulfur.

Foods: Asparagus, cabbage family vegetables, eggs, legumes, coriander, garlic and onion family vegetables, seaweed, spirulina, chlorella, tropical fruits (especially if eaten in same meal).

8. Which fish are low in mercury?

Blue Mackerel, Herring, John Dory, Ocean trout, Salmon, Sardines, Silver Trevally, Silver Warehou - (all also high in omega 3 fatty acids). Also, Anchovy, Blue eye cod, Bream, Flathead, Garfish, Mullet, Snapper, Whiting.