SEAFOOD SERVICES AUSTRALIA

Facts About *Mercury in Fish*

THE FACTS

- There has never been a documented case of mercury poisoning from fish in Australia
- The proven health benefits associated with increased consumption of the nutrients in fish including omega 3 fatty acids are well documented[1].
- Eat a range of different seafood species. We all have our favorite seafood dishes but, by confining ourselves to one species, we are missing out on the diverse range of flavour sensations.
- Most fish that we consume in Australia contain undetectably low levels of mercury.
- Food Standards Australia New Zealand (FSANZ) have developed a fact sheet in which they have identified a number of predatory fish which could potentially contain higher levels of mercury [2].
- On average, Australians consume only one seafood meal per week[3] therefore the risk of mercury poisoning from fish is extremely low.
- FSANZ recommends that pregnant women or women considering pregnancy should limit their consumption of predatory fish to four portions per week.
- FSANZ has established limits for mercury in fish and crustacean to safeguard consumers
- Recent research in the Seychelles, where fish consumption is 12 times higher than in Australia, concluded that seafood consumption by pregnant women is safe.
- The SSA website contains a wide range of publications that may be of interest[4].

Is there a risk?

The short answer is “not really”.

Australians are not big fish consumers in general and certainly do not consume large amounts of the potentially higher risk species. The proven health benefits from increased seafood consumption are well documented and we should be listening to the message.

Anecdotal evidence suggests that there are no risks from eating much higher levels of seafood than Australians typically eat. Pacific islanders, who consume at least five times more fish than Australians, have not experienced any adverse effects due to mercury in fish[5].

For further information, call Seafood Services Australia on 1300 130 321 or send an e-mail to ssa@seafoodservices.com.au

A further study has shown that women who ate two fish meals per day of higher risk fish during pregnancy gave birth to children who, at the age of five and a half, were perfectly normal as far as learning ability, language skills, visual-spatial ability, social, and adaptive behavior and other parameters of neurological development[6].

More recent research conducted in the Republic of Seychelles, where fish consumption is up to 12 times higher than in Australia, showed no link between fish consumption by pregnant women and neurological damage in their children.

The Seychelles Child Development study tracked 643 children over a span of approximately nine years, starting when the children were just six months old.

The study found no adverse effects on the neurocognitive, language, memory, motor or behavioral functions of 643 Seychelles nine-year olds, whose mothers had consumed an average of 12 meals of ocean fish per week during pregnancy.[7]

Which fish can I eat?

For over thirty years, fish have been monitored for mercury contamination - both in Australia and overseas. These studies have shown that only a few species of fish accumulate higher levels of mercury in their system. In fact, in most species, the levels of mercury are too low to detect. Furthermore, studies have shown that over this 30 year period, the mercury levels in fish have been falling[8].

Mercury tends to accumulate in some types of fish more than others. This is the result of key factors, including age, environment, and food sources.

Predatory fish are the most likely to accumulate higher levels of mercury, These fish tend to be larger in size, longer living, and placed higher in the food chain.

Fish can be grouped as having a high or low potential to accumulate mercury. Examples are shown in Table 1[9]. An indication of safe consumption levels of fish is also given[2].

Fish with a mean mercury level of 1 mg /kg[a]	**Fish with a mean mercury level of 0.5** mg /kg
Swordfish, Ray, Certain species of shark, Ling, Gemfish, Orange roughy, Large wild caught barramundi, Large tuna	All other seafood including aquaculture species, Crustacean, Smaller size predatory fish
Pregnant women can safely consume up to 4 meals per week	**Pregnant women** can safely consume 2 meals per day
The **general population** can safely consume 1 meal per day	The **general population** can safely consume 2 -3 meals per day

Table 1- Mercury levels of common fish and safe consumption levels

[a] Note: 1mg = one milligram. 1 mg/Kg is the same as 1ppm (parts per million)

How much fish should I eat?

The FSANZ Advisory Statement for Pregnant Women[2] makes recommendations regarding the amount of fish that can be consumed. Table 1 shows the number of 150 g portions of fish that can be consumed per week before the provisional tolerable weekly intake for Mercury is exceeded.

How much fish do we actually eat?

The message is clear. If you are an average fish consumer, the risk of mercury poisoning from fish is extremely low.

Australian consumption of fish is low with an average consumption of only one fish meal per week[10,11 12]. The number of meals that can potentially contain high levels of mercury is therefore very small, as we do not eat those larger predatory fish on a regular basis.

Where does Mercury come from?

Mercury occurs naturally in soils and rocks and in rivers, waterways, lakes, and oceans in varying concentrations.

Mercury has many known uses, for example batteries, thermometers, fluorescent light bulbs, gold mining, etc. These activities have been shown to give rise to dangerous levels of exposure to both workers and the environment. Where this occurs, mercury is being replaced with more environmentally friendly technologies.

The highest levels of mercury in food are typically found in fish. Fish absorb mercury from water as it passes through their gills. Mercury then binds to fish tissue. It should be noted that current industrial processing and domestic cooking techniques do not significantly reduce the concentration of mercury in fish.

Keywords

Mercury, poisoning, fish, dose, swordfish, nutritional benefits, seafood consumption

Electronic copies of the Fact Sheet

For an electronic copy of go to http://www.seafoodservices.com.au/factsheets/ and type 'mercury' in the search function.

References and Further Reading

1 FRDC Publication 2001, "What's so healthy about seafood? A Guide for Seafood Marketers"; Fisheries Research & Development Corporation, Canberra http://bookshop.seafoodservices.com.au/miva/merchant.mv?Screen=PROD&Store_Code=ssa01&Product_Code=PU301&Category_Code=19

2 FSANZ Advisory Note, "Mercury in Fish, Advisory Statement for Pregnant Women"; http://www.foodstandards.gov.au/mediareleasespublications/factsheets/factsheets2001/mercuryinfishadvisor1415.cfm

3 FRDC Publication 2000, "Retail Sale and Consumption of Seafood"; Fisheries Research & Development Corporation, Canberra http://bookshop.seafoodservices.com.au/miva/merchant.mv?Screen=PROD&Store_Code=ssa01&Product_Code=PU212&Category_Code=19

4 Seafood Services Australia On-Line Bookshop at http://www.seafoodservices.com.au/pub/

5 Pers comm. N Ruello, Ruello & Associates

6 Tufts University Health & Nutrition Letter 1999, "Heavy Metal – Mercury in Fish may be less harmful than thought"

7 Food Chemical News Daily, May 21, 2003, 5(97)" Seychelles study suggests methylmercury in fish is not prenatal risk"

8 Firecrest Publications Pty Ltd 1997, "FINS Case Study: Mercury in Shark"; FRDC Project Report 96/383; Fisheries Research & Development Corporation, Canberra

9 Sumner J,2001,"SeaQual's Guide to Food Safety Risks in Seafood (book) and Managing Food Safety Risks in Seafood (CD), SSA Publication, http://bookshop.seafoodservices.com.au/miva/merchant.mv?Screen=PROD&Store_Code=ssa01&Product_Code=PU006&Category_Code=10

10 Ruello & Associates 1999, "A Study of the retail sale and consumption of seafood in Sydney"; FRDC Project Report 98/345; Fisheries Research & Development Corporation, Canberra

11 Ruello & Associates 2000, "A Study of seafood consumption in Perth and the development of a guide to targeted promotion"; FRDC Project Report 99/342; Fisheries Research & Development Corporation, Canberra

12 ANZFA 19th Australian Total Dietary Survey 2001 – Supplementary Information Part 1 – Table 5 – Average body weights in kilograms for each age gender category examined (1995 NNS)

13 Seafood Services Australia web site – www.seafoodservices.com.au

14 Web based Information on Mercury – Environmental Protection Agency – http://www.epa.gov/mercury/