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Agency updates advice to pregnant and breastfeeding women on eating certain fish

Monday, 17 February 2003

Ref: 2003/0330

The Food Standards Agency (FSA) is advising pregnant and breastfeeding women, and women who intend to become pregnant, to limit their consumption of tuna to no more than two medium-size cans or one fresh tuna steak per week. These women are also advised to avoid eating shark, swordfish and marlin.

This precautionary advice is to protect against the small risk to the unborn child, and breast-fed babies, from mercury in certain fish. This is because mercury can harm an unborn child's developing nervous system.

Dr Andrew Wadge, Acting Director of Food Safety at the Food Standards Agency said: 'It is unlikely that many pregnant or breastfeeding women eat more than the recommended amounts of these fish every week. But for any that currently do, it would be a sensible precaution to change their diets slightly. This will help protect the unborn child and the developing breastfed baby. When planning to have a baby and whilst pregnant or breastfeeding, women do need to take particular care of their health and that of their baby.'

This new advice on tuna does not apply to children or any other adults.

However, infants and children under 16 are still advised to avoid eating shark, swordfish and marlin. Shark, swordfish and marlin have levels of mercury approximately 5-7 times higher than that of canned tuna and 2-4 times higher than that of fresh tuna. The Agency previously published advice on this issue on 10 May 2002.

Fish remains an important part of a balanced diet. It is a good source of high quality protein and other nutrients; it is low in fat and oily fish can help prevent death from heart attack. Because of these benefits, fish is also an important part of a balanced diet for pregnant women.

A survey of fish carried out by the FSA in 2002 revealed relatively high levels of mercury in some types of large predatory fish. This current advice is being issued following an extensive review by the independent Committee on Toxicity (COT) on the possible risks.

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During this review, the COT compared levels of mercury found in fish against World Health Organization safety guidelines for weekly intake of mercury. While the COT felt this limit was adequate to protect the general population, it was concerned that it may not be sufficiently protective for the developing fetus and breast-feeding baby because of the possible effects on the central nervous system. The COT concluded that, for these groups only, a more precautionary approach was required.

The new safety guideline for pregnant and breastfeeding women and women intending to become pregnant is almost five times lower than that for the general population.

The Food Standards Agency's general advice on fish consumption is to eat two portions of fish a week, one of which should be oily, as part of a balanced and varied diet. This advice is based on findings that this level of fish consumption resulted in a significant reduction in the risk of heart attacks. On average, people in the UK eat only three-quarters of a portion of white fish and one quarter of a portion of oily fish a week.

Notes to Editors

1. This advice is based on two medium-size cans with a drained weight of 140g per can. This is comparable to six rounds of tuna sandwiches or three tuna salads per week.

2. The provisional tolerable weekly intake (PTWI) of methylmercury was set by the Joint FAO/WHO Expert Committee on Food Additives (JEFCA) at 3.3 micrograms per kilogram of bodyweight per week ($\mu\text{g}/\text{kg bw}/\text{week}$). A microgram is one millionth of a gram.

3. The limit applied by the COT of $0.7\mu\text{g}/\text{kg bw}/\text{week}$ for pregnant women, women who intend to become pregnant and breastfeeding women is the same as that of the US Environmental Protection Agency.

4. In May 2002, the Food Standards Agency published a survey of 336 fresh, frozen and processed sea fish and shellfish for methylmercury content. These included trout, salmon, tuna, halibut, hoki, seabass, lobster, mussels and prawns.

5. Almost all of the fish we eat contain trace amounts of methylmercury and it is not considered harmful to health at the levels normally detected. Mercury is released naturally into the environment by degassing from the Earth's crust and oceans. It is also released from burning household and industrial wastes. Mercury is deposited in water where chemical changes transform mercury to methylmercury, a more toxic form when eaten.

6. The mean levels of methylmercury found in the 2002 survey included:

Shark 1.52mg/kg
Swordfish 1.35mg/kg
Marlin 1.09mg/kg
Fresh tuna 0.40mg/kg

Canned tuna 0.19mg/kg

mg/kg: milligrams per kilogram; a milligram is one thousandth of a gram.

7. Previous UK surveys have not found methylmercury at levels that cause concern in the UK's most frequently consumed fish. The mean levels in these fish were:

Cod 0.066mg/kg
Haddock 0.043mg/kg
Plaice 0.056mg/kg

8. Fresh tuna is an oily fish, but canned tuna is not, as it loses many of its oils during the canning process. Other types of oily fish include as salmon, mackerel, sardines and trout (both fresh and canned).

9. The Agency previously published advice on this issue on 10 May 2002.

☑ Mercury in fish

Your questions answered

☑ Statement on a survey of mercury in fish and shellfish

Committee on Toxicity statement

[ENDS]

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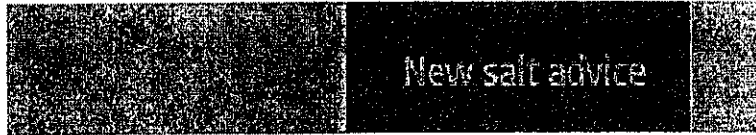
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Mercury in fish: your questions answered

Find out more about our latest advice about mercury in fish.

Agency updates advice to pregnant and breastfeeding women on eating certain fish

Read the press release

Statement on a survey of mercury in fish and shellfish Committee on Toxicity statement



What is the problem with mercury in fish?

Nearly all fish contain traces of mercury and in most fish this is not a problem. But certain fish contain relatively higher levels of mercury.



Who could be affected by the mercury and why?

This is primarily an issue for pregnant women, women who intend to become pregnant and women who are breastfeeding. This is because of the possible risks to the developing nervous system of the unborn child and to an infant, if the mother were breastfeeding.



Which fish are we talking about?

Mothers to be and breastfeeding mothers should avoid shark, marlin and swordfish. They should also limit their consumption of tuna.



What about children?

Children under 16 should avoid shark, marlin and swordfish, but they can still eat tuna.



What about other people?

High levels of mercury can affect anyone, but while no one else

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needs to avoid shark, marlin and swordfish, the Agency does advise limiting its consumption to once a week.

Q&A

Can I still eat tuna?

Yes, everyone can still eat tuna. But the mercury that it contains means that the Agency is advising that if you are pregnant, intending to become pregnant, or breastfeeding, you shouldn't eat more than two medium-sized cans or one fresh tuna steak per week. This is comparable to six rounds of tuna sandwiches or three tuna salads per week.

Q&A

What about children and any other adults?

This advice does not apply to children or any other adults.

Q&A

I'm pregnant and have been eating a lot of tuna, have I harmed my child?

Although this cannot be ruled out, you are unlikely to have caused your unborn child any harm, as this is a precautionary limit with a safety margin built in. But to be on the safe side, you should now limit the amount of tuna you eat.

Q&A

I'm pregnant and want to still eat fish, what should I do?

You should not eat shark, marlin or swordfish and you should limit your consumption of tuna. Everyday favourites like cod, haddock and plaice are not affected at all by this advice. And there are other oily fish with known health benefits that you can eat as an alternative to fresh tuna, such as mackerel, herring, pilchard, sardine, trout or salmon.

Q&A

Is fish still an important part of a healthy diet?

Yes. And most of us don't eat enough of it. The Agency recommends that people eat at least two portions of fish a week, one of which should be oily, as oily fish provide known health benefits, such as containing nutrients that protect against heart disease.

Q&A

Why is this advice being issued now?

Because independent scientific experts have looked carefully at the levels of mercury in certain fish and the possible risks it could pose, particularly in relation to the developing nervous

system of the unborn child and infant. Because of those possible risks, they have recommended a more precautionary approach to advising the groups it could affect. The safety guideline they have applied is almost five times lower than that for the general population.

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Agency issues precautionary advice on eating shark, swordfish and marlin

Friday, 10 May 2002

Ref: 2002/0218

The Food Standards Agency is advising that pregnant women, women who intend to become pregnant, infants and children under 16 years of age should avoid eating shark, swordfish and marlin.

マカジキ

This interim advice is being issued as a precautionary step following a Food Standards Agency survey that revealed relatively high levels of mercury in these species of fish. Large predatory fish such as shark, swordfish and marlin can contain relatively high levels of mercury in the form of methylmercury, which can harm the nervous system of an unborn child if the fish is eaten regularly by its mother. Infants and children may also be at greater risk from mercury poisoning because they eat more food relative to their body size in comparison with adults.

Occasional consumption of shark, swordfish or marlin as part of a balanced diet by any other adults is unlikely to result in harmful effects. However, on a precautionary basis, they are advised against eating more than one portion each week of either shark or swordfish or marlin.

The Food Standards Agency surveyed 336 fresh, frozen and processed sea fish and shellfish for mercury content, including trout, salmon, tuna, halibut, hoki, seabass, lobster, mussels and prawns. Levels of mercury in fish other than shark, swordfish and marlin did not give cause for concern. Previous UK surveys have not found mercury at levels that cause concern in the UK's most frequently consumed fish – cod, haddock and plaice.

1506 tonnes of shark and swordfish were consumed in the UK in 2001 compared with 244,366 tonnes of cod and haddock.

The Food Standards Agency's general advice on fish consumption is to eat two portions of fish a week, one of which should be oily, as part of a balanced and varied diet. This advice is based on the recommendation of the Committee on Medical Aspects of Food Policy (COMA) which found that this level of fish consumption resulted in a significant reduction in the risk of heart attacks. On average, UK consumers eat only three quarters of a portion of white fish and one quarter of a portion of oily fish a week.

The independent expert Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) will consider the survey results and any implications for consumers at its June meeting. When the COT has completed its considerations, any further advice will be issued if necessary.

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The Food Standards Agency recommendations on a balanced diet can be found at <http://www.food.gov.uk/healthiereating/dailydiet/>.

Notes to editors

1. This survey complements earlier surveys of the more commonly consumed fish. The results of the new survey showed that levels in shark, swordfish and marlin are relatively high (a mean of around 1.5 mg/kg). These results have been combined with data on average portion size for these fish for different age groups, taking account of exposure to mercury from the rest of the diet. The resulting dietary exposure for adult consumers of fish is close to the safety guideline (PTWI*) for methylmercury – the predominant form of mercury in fish. Children would exceed the safety guideline.

2. The World Health Organization considered that the PTWI for methylmercury is applicable to the general population, but pregnant women and infants may be at greater risk owing to concerns regarding the effects of methylmercury on the developing nervous system.

3. Methylmercury is known to be neurotoxic to humans as well as to animals. Effects may include paraesthesia (a sensation of pricking, tingling or creeping on the skin), malaise and blurred vision. Concern for the developing fetus and infant relates to possible neurobehavioural effects such as deficits in motor skills, attention, language, visual-spatial skills and memory.

4. Results from this survey and a previous survey are attached.

* PTWI = provisional tolerable weekly intake, recommended by the joint expert committee on food additives of the food and agriculture organisation of the United Nations and the World Health Organization international programme on chemical safety, known as JECFA

[ENDS]

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Mercury Levels in Fish and Shellfish

Recent Survey

SPECIES	MEAN (MG/KG)	RANGE	NO. OF SAMPLES
Fish			
Halibut	0.290	0.038-0.617	2
Hoki	0.186	0.065-0.307	8
Monkfish	0.198	0.096-0.300	2
Orange Roughy	0.595	0.527-0.647	6
Other	0.105	0.006-0.664	12
Pollack	0.012	0.007-0.020	4
Salmon	0.050	0.029-0.079	14
Sea Bass	0.065	0.030-0.094	4
Sea Bream	0.053	0.051-0.056	4
Shark	1.521	1.006-2.200	5
Marlin	1.091	0.409-2.204	4
Swordfish	1.355	0.153-2.706	17
Trout	0.060	0.014-0.103	14
Tuna	0.401	0.141-1.500	34
Shellfish			
Exotic prawns	0.025	0.006-0.047	14
Lobster	0.075	0.009-0.231	4
Mussels	0.030	0.017-0.041	4
Other	0.038	0.003-0.186	9
Prawns	0.048	0.013-0.249	14
Squid	0.011	0.003-0.036	9

Previous Survey

SPECIES	MEAN (MG/KG)	RANGE	NO. OF SAMPLES
Marine Fish			
Cod	0.066	0.029-0.098	10
Haddock	0.043	0.023-0.072	25
Herring	0.091	0.044-0.13	9
Mackerel	0.054	0.024-0.10	14
Plaice	0.056	0.029-0.086	15
Red Fish	0.12	0.12-0.12	2
Whiting	0.14	0.029-0.26	15
Cod fish fingers	0.016	0.006-0.025	3
Shellfish			
Brown shrimps	0.065	0.061-0.068	2
Cockles	0.026	0.013-0.046	3
Crab	0.092	0.051-0.13	2
Lobsters	0.29	0.15-0.49	4
Mussels	0.063	0.028-0.11	4
Pink Shrimps	0.089	0.079-0.099	2
Queen Scallops	0.017	0.016-0.018	2
Squid	0.040	0.016-0.058	3
Scallops	0.010	0.008-0.011	3
Scampi	0.11	0.11-0.12	2
Winkles	0.037	0.026-0.049	4

Source: University of Bristol Survey 'Mercury in imported fish and shellfish and UK farmed fish and their products' Unpublished.

Source: FSIS 151 'Concentrations of metals and other elements in marine fish and shellfish' May 1998.



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Mercury in fish survey - Q&A

Your questions answered



How much shark, swordfish or marlin should the average consumer eat per week?

The Agency is advising pregnant women, women who intend to become pregnant, infants and children of all ages to avoid consumption of shark, swordfish and marlin as an interim precautionary measure following a recent FSA survey that revealed relatively high levels of methylmercury in these species of fish. Occasional consumption of shark, swordfish and marlin as part of a balanced diet by the rest of the population is unlikely to result in harmful effects. However, adults other than those in the groups listed above are advised against eating more than one portion each week of either shark, swordfish or marlin.



Should anyone avoid eating these types of exotic fish (shark, swordfish or marlin)?

Pregnant women, women who intend to become pregnant, infants and children under 16 years of age should all avoid eating these sorts of fish.



What are the possible consequences of eating more than the advised amount of shark, swordfish or marlin?

An adult eating more than one portion per week of either shark, swordfish or marlin could exceed the World Health Organization (WHO) safety guideline on mercury consumption.



What are the possible adverse effects of high mercury intakes from food?

Exceeding the safety guideline for mercury is not necessarily harmful. Studies of children born to women who eat fish every day have not given convincing evidence of harmful effects. However, as intakes increase above the guideline, it becomes more likely that some people may experience adverse effects on the nervous system.

These are the possible effects:

• in children

possible effects on the developing nervous system, which could affect mental skills, such as attention and memory,

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and physical co-ordination

○ **in pregnant women**

possible effects on the nervous systems of their unborn babies, which may lead to impaired mental skills, such as attention and memory, and physical co-ordination in childhood

○ **in adults**

first sign is most likely to be paraesthesia, which is a creeping or tingling sensation in the skin. Unless exposures are very high these effects are likely to be transient



How many portions of any type of fish should be eaten per week? And what are the benefits?

Oily fish are the only food source of long-chain n-3 PUFAs and reduce the risk of death from heart attacks. These benefits come from eating one portion of oily fish a week. Greater protection is not afforded by eating more than one portion a week. White fish are a high source of protein and a good alternative to red or white meat.



Are shark, swordfish and marlin oily fish?

Shark is not considered to be an oily fish, but swordfish and the closely related marlin are.



What oily fish can I eat instead of swordfish and marlin?

Commonly consumed oily fish in the UK are: mackerel, herring, pilchard, sardine, trout and salmon (either tinned or fresh). Also fresh tuna (but not tinned tuna).



Are other types of fish affected by high levels of mercury?

All fish contain some mercury in the form of methylmercury. Large, predatory fish, which are higher up the food chain, can build up higher levels of methylmercury in their bodies. However, our survey identified levels of concern in only three species – shark, swordfish and marlin.

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Fish and shellfish

Wednesday, 14 August 2002

Fish and shellfish are a valuable source of protein, vitamins and minerals. As part of a healthy diet, we should aim for at least two servings of fish a week, including one of oily fish.

Fish is a good source of minerals such as iodine. And fish such as sardines, whitebait, pilchards and tinned salmon, where you eat the bones, are also a good source of calcium, phosphorus and fluoride.

Oily fish such as sardines, herring, mackerel, trout and salmon, and the livers of fish such as cod and halibut, are all good sources of vitamins A and D. Oily fish also contain omega 3 acids, which may help to prevent heart disease.

Bacteria and viruses

Fish and shellfish can be enjoyed as part of a balanced diet as long as they're properly stored, handled and cooked.

Raw or improperly cooked seafood and shellfish can contain harmful viruses and bacteria. And shellfish like clams and oysters, for example, are filter feeders, meaning that water – clean or polluted – passes through them.

The **Vibrio bacterium** causes the most commonly reported foodborne illness if seafood or raw shellfish are improperly handled. Healthy people may have a stomach upset, vomiting and/or diarrhoea.

The **Norwalk virus** is found in raw oysters and can cause nausea, dehydrating diarrhoea and abdominal pain. People infected with this virus can also experience a headache and low-grade fever.

Hepatitis A is a viral disease of the liver. It is found in raw or partially cooked shellfish. Particularly contagious, hepatitis A can be spread by infected people to other foods, such as salads. Symptoms include fever, fatigue, nausea, abdominal discomfort, dark urine and jaundice. People can be infected with hepatitis A for up to two months before they show signs of the disease.

Who is at risk?

Pregnant women and their unborn babies, young children and older people are at particular risk of illnesses associated with fish and shellfish.

People with weakened immune systems, diabetes and those on organ transplant or cancer medications are also particularly vulnerable.

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Because of the risk of an allergic reaction, babies younger than six months old should not be given fish or shellfish.

People who are at risk are advised not to eat raw or partially cooked fish and shellfish.

Chemical residues

Mercury is a toxin that affects the nervous system and can build up in the bodies of predatory fish because they are at the top of the food chain. It is found at the highest levels in shark, marlin and swordfish.

Currently, the Agency recommends that pregnant women, women who intend to become pregnant, and children should avoid eating shark, swordfish and marlin. This is because the relatively high levels of methylmercury in these fish might affect the nervous systems of unborn babies and children.

In contrast, the levels of mercury in the most commonly eaten fish and shellfish in the UK are much lower.

PCBs and dioxins tend to be found in all foods, especially fat-containing foods like oily fish. They have no immediate effect on health, even at the highest levels found in food.

The potential negative effects to health come from long-term exposure to high levels of PCBs and dioxins. However, it is important to remember that the health benefits of eating one portion of oily fish a week as part of a healthy diet outweigh any potential threat from PCBs and dioxins.

How can I handle fish and shellfish more safely?

When selecting fish and shellfish try to remember the following:

- ◆ Buy seafood from reputable sources; be wary of vendors selling seafood out of the boot of their car.
- ◆ Choose fresh seafood that is refrigerated or on ice.
- ◆ If you're out shopping, make seafood the last item to pick up on your grocery list before heading straight home.
- ◆ Don't buy open cooked seafood or shellfish (such as shrimp or crab) that is in the same display case as raw seafood. This can result in cross-contamination.
- ◆ Don't buy frozen seafood if the packaging is damaged in any way.
- ◆ Also, don't buy frozen fish products that are above the frost line in the shop's freezer.
- ◆ If you see frozen seafood with ice crystals or signs of frost through the packaging, don't buy it. This could be a sign that the fish has been stored too long or that it has been thawed and refrozen.

When storing and preparing fish and shellfish:

- ◆ Store seafood in the coldest part of the fridge or freeze it as soon as you get home.
- ◆ Make sure that all seafood is tightly wrapped and protected from air leaks.
- ◆ Discard shellfish if their shells crack or break. Live shellfish will 'clam up' if their shell is tapped.
- ◆ Wash your hands before handling seafood.

- ❶ Thaw seafood in the fridge, preferably overnight. If you need to thaw seafood more quickly, use your microwave. Stop the 'defrost' cycle on the microwave once the fish is icy but pliable.
- ❷ Use separate cooking utensils such as cutting boards, knives and platters for preparing raw seafood.
- ❸ Don't allow raw seafood to come into contact with cooked foods.
- ❹ Cook fish so that the fat drips away.
- ❺ Bake, poach or grill fish, and don't use the fish drippings.
- ❻ Marinate seafood in the fridge and dispose of the marinade after removing the raw seafood. If you want to use the marinade as a dip or sauce, set some aside prior to it coming into contact with raw fish.

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