

## **Committee on the Toxicity of Chemicals in Food, Consumer Products and the Environment (COT)**

### **Statement on the Effects of Mercury on Maternal Health – Lay Summary**

The Scientific Advisory Committee on Nutrition (SACN) is reviewing the scientific evidence that informs the Government's dietary recommendations for women of childbearing age. As part of that process the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) was asked to review the risks of toxicity from certain chemicals in the maternal diet. This statement focuses specifically on the possible risks from mercury in the diet of women of childbearing age. Other chemical contaminants and excess nutrients will be considered separately.

Mercury occurs naturally in the earth's crust, chiefly as mercury (II) sulfide, and is released into the environment from both natural and man-made sources. In the environment, mercury undergoes complex transformations and cycles between atmosphere, land, and aquatic systems where it can enter the food chain. Mercury exists in different forms, but evaluations show the most important form in relation to diet is methylmercury (MeHg), which accumulates in fish, especially large long-lived species such as shark, swordfish, and tuna. Other foods may contain mercury, but that it is usually in the form of inorganic mercury which is much less toxic and thus the data indicates that exposure to that form is insignificant.

The main concern with MeHg is its ability to affect the nervous system. MeHg can cross the placenta and the blood–brain barrier, so exposure during pregnancy may affect the developing brain of the fetus. MeHg also has bioaccumulative properties and a long half-life in the body, meaning that exposure before conception can contribute to levels during pregnancy. Developmental and behavioural effects, including learning and coordination difficulties, have been observed in children whose mothers were exposed to high levels of MeHg during pregnancy. An increased risk of pregnancy complications such as preeclampsia and premature birth has also been observed following high level MeHg exposure. For this reason, pregnant and breastfeeding women are considered sensitive groups.

Current UK advice already recommends that women who are pregnant or trying to conceive should avoid eating shark, swordfish, marlin, raw shellfish, and uncooked cold-smoked or cured fish, and limit oily fish to two portions per week and tuna steaks to no more than two per week. Following this dietary advice greatly reduces the risk of experiencing the harmful effects of MeHg.

In 2012 the European Food Safety Authority (EFSA) set health-based guidance values for MeHg (1.3 micrograms per kilogram of body weight per week) and inorganic mercury (4 micrograms per kilogram of body weight per week).

COT reviewed UK exposure data from food, water, air, and soil. Even in high-consumption scenarios, estimated exposures were below these guidance values. This means that, for most women and their babies, the risk from mercury in the diet is low.

In summary, mercury is present in the environment and can enter the diet, mainly through consumption of fish or shellfish. While MeHg can be harmful to the developing child's nervous system, current UK dietary advice provides effective protection and women of childbearing age should continue to follow this advice.

## **Statement**

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