



## **Section 3: Mercury and Human Health** **Background information – for Teachers**

The following readings are adapted from the summary chapter from the [Toxicological Profile for Mercury](#). It is one in a series of Public Health Statements about hazardous substances and their health effects.

A shorter version, the [ToxFAQs™](#), is also available. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

For more information, call the ATSDR Information Center at 1-800-232-4636. [Full text available at <http://www.atsdr.cdc.gov/phs/phs.asp?id=112&tid=24>]

### **1.1 How might I be exposed to mercury?**

Because mercury occurs naturally in the environment, everyone is exposed to very low levels of mercury in air, water, and food.

*Exposure from work:* Workers are mostly exposed from breathing air that contains mercury vapors. Family members of workers who have been exposed to mercury may also be exposed to mercury if the worker's clothes are contaminated with mercury particles or liquid.

*Exposure from fish:* Some people may be exposed to higher levels of mercury in the form of methylmercury if they have a diet high in fish, shellfish, or marine mammals (whales, seals, dolphins, and walruses) that come from mercury-contaminated waters.

### **1.2 How can mercury enter and leave my body?**

A person can be exposed to mercury from breathing in contaminated air, from swallowing or eating contaminated water or food, or from touching mercury. Not all forms of mercury easily enter your body, even if they come in contact with it; so it is important to know which form of mercury you have been exposed to, and by which route (air, food, or skin).

Methylmercury is the form of mercury most easily absorbed through the gastrointestinal tract (about 95% absorbed). After you eat fish or other foods that are contaminated with methylmercury, the methylmercury enters your bloodstream easily and goes rapidly to other parts of your body.

Once organic mercury is in the bloodstream, it moves easily to most tissues and readily enters the brain. Methylmercury can be changed by your body to inorganic mercury. When this happens in the brain, the mercury can remain there for a long time. When methylmercury does leave your body after you have been exposed, it

leaves slowly over a period of several months, mostly as inorganic mercury in the feces.

### **1.3 How can mercury affect my health?**

The nervous system is very sensitive to mercury. In poisoning incidents that occurred in other countries, some people who ate fish contaminated with large amounts of methylmercury developed permanent damage to the brain and kidneys.

The kidneys are also sensitive to the effects of mercury, because mercury accumulates in the kidneys and causes higher exposures to these tissues, and thus more damage. All forms of mercury can cause kidney damage if large enough amounts enter the body. If the damage caused by the mercury is not too great, the kidneys are likely to recover once the body clears itself of the contamination.