

Mercury in Fish: *Advice for Consumers*

Environmental contamination of food is a growing concern. As the world becomes more populated and industrialized, more pollutants are contaminating the air, water, and soil. Plants can absorb these contaminants. People are exposed if they eat the contaminated plants. People may also eat meat from animals that have eaten contaminated plants, as well as fish living in polluted waters.

Usually, environmental contaminants do not produce a threat to our food supply. Some contaminants are short-lived because sunlight or oxygen can change their chemical structure. Others may stay in the body for a short time because we excrete them or change them to harmless compounds. The environmental contaminants that do not change to less damaging substances are the ones of concern. These contaminants interact with our body systems. Over time, they can build up in our bodies and reach toxic levels.

Learning about Mercury

Hg
MERCURY

The heavy metal mercury (Hg) is a contaminant that has slowly made its way into our food supply. Mercury is a metallic element that occurs naturally in the environment. It is released through industrial processes. Burning coal, oil, or natural gas as fuel releases mercury into the air. Incinerating trash containing mercury also releases it into the air.

Once mercury is in the air, it falls back to the ground. It can build up in streams and oceans. Bacteria living in the water may cause the mercury to change into a toxic form known as methylmercury. This toxic mercury can build up in the creatures living in the water, including fish.

Mercury in Fish

Beginning in the early 1990s, various states in the Midwest began identifying mercury contamination as potential sources of harm to both wildlife and people. In response, a number of states issued fish advisories to prevent unnecessary mercury consumption. In 2001, the Food and Drug Administration (FDA) detected unacceptably high mercury levels in fish and other wildlife. An advisory was issued for all pregnant women, women who might become pregnant, nursing mothers, and young children to refrain from eating large predatory fish.

Large predatory fish usually have the highest levels of mercury. The accumulation of mercury in the food chain starts with small amounts found in plant or animal plankton. These levels are generally low enough to not be harmful. Mercury begins to build up in small fish that feed on the plankton. The buildup continues as larger fish eat the smaller fish with low levels of the metal. As the larger fish grow and eat more small fish, the mercury level increases even more. This is known as bioaccumulation. Each level of the food chain has a greater concentration than the one below it. The graphic on the following page shows how this works.

Bioaccumulation of Mercury in Fish: Stepping Up the Chain

Step 5 - At the top of the chain:

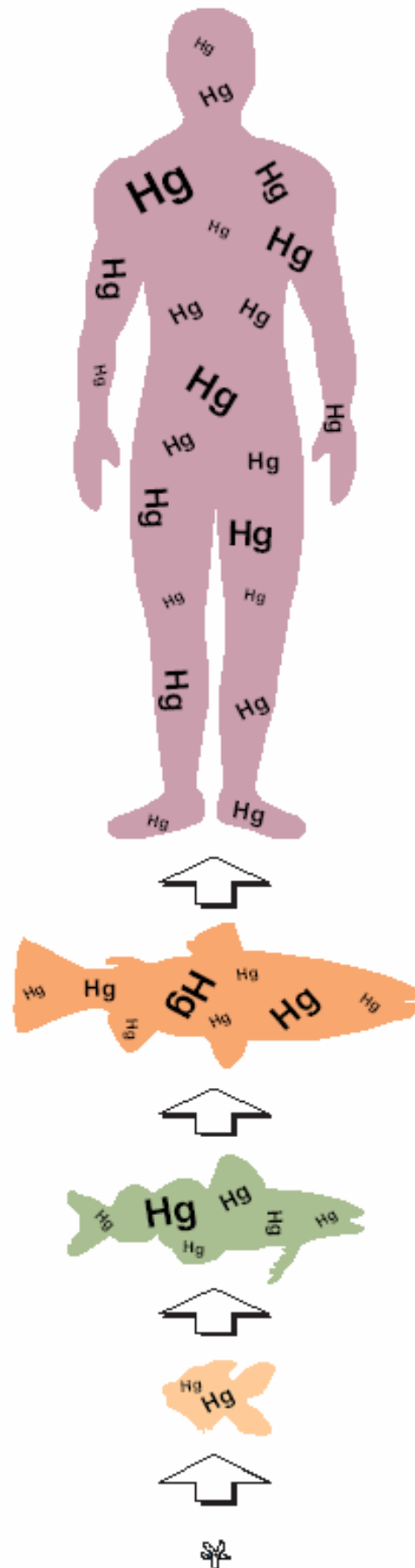
A 150-pound man or woman may consume 100 pounds of fish in a year. If the fish contain mercury, that person could accumulate mercury in his or her body over time, much like larger fish accumulate mercury from the smaller fish they eat.

Step 4 – Large fish consume thousands of small and medium-sized fish in their lifetime. Toxins such as mercury become more concentrated in the larger fish.

Step 3 – Medium-sized fish feed on the smaller fish and accumulate even more mercury as they grow and age.

Step 2 – Small cold-water fish feed on the plankton and become contaminated with mercury.

Step 1 – As plant and animal plankton sift water for food, they can take in toxins such as mercury.



Risks from Mercury in Fish

Virtually all fish have at least a trace amount of mercury. The FDA, working with the Environmental Protection Agency, recently developed new guidelines for consumers to follow when eating fish. The advice is intended for pregnant women, women who might become pregnant, nursing mothers, and young children. These groups are more at risk because mercury is most harmful to developing fetuses, infants, and young children. High levels of mercury in the body can harm the developing nervous system, as well as the kidneys and liver.

Guidelines for Eating Fish

For pregnant women, women who might become pregnant, nursing mothers, and children under age 6, there are three primary points to remember and follow.

1. Do not eat shark, swordfish, tilefish, or king mackerel. These large fish usually have the highest levels of mercury.
2. The levels of mercury in fish and shellfish may vary, so the amount of fish eaten per week should be limited to 12 ounces. This is equal to two or three meals of 4- to 6-ounce servings per meal. The best advice is to avoid eating the same type of fish or shellfish more than once a week.
3. Before eating fish that you have caught, be sure to check for local fish consumption advisories. Your county health department or state department of natural resources should know if any special fish consumption advisories are in effect in your area. If there is no specific information available for where you are fishing, you should be able to eat 6 ounces of fish from this area, safely each week. If you do eat the local fish, avoid eating other fish or shellfish that week.

Choosing Fish Wisely

When making your choices about the types of fish to eat each week, keep these additional tips in mind.

- Shrimp, canned light tuna, salmon, pollock, and catfish are five commonly eaten fish that are low in mercury.
- Albacore tuna is usually higher in mercury than light tuna. As you choose fish and shellfish for your two meals per week, include no more than 6 ounces of albacore tuna.

Feeding Fish to Young Children

The same key points apply to young children. However, the serving sizes should be smaller, depending on the size of the child. For a young child, a serving size of 2 to 3 ounces is suggested.

Health officials have always recommended eating a wide selection of foods. By alternating food choices, especially the large fish of concern, a person can avoid ingesting too much of any environmental contaminant, including mercury.

References:

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- U.S. Department of Health and Humans Services and U.S. Environmental Protection Agency, **What You Need to Know About Mercury in Fish and Shellfish**, EPA-823-R-04-005, Washington, D.C., March 2004.

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