

Health Concerns About Fish

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Fish consumption is a leading exposure to heavy metals and other contaminants and is frequently the subject of government health-risk advisories. However, some people promote eating fish as the best way to incorporate omega-3 fatty acids in the diet. Let's look at the issues.

Toxins

Experts agree that fish are the unfortunate victims of our polluted waters. Mercury, a toxic heavy metal, is the primary concern related to fish consumption. A recent study found that as much as 84 percent of the world's fish contains unsafe levels of mercury.¹ According to a 2013 report by the United Nations, mercury emissions are rising all around the world, making this a global health problem.² Even global warming gets some of the blame, with warmer temperatures leading to higher mercury levels in fish.³ As mercury levels rise across the globe and the toxin accumulates in the fat cells of fish, eating them is becoming increasingly risky.

There are several concerns with ingesting mercury. Exposure to the heavy metal has been linked to increased risk for diseases such as cancer and diabetes as well as to short- and long-term problems with the heart, blood vessels, brain, and nerves. Exposure is an even greater concern for pregnant women, as mercury can cross the placenta and accumulate in baby's tissues, slowing down its brain development.⁴ Researchers have even found a relationship between regular tuna consumption and breast cancer in Hispanic women.⁵

The link between mercury contamination and diabetes has become more defined through recent studies. An 18-year study published by the American Diabetes Association in 2013 found that those with the highest levels of mercury exposure had a 65 percent increased risk for developing diabetes, compared with those with the lowest levels of mercury exposure.⁶ In addition to mercury, other pollutants found in fish are linked with type 2 diabetes.⁷

While the consumption of fish and omega-3 fatty acids, including docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), has been associated with decreased risk of heart attack in individuals consuming a Western-style diet,^{8,9} recent studies have shown that mercury exposure may produce the opposite effect.

In one study, mercury levels were 15 percent higher among those patients who had suffered a first heart attack,¹⁰ and a second study showed increased risk of death from heart disease with increasing mercury exposure.¹¹ In 2005, researchers in Finland found that a high amount of mercury in hair may be a risk factor for heart attacks, heart disease, and overall death in middle-aged men. In the same study, it was discovered that mercury contamination from eating fish reverses the positive effects of omega-3 fatty acids on heart health.¹² Because mercury accumulates in our tissues, including the heart tissue, consumption of this neurotoxin increases the risk for high blood pressure, irregular and increased heart rate, and death from heart attack or stroke.¹³

In addition to mercury, there are other pollutants that accumulate in fish and shellfish. Mercury, polychlorinated biphenyls (PCBs), chlordane, dioxins, and dichlorodiphenyltrichloroethane (DDT) account for most fish advisories issued by the EPA.¹⁴

These pollutants accumulate in our body over a lifetime and can lead to problems including poor brain development, liver damage, and disruption of the immune system. Many of these chemicals are especially problematic because they are not readily cleared from the body. Thus, even if exposure is limited to a short period of time, the potential risks can last a lifetime.

Health Myths

Fish consumption is generally promoted as a good source of omega-3 fats. Omega-3 fats are unsaturated and anti-inflammatory making them beneficial for heart and brain health. However, animal products, including fish, are the main source of saturated fat and the only source of cholesterol in the diet—both of which contribute to high cholesterol and inflammation in the body, increasing the risk for a heart attack or stroke. Although some of the fat in fish is in the omega-3 form, much of the remaining fat is saturated. Chinook salmon, for example, derives 52 percent of its calories from fat, and swordfish derives 30 percent. About one-quarter of the fat in both types of fish is saturated. Fish and shellfish are also significant sources of cholesterol. Three ounces of shrimp has 166 milligrams of cholesterol, while the same amount of bass has about 80 milligrams; in comparison, a 3-ounce steak has about 80 milligrams.¹⁵ Thus, eating fish regularly can put a person at risk for diseases associated with consuming excessive

saturated fat and cholesterol, such as heart disease, stroke, and diabetes.¹⁶ Even Eskimos, who have a fish-centered diet, are not free of heart disease.¹⁷

High levels of toxins, fat, and cholesterol along with a lack of fiber make fish a poor dietary choice. However, fish oils, especially taken as a supplement, have been popularized to treat everything from heart problems to arthritis. Though ingesting fish oil in supplement form eliminates some of the health concerns associated with eating fish, current research shows there may not be any benefits to taking the supplement.

According to a review that combined data from 20 studies, the use of omega-3 supplements over a two-year period had no effect on heart-related death, heart attack, or stroke.¹⁸ A second review of 14 studies found similar results—fish oil supplements

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did not protect people already diagnosed with heart disease from a second heart attack or a related illness.¹⁹ The same lack of protection holds true when looking specifically at people with type 2 diabetes who take fish oil supplements.²⁰ Instead of supplementing omega-3 fats from fish oil, supplementing from a plant-based source like walnuts and chia seeds may offer actual protection from heart problems.²¹

Fish oil supplements have also been touted for brain health; however, according to a 2012 study, no link was found between supplementation and prevention of Alzheimer's disease.²² For patients already diagnosed with Alzheimer's disease, supplementation did not slow mental decline.²³ In fact, one study shows that higher levels of the omega-3 fats EPA and DHA in the blood are actually associated with increased mental decline.²⁴

In a 2013 study published by the National Cancer Institute, researchers found that men with higher levels of omega-3 fatty acids in their body from supplementing with fish oil had a higher chance of developing prostate cancer and also of developing a worse form of the disease.^{25,26}

There has been some debate about whether fish oil supplements are helpful in pregnancy. A 2017 study showed that fish oil supplementation does not help to decrease postpartum depression in Japanese women who frequently eat fish,²⁷ nor was it found in a second study to improve mental function of the baby.²⁸ Although the omega-3 fatty acid DHA is important in the development

of the brain and eyes, adding it to baby formula was found to provide no benefit to the physical, visual, or mental outcomes of infants born at term.²⁹ Lastly, mothers who eat fish more than three times a week during pregnancy are more likely to have children who become overweight.³⁰

Health Facts

There are better ways to reap the health benefits that are commonly associated with eating fish. It is already proven that plant-based diets help prevent, and even reverse, heart disease.³¹ Additionally, fiber reduces cholesterol levels, and fish contain no fiber. When individuals switch to a high-fiber, low-fat diet, their blood cholesterol levels often drop dramatically.

Instead of resorting to fish or fish oil as a source of omega-3s, these fatty acids can be found in a more stable form, alpha-linolenic acid (ALA). ALA is the only essential omega-3 fatty acid, meaning it's the only one that the body cannot make itself and therefore, must be consumed. This fat is concentrated in flaxseeds, walnuts, chia seeds, hemp seeds, soybeans, and wheat germ. The body naturally converts ALA to the longer chain omega-3 fatty acids EPA and DHA. Studies have shown that the conversion rate of ALA to EPA and DHA is sufficient for obtaining proper amounts of these longer chain fatty acids. In fact, results from the European Prospective Investigation into Cancer and Nutrition (EPIC) trials suggest women on vegan diets have more omega-3s in their blood compared with fish-eaters, meat-eaters, and lacto-ovo vegetarians. Thus, for those who do not consume fish, the conversion rate of ALA to EPA and DHA may increase naturally to allow for the adequate supply of these fatty acids.³²

Next Steps

Given the clear evidence that fish are commonly contaminated with toxins that have well-known and irreversible damaging effects on children and adults, the consumption of fish should not be encouraged. The risks are significant, especially for infants and women of childbearing age. The wide range of other risks associated with the consumption of fish and shellfish due to their levels of saturated fat and cholesterol are also considerable. By focusing on plant foods like vegetables, fruits, whole grains, beans, peas, nuts, and seeds, one can get the full range of essential nutrients without the toxins and other health risks associated with fish consumption.²⁸



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