

Updating Advice on EATING SEAFOOD

Steve Otwell, Florida Sea Grant seafood safety and technology specialist, University of Florida/IFAS Extension



There are no two ways about it—deciding whether or how much seafood to eat can sometimes be confusing. That’s because we hear a variety of messages that seem at times to oppose each other. We hear that seafood is good for us, but then we hear reports that seafood has dangerous levels of mercury. This publication will provide an update on this confusing topic in general terms with more current information. No food source is without risks. But this article makes the case that mercury risks can be managed to enable you to obtain the health benefits that seafood can offer and that might be lost if you choose to avoid eating fish. Note: When the article refers to mercury, it is actually talking about methylmercury, which is the form of concern in fish.

.....

What are the potential major benefits from eating seafood?

Seafood is an excellent, typically low-calorie source of protein and essential nutrients. It also tends to be low in saturated fats (the bad stuff), and many selections are rich in long-chain polyunsaturated fatty acids, also known as the omega-3s (good stuff your doctor tells you to get more of). There is a lot of evidence that eating fish can help prevent cardiovascular disease—in fact, the American Heart Association has recommended for years that we should eat at



Florida Sea Grant



Florida Sea Grant

Mercury contamination in seafood is largely misunderstood and often overstated. Eating a variety of fish will help you manage concerns for mercury in your diet.

least two servings a week for a healthy heart. Fish eaten during pregnancy has also been associated with proper neurological and eye development in children. Research published in 2012 found that the children of mothers who ate at least two fish servings a week during their pregnancies had a roughly 60 percent lower risk of developing behaviors such as hyperactivity associated with ADHD (attention deficit hyperactivity disorder). There is also evidence that when young children eat fish it improves their cognitive development.



Florida Sea Grant

Shrimp is the most popular seafood eaten in the U.S. It makes up over a third of the average person’s seafood consumption -- and it has a negligible amount of mercury.

Do healthy diet guidelines consider mercury in seafood?

Yes. Every five years the departments of Agriculture (USDA) and Health and Human Services (HHS) issue ‘Dietary Guidelines for Americans,’ a scientific evidence review that provides information and advice for choosing a healthy eating pattern. The current Dietary Guidelines recommend eating at least 8 and as much as 12 ounces of a variety of fish lower in mercury per week during pregnancy, for the visual and cognitive development of the unborn child. The guidelines further recommend that adults eat 8 ounces per week for heart health. The Dietary Guidelines recommend that at least some of these fish be high in omega-3 fatty acids. These guidelines were developed and issued by national health experts mindful of concerns about mercury in our nation’s seafood supply.

What are the concerns tied to mercury in seafood?

Methylmercury, the type of mercury in seafood, can affect the nervous system when the amounts are high enough. The primary concern is for the developing fetus, which has been shown to be more sensitive to methylmercury than adults.



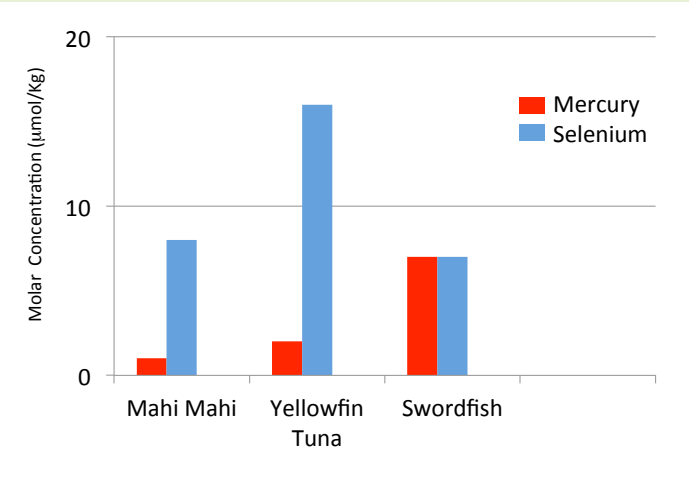
Health officials recommend eating two to three servings of seafood each week. The most commonly available seafoods in U.S. markets contain many essential nutrients and have the lowest amounts of mercury.

That is why the Dietary Guidelines for Americans recommends that the 8-12 ounces of fish that pregnant women should eat be lower in mercury. There is also concern that young children might also be especially sensitive because their nervous systems are still developing, but the evidence for that is inconclusive at best. Adults can and sometimes do experience neurological symptoms from mercury in fish but reports of such symptoms are infrequent and are associated with eating unusually high amounts of certain fish containing above-average

amounts of mercury over long periods of time. The symptoms tend to be self-correcting once the person starts eating more typical amounts of fish. There is also evidence from some studies that mercury in fish can raise the risk of heart disease, but this evidence is contradicted by a majority of other studies that found no risk, so the verdict is still out on that.

Likewise, there is evidence that the element selenium, which can be common in ocean fish and other foods, could counteract harmful effects of mercury in humans because it tends to bind with mercury. Continuing research in this area is attempting to confirm the potential benefits of the favorable mercury-to-selenium levels that occur in marine fish which may provide further evidence for the nutritional benefits of seafood consumption. Selenium may reduce potential harm from mercury on a one-to-one basis.

Currently, it is worth noting that a growing portion of our seafood supply available for consumption in the United States are farm-raised shrimp, salmon, and tilapia. Farm-raised seafood accumulates little if any mercury because the animals grow quickly and their diet is strictly controlled. Much work is also underway to reduce the levels of mercury released into the environment. Overall, mercury in the total available supply of seafood as provided for consumption in the U.S. is declining.



Popular choices in ocean fish are high in selenium, which is believed to counteract the harmful effects of mercury. (Source: Kaneko and Ralston (2007) Biol. Trace Elem. Res. 119:242-254).

What happens if I eat some fish that is very high in mercury?

The mercury in a single meal is very unlikely to lead to mercury health problems. For adults, those who have experienced symptoms that could be from mercury

have eaten a lot of fish over a short period of time. Previous advisories to restrict consumption due to the possible risk from mercury were based on calculations for a lifetime of exposure. For unborn children, a risk and benefit assessment conducted by the World Health Organization (WHO) and the Food and Agriculture Organization (FAO) of the United Nations estimates that it would probably take a large quantity per week (over 24 ounces) of the types of fish that are



UF/IFAS

The health benefits associated with eating seafood go beyond just the intake of the critical omega-3 fatty acids. Clams, oysters and mussels, for example, are also rich in minerals, such as iron and zinc.

highest in mercury before they are likely to cause harm. It's a bit like planning for retirement. One extravagant meal you can't afford is not going to have a perceptible impact on your standard of living once you retire. But you might have a major problem if you buy those extravagant meals every week for years.

Which fish are higher in mercury and how concerned should I be about them?

Higher-mercury fish include sharks, tilefish from the Gulf of Mexico, king mackerel, swordfish, and certain tuna like bluefins. The species of concern tend to be larger, wild fish (not farm-raised), because they are typically longer lived and so could accumulate larger amounts of mercury from certain areas.

Avoiding or limiting these fish is relatively simple as their commercial availability is limited. Many of the larger fish of certain species are limited to recreational catches not typically available through restaurants and markets. Few people would ever eat them frequently anyway. Those who want to minimize mercury intake further can find ample data available to guide their choices. The FDA maintains an online database of mercury levels in seafood. Shrimp, salmon and tilapia, for instance, tend to have mercury levels about 100 times lower than the higher-mercury fish.

What are the basic guidelines?

As stated above, the federal government's latest recommendations are in the "Dietary Guidelines for Americans 2010," developed jointly by the USDA and HHS. For adults, the guidelines recommend eating 8 ounces of fish per week for

heart health. For pregnant women, the guidelines recommend eating at least 8 and as much as 12 ounces of a variety of fish per week that are lower in mercury. The main advice from the FDA and the Environmental Protection Agency issued in 2004, states that: "For most people, the risk from mercury by eating fish and shellfish is not a health concern." The risk and benefit assessment conducted by the WHO and the FAO, described above, has similarly concluded that in most circumstances, "neurodevelopmental risk [for fetuses] is negligible."

Wouldn't it be safer to just avoid seafood altogether and take dietary supplements containing fish oils or omega-3 fatty acids?

The short answer is that it is not known whether omega-3 fatty acids alone are responsible for the beneficial heart and circulatory effects that have been reported from eating fish. Given all of the important nutrients in seafood, including omega-3 fatty acids, the risks to your health could actually be greater if you don't eat seafood and only take omega-3 fatty acid supplements. Mercury risks are manageable by eating a variety of fish species, many of which are lower in mercury. Unfortunately, some evidence has suggested that the general confusion from past advisories and resulting cautions by some consumers may have limited the healthful benefits that could have otherwise been available through more seafood consumption.



Florida Sea Grant

Fish is brain food. The latest research shows that seafood delivers a package of nutrients that is important for the brain development of fetuses as well as young children.



The benefits of a diverse seafood diet far exceed the calculated risk that could be associated with eating a large amount of one particular type of seafood.

Are there issues specific to freshwater fish?

Yes. Fish caught in certain inland waters can be much higher in mercury than ocean fish. This is mostly an issue for people who catch and eat their own fish from certain rivers, lakes, and streams. Most freshwater fish available commercially, such as catfish and tilapia, do not have higher mercury because they are farm-raised. So, if you're catching your own or buying inland fish regularly, check for any current, local advisories that may suggest limits for how much you consume.

Where can people get more information about seafood safety in general, and in their specific area?

The Internet provides many articles and websites on the risks and benefits of eating seafood. These sites are recommended because they provide the most up-to-date and science-based information as reviewed by nutrition experts.

FDA and EPA guidelines:

<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm110591.htm>

FDA table of mercury levels in seafood

<http://www.fda.gov/Food/FoodbornellnessContaminants/Metals/ucm115644.htm>

USDA Dietary Guidelines for Americans

<http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/DG2010Brochure.pdf>

FDA Quantitative Risk and Benefits Assessment of Commercial Fish Consumption

<http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FoodbornePathogensContaminants/Methylmercury/ucm088765.htm>

Seafood Health Facts: Making Smart Choices

<http://seafoodhealthfacts.org/>

American Heart Association: Fish and Omega-3 Fatty Acids.

http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyDietGoals/Fish-and-Omega-3-Fatty-Acids_UCM_303248_Article.jsp

Fish, Mercury and Nutrition: The Net Effects

<http://undeerc.org/fish>

Florida Department of Health: Get Fresh with Florida Fish

<http://www.doh.state.fl.us/floridafishadvice/>

.....



SGEF 207

August 2013

This publication was supported by the National Sea Grant College Program of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), Grant No. NA10-OAR4170079. The views expressed are those of the authors and do not necessarily reflect the view of these organizations.

Florida Sea Grant is committed to responsible and sustainable printing practices. This document is produced by a printer certified as practicing in an environmentally responsible manner. Online copies are available at the Florida Sea Grant website: www.flseagrant.org. Additional copies are available by contacting Florida Sea Grant, University of Florida, PO Box 110409, Gainesville, FL, 32611-0409 or phone (352) 392-2801.