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YOUR HEALTH

Angling for Answers: Is Fish Healthy or Dangerous to Eat?
Spate of Scary Reports Raises New Concerns About Seafood

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How is this for a confusing fish story:

Health experts are increasingly touting the benefits of eating fish -- to prevent heart attacks, strokes, even to improve your complexion. But new studies show that many Americans consume too much mercury, which is common in tuna, swordfish and other popular seafood entrees. The federal Environmental Protection Agency says some wild fish are too dangerous for certain people to eat. Yet, recent reports suggest farmed fish is full of chemicals that have been linked to cancer -- and artificial colors to boot.

It is enough to make even the most health-conscious diners throw up their hands and order a burger and fries.

"The more pieces you put together, the more concerned you get," says Florence Sheehan, a cardiologist in Seattle, who eats fish almost every day in an effort to control her cholesterol. These days she spends a lot of time searching the Internet for the latest reports on fish hazards and looking up studies in scientific publications.

But despite the conflicting messages, there is a bottom line: Fish still should be a significant part of most people's diet, as long as a few guidelines are kept in mind.

Some people -- children and pregnant or nursing women, for example -- need to be far more careful than others about the fish they consume. (For example, they shouldn't eat more than 12 ounces of fish a week.) Everyone should moderate their intake of the four fish highest in mercury -- swordfish, shark, king mackerel and tilefish -- and many people should avoid them altogether. (Beware: tilefish often shows up on menus with other names.) And when it comes to farmed fish, it's important to distinguish between legitimate concerns, like unsafe levels of contaminants, and issues that may have been overblown, such as the pigments in salmon feed. Finally, preparation matters: there are ways of cooking fish that minimize toxin intake.

Here is what consumers should know about a variety of popular fish entrees:
Salmon

Of the commonly eaten fish, salmon is one of the best sources of omega-3 fatty acids, which are known to protect against heart attacks and strokes. New research suggests they can also enhance brain function, and combat depression and arthritis.

But some of the most alarming new studies of fish this summer found toxic chemicals and colorants in farmed salmon, which accounts for about 60% of all the salmon eaten. In a headline-grabbing report published in July, the Environmental Working Group, a nonprofit research organization, says it purchased farmed salmon at grocery stores around the country and found that much of it contained high levels of polychlorinated biphenyls, or PCBs, harmful industrial chemicals that have been banned since the 1970s but persist in the environment. PCBs have long been suspected of causing cancer, as well as reproductive problems, compromised immune systems and other health problems. Salmon that are raised on farms are potentially high in PCBs because they are often fed with small, oily fish that come from PCB-contaminated areas. The response of many salmon-lovers has been to swear off the farmed variety and only eat wild salmon. Wild salmon is generally free of toxins, but it can be three times more expensive and it is harder to find. While the new information about farmed salmon may sound scary, most health experts say that the benefits of eating it outweigh the risks.

The federal Food and Drug Administration says people shouldn't worry about PCBs levels in farmed salmon -- or in other foods. That is because Americans' dietary exposure to PCBs has decreased well over 90% in the past 30 years since PCBs were banned, says an FDA expert on risk assessment. Charles Santerre, a scientist at Purdue University in West Lafayette, Ind., who studies contaminants in fish, is more cautious, however. He recommends people eat no more than eight ounces of farmed salmon a week. Deborah Rice, a toxicologist who worked on setting PCB and mercury levels for the federal Environmental Protection Agency, plays it even safer. She says she eats about a fourth that amount, and recommends that women of childbearing age avoid it altogether.

The conflicting views may be confusing, but it is important to remember that PCBs concentrate in all kinds of animal fats and are present in many other foods, including beef, pork, and whole milk. People worried about PCBs can reduce their intake by cutting down on overall animal fat in their diets. Another way to lessen PCB intake is to trim the fat off meat and fish, and then bake, broil, or grill it, so that the fat cooks off, rather than frying, which seals in fat. Farmed salmon also came under attack in April when a law firm in Seattle filed suit against several grocery store chains for selling farmed salmon without alerting customers that it has been colored by chemicals. In the U.S., it is legal to add these chemicals, called astaxanthin and canthaxanthin, to the feed given to salmon, trout, and chicken so that the animals will develop the color of flesh that

consumers expect. The chemicals are also added to many packaged goods, including fruit juices, salad dressings, and ketchup.

So, should you panic over pigments? The simple answer is no. There have only been serious health problems associated with one of the pigments, canthaxanthin, and 774 of those have occurred in people taking thousands of milligrams of it in the form of "self-tanning pills." By contrast, eight ounces of farmed salmon has less than one milligram of canthaxanthin in it.

Swordfish, Shark, King Mackerel and Tilefish

While many fish issues are murky, health and food safety experts are generally in agreement about these four species. They contain high levels of mercury and should be totally avoided by certain people.

Mercury can cause permanent neurological damage in infants and fetuses. Swordfish, shark, king mackerel, and tilefish (which is sometimes marketed as "golden bass" or "golden snapper") are all "top of the food chain" species -- in other words, large, carnivorous fish that eat other fish. They have the highest mercury levels because mercury intensifies as it goes up a generation on the food chain.

So-called sensitive populations -- a group that includes women who are pregnant, nursing, or who may want to become pregnant, babies, and young children -- shouldn't eat these fish, the FDA says. Mercury can remain in the body for about a year, and PCBs can remain for six years, so it is particularly important that women who plan on conceiving limit their exposure to these toxins. What about everybody else? Researchers are trying to determine whether mercury causes harm to adult men and women past childbearing age. The FDA says the current science doesn't show mercury dangers for the general population, so the agency doesn't provide guidelines for how much the rest of us should eat. But Ms. Rice, the toxicologist, thinks the general adult public should probably eat no more than four ounces of shark, swordfish, king mackerel, and tile fish a month.

Tuna

Tuna, the unassuming staple food most likely to wind up in a lunchbox, actually poses one of the most complex fish dilemmas. Consumers have long heard that tuna contains mercury, but the level of contamination in canned tuna is a lot lower than in swordfish or shark. The reason canned tuna gets so much attention is that Americans eat so much of it.

Tuna steaks are higher in mercury than canned tuna. The FDA doesn't include tuna steaks on its "avoid" list for pregnant women, but many scientists and mercury specialists say the agency should. "Based on the data, yeah, we think

that tuna steaks and sushi should be in the 'do not eat' category" for pregnant women and kids, says Michael Bender, the director of the Mercury Policy Project, a non-profit group.

Mr. Bender points out that twelve states, including California, Washington, and Minnesota, have issued their own fish advisories, some counseling pregnant women and women who want to become pregnant to stay away from fresh tuna altogether and limit their intake of canned tuna to six ounces a week. Some states, such as Washington, advise that kids eat far less canned tuna -- from one to three ounces a week, depending on the child's size.

The FDA says it is analyzing tuna and may publish new recommendations at the end of the year. In the meantime, one sensible approach for the general public is to keep a count of how much risky fish you eat each week. Eliseo Guallar, an epidemiologist at Johns Hopkins Bloomberg School of Public Health, strongly recommends that people follow the American Heart Association's advice to eat fish twice a week. But if one of those meals is a tuna steak or eight ounces of canned tuna, he says, the next meal should be of a low-mercury fish such as flounder, shrimp, farmed rainbow trout or tilapia.

Recreationally Caught Fish

While you might think that fresh fish you reel in yourself is the healthiest, the opposite is often true. Tens of thousands of lakes and hundreds of thousands of river miles are under some kind of health advisory -- usually because the seafood has high mercury and PCB levels.

Before eating any fish you catch, look up the local advisory on the EPA's national database at <http://www.epa.gov/ost/fish/4>. Click on the National Listing of Advisories, and plug in the water body where you will be fishing. Larger fish tend to have greater concentrations of toxins, so many advisories tell anglers to let the big ones get away.

The EPA recommends women of childbearing age eat no more than six ounces of recreationally caught fish a week; children should eat no more than two ounces a week. And by no means should anyone eat local fish if the health advisory tells you not to.

Shrimp and Shellfish

Fortunately for consumers, there are many kinds of commercially caught fish and seafood that aren't generally associated with toxin risk. These include shrimp and shellfish, as well as cod, tilapia, sole and wild salmon, among others. Most scientists agree that these fish are healthy to eat more than once a week. But because all fish have at least small amounts of contaminants, the FDA says

sensitive populations should limit their intake of any kind of fish to 12 ounces a week and it should always be cooked.

Fish Oil Supplements

With all the debate swirling around fish, some people may be tempted to just skip it altogether and pop a few fish oil pills instead. That isn't a good policy, says Mr. Santerre, the toxins expert. He conducted a limited study of 26 fish oil supplements and found that in many cases, if consumers take as many as the back of the bottle says to they will consume high levels of PCBs. PCBs concentrate in the fats and oils of fish, which is exactly what the supplements are made of.

But the solution is simple enough, Mr. Santerre says. Just take one pill every two days, no matter what the back of the bottle says. And then to fulfill the rest of your omega-3 needs, eat leafy greens, nuts, seeds -- as well as some fish.

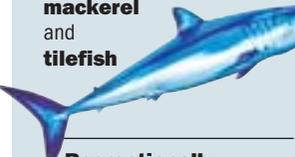
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Fish School

Health experts recommend eating a variety of fish twice a week. Here's how to do it safely.

FISH	BENEFITS	CONCERNS	BEST ADVICE
 <p>Salmon</p>	An excellent source of omega-3 fatty acids .	PBC levels are relatively high in farmed salmon. Farmed salmon is also fed chemical pigments, which worry some consumers.	Eat wild salmon without worry – it is low in both mercury and PCBs. Toxins expert Charles Santerre says everyone can eat eight ounces of farmed salmon per week and remain within the EPA's acceptable PCB intake levels. Experts say not to worry about pigments.
 <p>Tuna</p>	Good source of omega-3s though levels vary: tuna steaks have the most, then canned "albacore," then "light" tuna.	Tuna is relatively high in mercury . Fresh tuna is likely to be highest, because it is cut from the largest fish. Canned "albacore" tuna is also high, while "light" tuna has lower mercury levels.	Children: To be extra careful about mercury, children should eat "light" tuna and no more than once a week. Alternate with pouch salmon. Sensitive populations*: Some evidence suggests this group should not eat tuna steaks. Eat canned tuna just once a week, says toxins expert Mr. Santerre. General public: Keep a running "mental mercury count" over the course of a month. If you eat a tuna steak or swordfish, don't consume tuna again for a week or two.
 <p>Catfish</p>	Low saturated fat. Source of protein and some omega-3s.	Both farmed and wild catfish may have some PCBs .	Prepare catfish by baking, broiling or grilling so that fats run off. Control you overall PCB load by limiting the amount of animal fat in your diet.
 <p>Swordfish, shark, king mackerel and tilefish</p>	Low saturated fat, sources of omega-3s and protein.	All are high in mercury .	Sensitive populations: Don't eat these fish at all. General public: Remember your "mental mercury count." If you eat one of these fish, don't eat more high-mercury fish that month, toxicologists say.
 <p>Recreationally-caught fish</p>	Fun to catch and a fresh source of protein	Many of the fish in our national waters are full of dangerous toxins like mercury, dioxins and PCBs	Check your local fish advisory by calling your local health department or checking the EPA's web site on www.epa.gov/ost/fish/ and click on National Listing of Advisories. Women of child bearing age and pregnant and nursing women should eat just six ounces a week; children just two.
 <p>Shellfish, shrimp, cod, tilapia, farm-raised rainbow trout, perch, flounder/sole</p>	Good sources of protein. Trout is relatively high in omega-3s.	These fish are low in toxins .	Include plenty of these types in your diet. Sensitive populations can eat up to 12 ounces a week of all fish and should choose lots from this list.
 <p>Smoked, cured, or canned fish and sushi</p>	Tasty way to add omega-3s and protein to your diet.	Smoked and cured fish is not cooked, so fats do not cook off . This may mean more PCBs remain in the fish; however, people generally consume small portions of these fish.	The FDA recommends pregnant women do not eat raw fish. Don't overlook the benefits of canned fish: the oily varieties like herrings and sardines are especially high in omega-3s.

*Sensitive populations are women who may become pregnant in the future, women who are nursing or pregnant, babies and young children