

## Ask the Expert: Mercury in Fish--What is Safe to Eat?

Written by Amanda Crawford, Undergraduate Student in Nutrition Science



Nearly all fish contain traces of mercury, but it is the amount of mercury in the fish that determines how safe it is to eat and what quantity is safe to eat. Knowing which kinds of fish are safe to eat and in what amount can help you maximize the nutritional benefits of eating fish and minimize the risks that are linked with mercury in some types of fish.

Mercury is a chemical that can build up in streams and oceans and is absorbed by fish and shellfish. Larger fish tend to contain more mercury, as do fish that have been alive for a longer period of time. High concentrations of mercury could potentially result in brain or nervous system damage, particularly in young children or unborn babies.

When eating fish, it is important to be aware of which fish are safe to eat and which pose the highest risk. Fish that are high in mercury and should not be eaten include shark, swordfish, king mackerel, and tilefish. Fish that contain low amounts of mercury and are recommended include shrimp, canned tuna, salmon, Pollock, and catfish. Up to twelve

ounces of fish can be eaten per week, which would mean having fish for about two meals a week.

Check local advisories concerning the safety of fish that is caught locally in rivers or lakes. If no local advisory is available, no more than six ounces of local fish should be eaten in a week, and no other fish should be eaten that week in addition to the six ounces. For information about locally caught fish, contact your state Health Department or visit the EPA's Fish Advisory website.

Mercury poses an especially hazardous risk for women who are pregnant or may become pregnant, women who are nursing, and young children. High doses of mercury could lead to developmental disorders or learning disabilities in young children. Women who are trying to become pregnant should be aware that mercury can build up in the blood stream over time, and that it could take a year or more for mercury levels to drop. Please see this month's insert for a free printable wallet card that recommends how much of different types of fish

pregnant or nursing women and women who may become pregnant can eat.

Despite containing toxicants, eating fish offers important health benefits. Fish contains omega 3-fatty acids and is low in solid fats, making it a lean protein and part of a healthy diet. The 2010 Dietary Guidelines recommends eating 8 or more ounces per week (less for young children) of a type of seafood.

**Sources:** [http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice\\_index.cfm](http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm) <http://www.fda.gov/food/foodborneillnesscontaminants/buystore-servesafefood/ucm110591.htm> <http://www.nrdc.org/health/effects/mercury/index.asp>; <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/Policy-Doc/Chapter4.pdf>

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# Food Safety: Fish

Written by Amanda Crawford, Undergraduate Student in Nutrition Science

When preparing fish at home it is important to follow recommended food safety guidelines in order to keep potential risks at a minimum.

## Safely Buying Fish at the Store

- Do not purchase fish that is not properly stored. The fish should either be refrigerated or displayed on a thick bed of ice in a case.
- Examine the quality of the fish. The fish should smell fresh and mild, and the eyes should be clear and bulge slightly.
- Examine the packaging. The packaging should not be torn or crushed. Avoid purchasing packages with ice crystals; ice crystals indicate that the fish has been stored too long or that it has been defrosted and re-frozen.

## Safely Storing Fish at Home

- Fish should be placed in the refrigerator or freezer as soon as possible after returning home from the store.
- Only store fish in the refrigerator if it will be used within two days.
- Unpackaged cooked seafood should be stored separately from raw seafood in order to prevent bacterial contamination.



## Safely Defrosting Fish

- Never place frozen fish out on the counter to thaw at room temperature.
- Thaw the fish by placing it in the refrigerator overnight, defrosting in the microwave, or putting in a plastic bag and placed into cold water.
- Do not defrost fish in the microwave unless it will be cooked immediately afterwards.



## Safely Preparing Fish

- The minimum safe internal cooking temperature for fish is 145°Fahrenheit.
- When fish is fully cooked the flesh is opaque and will easily separate with a fork.
- Do not consume fish that smells like ammonia. This indicates that the fish is not thoroughly cooked or is spoiled.

## Safely Working with Raw Food

- Remember to always wash hands before and after handling raw food!
- Thoroughly wash utensils and cutting boards after using.
- Reserve one cutting board for produce and use another one for raw meat or seafood to prevent contamination.

Remember that you can always visit the FDA website for further information on safely buying and preparing fish and seafood!

**Source:** <http://www.fda.gov/Food/FoodbornellnessContaminants/BuyStoreServeSafeFood/ucm077331.htm>; **Photos:** <http://snap.nal.usda.gov/photo-gallery>

Written by Briana Rapp, RD, CD

Herbs and spices enhance flavor and are an alternative to seasoning with salt. An herb refers to the leaves of a plant and a spice is any part of the plant except the leaves (ie. roots, seeds, etc). Herbs are not as potent as spices, so they are often used in greater amounts. Store herbs and spices away from air, light, moisture, and heat, as these elements speed up spoilage. Spices will typically last a year. Buy only the amount you need or store spices in the freezer. Ground or fresh herbs and spices should be added towards the end of cooking and whole spices and bay leaves should be added at the beginning and removed at the end of cooking. Herbs and spices for marinades or uncooked foods (ie. dressings) should be allowed to sit for several hours to allow the flavors to blend.

1 Tablespoon fresh herbs = 1 teaspoon dried leafy herbs = 1/4-1/2 teaspoon ground dried herbs

Source: <http://www4.ncsu.edu/~aibrant/cookingwithherbs.html>



Sources: <http://www.ipm.iastate.edu/ipm/hortnews/2003/8-22-2003/herbsnspices.html>; <https://www.fcs.uga.edu/ext/pubs/fdns/efnep/FDNS-NE-113a.pdf>; <http://www4.ncsu.edu/~aibrant/cookingwithherbs.html>; [http://www.spiceislands.com/spices\\_and\\_herbs\\_education/spices\\_vs\\_herbs](http://www.spiceislands.com/spices_and_herbs_education/spices_vs_herbs); Photos: [www.pixabay.com](http://www.pixabay.com)

## Simple Salmon

### Ingredients (4 servings)

- 1 pound fresh salmon or 4 salmon fillets, thawed
- 1 Tablespoon oil
- 1 Tablespoon Worcestershire sauce
- 1 Tablespoon lemon juice
- 1 Tablespoon parmesan cheese
- 2 teaspoons paprika

### Directions

1. Preheat oven to 400°F. Cover 9x9 baking dish with a sheet of foil (needs to be large enough to wrap the fish in a leak-proof pouch).
2. Lay the salmon on the foil, skin-side down for fresh salmon.
3. Top salmon with oil, Worcestershire sauce, lemon juice, parmesan cheese, and paprika.
4. Fold foil around fish, creating a leak-proof pouch. Bake in oven for 40-45 minutes.

NOTE: The foil pouch can also be grilled. Grill for approximately 20-30 minutes.

Recipe source (right): <http://recipefinder.nal.usda.gov/recipes/simple-fish-tacos>

\*Underlining denotes a TEFAP commodity food ingredient.

Fish is a good source of omega-3 fatty acids. These types of fats are known as essential fatty acids, meaning that we must get them from our diet. Omega-3 fatty acids aid in brain function and may reduce the risk of chronic disease, such as heart disease.

Below are suggestions for which herbs, spices, and other seasonings pair well with fish. Try baking, broiling, pan frying, grilling, or microwaving your fish, rather than deep frying. The recipes below feature two types of fish that are some of the lowest in mercury and provide omega-3 fatty acids.

### Spices:

- Allspice
- Ginger
- Celery seed
- Mustard
- Onion
- Paprika
- Curry
- Pepper
- Garlic
- Cayenne
- Cumin
- Chili powder

### Herbs:

- Bay leaves
- Cilantro
- Dill weed
- Rosemary
- Thyme
- Tarragon
- Chives
- Fennel
- Parsley
- Marjoram
- Sage
- Basil

### Others:

- Lemon juice
- Worcestershire sauce
- Parmesan
- Teriyaki sauce
- Sesame seeds
- Jalapeno pepper
- Yogurt/sour cream
- Citrus
- Bread crumbs
- Cooking wine

Sources: <http://umm.edu/health/medical/altmed/supplement/omega3-fatty-acids>.

## Delightful Fish Tacos

### Ingredients (6 servings)

- 1/2 cup low-fat sour cream
- 1/4 cup fat-free mayonnaise
- 1/2 cup fresh cilantro, chopped
- 1/2 package low-sodium taco seasoning, divided
- 1 teaspoon lime juice
- 1 pound cod or white fish fillets, cut into 1 inch pieces
- 1 Tablespoon oil
- 2 Tablespoons lemon juice
- 2 cups red and green cabbage, shredded
- 2 cups tomato, diced
- 12, 6-inch tortillas, warmed

### Directions

1. In a small bowl, combine sour cream, mayonnaise, cilantro, 2 Tablespoons seasoning mix, and lime juice.
2. In a medium bowl, combine cod, vegetable oil, lemon juice, and remaining seasoning mix; pour into large skillet. Cook stirring constantly, over medium-high heat for about 10-15 minutes or until cod flakes easily when tested with a fork.
3. Fill warm tortillas with fish mixture.
4. Top with cabbage, tomato, sour cream mixture, and taco sauce.

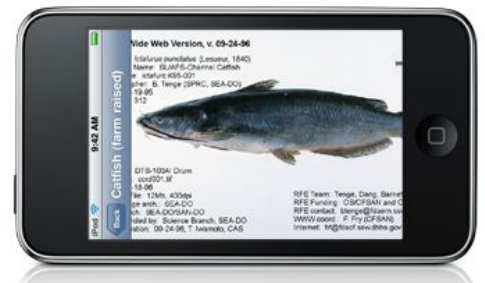
Send comments and/or change of address to:  
Indiana's Emergency Food Resource Network  
Department of Nutrition Science  
Purdue University  
700 West State Street  
West Lafayette, IN 47907-2059  
Phone: (765) 496-3455  
Fax: (765) 494-9606  
Email: [brapp@purdue.edu](mailto:brapp@purdue.edu)  
Website: [www.purdue.edu/indianasefrnetwork/](http://www.purdue.edu/indianasefrnetwork/)

This newsletter is created by faculty and staff in the Department of Nutrition Science at Purdue University. This institution is an equal opportunity provider.

## Choosing fish is easy with an easy-to-carry wallet card or phone app

Written by Briana Rapp, RD, CD

Women who are pregnant or nursing, of childbearing age, or have children 2-6 years old need to pay careful attention to the type of fish they or their children are consuming due to harmful toxicants present in some types of fish. However, despite these precautions, eating fish provides essential nutrients and is part of a healthy diet. To help consumers easily navigate the grocery store and understand which types of fish to choose, a team at Purdue University has compiled these recommendations into an easy-to-carry wallet card and a free iPhone or Android phone application. With these tools, consumers can easily and quickly monitor their fish intake. Please refer to this month's supplemental insert to find the printable wallet card.



More information about each section of this wallet card can be found on [www.fish4health.net](http://www.fish4health.net). The website is also host to other helpful fish information such as the health benefits of seafood, risks from contaminants in fish, and a video series on how to clean and prepare fish. In addition, local fish consumption advice is available for every county in Indiana, which is updated by the Indiana State Department of Health continuously.