



Seafood Health Facts: Making Smart choices

Balancing the Benefits and Risks of Seafood Consumption

Resources for Healthcare Providers and Consumers

Seafood Safety Overview [1]

Most experts agree that the seafood supply is safe. However, just like other perishable foods, there are potential risks that can be associated with bacterial or viral contamination, naturally occurring toxins, and chemical contaminants. The following overview of seafood safety concerns is intended to help you understand potential risks associated with different kinds of seafood products and ways to reduce or minimize them.

Raw Seafood that will be Cooked

All raw foods contain bacteria, and both spoilage bacteria and "food poisoning" bacteria can grow and multiply rapidly if food is left for several hours at room temperature. Pathogens are the primary food safety concern with regard to seafood. Some types of fish may also contain naturally occurring parasites. When seafood is properly handled and cooked, the risk of foodborne illness from pathogens or parasites is minimal. Poor handling practices, such as failure to prevent raw foods from coming in contact with cooked or ready-to-eat foods (cross contamination), and lack of proper temperature control are significant factors that can lead to pathogen growth and foodborne illness.

The following tips can help to reduce risk from microbial pathogens or parasites that may be associated with raw seafood.

- Keep seafood refrigerated below 40°F until ready to use.

- Separate cooked and raw seafood. Wash utensils before re-using to avoid cross-contamination.

- Wash hands before and after handling any raw or cooked food.

- Cook seafood thoroughly to an internal temperature of 145°F for at least 15 seconds.

- Keep hot foods hot and cold foods cold; avoid holding temperatures between 40-140°F.

Ready-to-Eat, Raw, or Partially Cooked Seafood Products

Raw seafood is commonly served in dishes like sushi and sashimi, consumed as clams or oysters on the half shell, or used in marinated dishes like ceviche. All of these products and other products that will not be cooked before they are consumed such as seafood salads, sandwiches and cocktails are considered ready-to-eat. Other seafood products such as lightly smoked fish (e.g. salmon lox) may only be partially cooked. The raw or partially cooked fish and shellfish in these products may contain pathogens that would normally be killed if these products were fully cooked before they are eaten. For this reason certain individuals who may be at increased risk of complications from foodborne illness should avoid these products. It is also important to make sure that these products are not exposed to temperatures above 40°F for an extended period of time to prevent pathogens from growing to levels that could cause illness.

Some species of finfish can naturally contain parasites (see [Seafood Safety Topics: Parasites \[2\]](#)). If these species are used in raw or partially cooked products like sushi, ceviche or lightly smoked fish, they must be frozen prior to serving to kill any parasites that may be present.

The following tips can help to reduce risk from microbial pathogens or parasites that may be associated with seafood products that are served raw or partially cooked.

- Buy or order only from reputable establishments that have high standards for quality and sanitation.

- Avoid cross contamination during storage, preparation and serving.

- Keep ready-to-eat or partially cooked products as cold as possible (close to 32°F) at all times

including when transporting them home and during refrigerated storage. Serve these products in ways that keep them cold or limit the time that they are exposed to room temperature.

The following consumers should not eat raw or partially cooked fish or shellfish:

- Pregnant women
- Young children
- Older adults
- Immuno-compromised individuals
- Individuals with decreased stomach acidity

Seafood toxins

Toxins can occur naturally in some types of seafood and are not destroyed by cooking. Shellfish toxins are produced during algae blooms. They can cause gastrointestinal and/or neurological problems. Finfish toxins can be naturally occurring or caused by improper handling. Ciguatoxin occurs in some tropical reef fish. It causes gastrointestinal, neurological, and respiratory problems. Visitors to tropical areas should only eat fish from reputable places. Histamine is a toxin produced when certain types of fish are not properly chilled. It can cause an allergy-like reaction when the fish is eaten.

The following tips can help to reduce risk from toxins in some types of fish or shellfish.

Buy or order only from reputable establishments that have high standards for quality and safety. Use caution and check local advisories or health warnings before eating fish or shellfish that you catch yourself or that is given to you by others especially if you are unfamiliar with the area and condition of local waters (e.g. on vacation or business travel).

Allergens

Finfish and crustaceans can cause an allergic reaction in some people. Current regulations require that all foods that contain any of the major food allergens be properly labeled so that individuals with an allergy to a specific food can avoid it. Individuals are often only allergic to a certain species of fish or shellfish and can safely eat other types of seafood. Fish and crustaceans, like crab, shrimp and lobsters, are two of the eight foods that account for most food allergies. Individuals who are allergic to these foods must avoid them and read the labels on the products they consume to determine if the foods they select contain the allergen. An allergy to one type of seafood does not mean the individual is allergic to all seafood products, allergy testing should be recommended.

Environmental contaminants

Man-made pollutants like polychlorinated biphenyls (PCBs) and pesticides (see [Seafood Safety Topics: Man-made Pollutants](#) [3]) can be a concern in fish or shellfish primarily from fresh waters, estuaries, and near-shore coastal waters rather than the open ocean. Recreational and subsistence anglers, along with pregnant women and children who eat large amounts of fish caught by family or friends in contaminated waters are at greatest risk. Most commercial species of fish are well below federal limits for these contaminants. Exposure to these contaminants from fish can be lowered by up to 40% by removing the skin and trimming the fat.

Mercury occurs in the environment as a result of natural processes and human activity, such as fossil fuel burning. Mercury is transformed by bacteria in water to an organic form called methylmercury (MeHg). MeHg is the most toxic form of mercury, and it can accumulate in the food chain. Recently there has been increased concern with the possibility of the accumulation of mercury in larger and older fish, and government authorities have issued advisories to help special populations reduce their exposure. Special populations include women who are pregnant, will become pregnant, or are breastfeeding; and young children. These populations should eat at least 8 ounces and up to 12 ounces of a variety of fish per week, but should avoid shark, swordfish, tilefish, and king mackerel because of their higher mercury levels. Most of the commonly consumed seafood in the United States is low in mercury, and smaller, short lived species such as salmon, pollock, shrimp, catfish, or shellfish are all popular low mercury choices. For more information see [Seafood](#)



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[1]
<https://www.seafoodhealthfacts.org/seafood-safety/general-information-healthcare-professionals/seafood-safety-overview>

[2]
<https://www.seafoodhealthfacts.org/seafood-safety/general-information-healthcare-professionals/seafood-safety-topics/parasites>

[3]
<https://www.seafoodhealthfacts.org/seafood-safety/general-information-healthcare-professionals/seafood-safety-topics/man-made>

[4]
<https://www.seafoodhealthfacts.org/seafood-safety/general-information-patients-and-consumers/seafood-safety-topics/mercury-seafood-0>