

SEAFOOD-ASSESSING THE BENEFITS AND RISKS

Seafood is a source of high-quality protein and many other health promoting vitamins and minerals. Most importantly, seafood supplies much of the omega-3 polyunsaturated fatty acids found in the U.S. diet.

All fish contain omega-3 polyunsaturated fatty acids but oily fish,

such as salmon and trout, are the best source. To reap the health benefits of seafood, the American Heart Association recommends eating fish twice a week.

Research results indicate that seafood consumption is associated with a decreased risk of cardiovascular events and



Continued page 2

KEEPING SEAFOOD PATHOGENS AT BAY

Cooking fish and seafood to the proper temperature, 145°F. for 15 seconds, will minimize the risk of foodborne illness. However, many people choose to eat raw or undercooked fish or seafood which increases their risk of becoming sick. Unfortunately

the viruses, bacteria and parasites found in seafood can't be seen, smelled or tasted. Knowing the common foodborne pathogens linked to fish and seafood will help you to serve safer seafood and keep your customers safe.

Two major viruses associated with shellfish are Hepatitis A and Norovirus. Both viruses are found in the feces of people infected with it. The viruses can contaminate water through sewage. Since many shellfish filter out microorganisms from

Continued page 3

PROMOTING FOOD SAFETY IN YOUR ESTABLISHMENT

You've gone to the time and expense of training yourself and your staff on the best practices of food safety. You have a certificate from the National Restaurant Association to prove it. Now what? Aside from the obvious, following the best

practices in safe food handling, how can you let your customers know about your commitment to food safety? Serving safe food is not readily obvious. You can't see, smell or taste bacterial contamination of food, and neither can your

customers. They expect the food they eat at your restaurant to be safe, the dining room and restrooms to be clean, and that your staff follows safe food handling protocols. Can your customers see that your staff wear gloves when handling food?

Continued page 4



SEAFOOD-ASSESSING THE BENEFITS AND RISKS *Continued from page 1*

death. More research is needed to determine how omega-3 fatty acids contribute to this risk reduction. Omega-3 fatty acids may benefit those people who already have heart disease but, again, more research is needed. Preliminary research results indicate that infants born to women who eat omega-3 rich fish while pregnant, may have better vision and brain development.

While the benefits of eating seafood are widely known, the potential risks associated with seafood are increasingly the focus of media reports. Health risks include the presence of methylmercury, dioxins and polychlorinated biphenyls, naturally occurring toxins, and microbial contamination.

The U.S. Food and Drug Administration (FDA) and Environmental Protection Agency (EPA) issued an advisory for mercury in fish in 2004. The advisory targets only those groups at highest risk, including: women who might become pregnant, pregnant women, nursing mothers and young children.

For these target groups, FDA and EPA recommends three strategies for minimizing exposure to methylmercury. First, avoid eating species known to contain high levels

of mercury, for example, shark and swordfish. Second, eat up to 12 ounces per week of fish and shellfish known to be lower in mercury, such as shrimp, canned light tuna, and salmon. However, no more than 6 of the 12 ounces should be canned albacore tuna which contains higher amounts of mercury than canned light tuna. And third, check local advisories before eating fish caught in local lakes, rivers, and coastal areas.



Omega 3 Vitamins

Naturally occurring biological seafood toxins include histamine, ciguatoxin, saxitoxin, brevetoxin and domoic acid. Seafood is also susceptible to microbial contamination. The preliminary FoodNet foodborne illness outbreak surveillance data for 2006 marked the highest incidence of *Vibrio* infections

since data collection began. *Vibrio* infections are commonly associated with eating raw seafood, especially oysters.

To determine whether the benefits of eating seafood outweigh the risks, Mozaffarian and Rimm conducted a study of all published research and government reports through April of 2006. They looked at the health benefits as well as the risks from methylmercury and dioxin and polychlorinated biphenyls in fish. These researchers concluded that the benefits of eating seafood outweigh the risks.

Eating 1 to 2 servings of fish per week, especially those species rich in omega-3 fatty acids, decreased the risk of coronary death by 36%. Because methylmercury can negatively affect individuals in the high risk groups mentioned in the FDA/EPA advisory, they should limit intake to 2 servings per week, and choose species known to have lower amounts of mercury. For all groups, it is important to vary the types of seafood you eat to minimize risks.



KEEPING SEAFOOD PATHOGENS AT BAY *Continued from page 1*

the water, they may also filter out viruses. If shellfish is harvested from contaminated water and served to customers, people may get sick.

Only a small amount of the virus is needed to cause illness, and cooking does not destroy the virus. The most important actions you can take to prevent hepatitis A and Norovirus are exclude employees who have been diagnosed with these viruses from your operation until they have a written medical release, wash hands properly, minimize bare-hand contact with ready-to-eat seafood, and purchase shellfish from approved, reputable suppliers.

Vibrio vulnificus is a bacteria associated with eating raw oysters. The bacteria occurs naturally in warm, coastal waters such as the Gulf of Mexico. Since oysters feed by filtering water, *V. vulnificus* can concentrate in their tissues.

Like other seafood, oysters should be purchased from approved, reputable suppliers. Since the bacteria isn't associated with pollution, eating raw oysters from "clean" waters doesn't make them safe. The only way to destroy the bacteria and make oysters safe to eat is with thorough cooking.

Many fish, including herring, cod, halibut, mackerel and Pacific salmon, can be hosts to parasitic worms. *Anisakis simplex* can make people

sick when they eat raw or undercooked fish containing this parasite. To prevent illness, cook fish to 145°F. for 15 seconds to kill the worms. FDA recommends that all fish and shellfish intended for raw (or semiraw such as marinated or



partly cooked) consumption be blast frozen to -31°F. or below for 15 hours, or be regularly frozen to -4°F. or below for 7 days.

Seafood can also produce or contain toxins that make people sick. Scromboid poisoning is the most common fish poisoning in the United States. Scromboid poisoning can occur when fish are time-temperature abused during storage and preparation. Bacteria on scromboid species of fish, such as tuna, bonito, mackerel, and mahi mahi, can produce histamine when not held at 41°F. or below.

Eating fish with high levels of histamine can cause burning or tingling in the mouth, rash and a drop in blood pressure.

Symptoms may progress to diarrhea and vomiting. Cooking or freezing will not destroy the toxin, so it is important to prevent time-temperature abuse.

Predatory tropical reef fish, such as barracuda, grouper and snapper, can cause ciguatera fish poisoning. The poisoning starts when smaller fish eat marine algae that contains ciguatoxin. As the predatory reef fish feed on the smaller fish, the toxin builds up in the fish's tissues. Again, cooking or freezing will not destroy toxins, so purchasing fish from approved, reputable suppliers is the best prevention against ciguatera poisoning.

Paralytic shellfish poisoning, neurotoxic shellfish poisoning and amnesic shellfish poisoning can result when some types of shellfish filter toxic algae from the water. Clams, mussels, oysters and scallops should be purchased from approved, reputable suppliers to prevent these toxic poisonings.

Remember, people at greatest risk for foodborne illness should not eat raw or partially cooked fish or shellfish. These susceptible groups include: pregnant and nursing women, young children, older adults, and people with compromised immune systems or chronic disease.



PROMOTING FOOD SAFETY IN YOUR ESTABLISHMENT *Continued from page 1*

Is there signage in the rest rooms telling employees to wash their hands before returning to work? Are their uniforms and aprons clean?

If you were opening a new restaurant, hanging your menu or had a new cook you would advertise. Why don't you advertise your commitment to food safety? Place your SERVSAFE® certificate where your patrons can see it.

If more than one person is certified in safe food handling make sure every certificate is displayed. Consider sending a picture and press release to the

local papers when a staff member passes the SERVSAFE® exam. Add something to your menu that points out how important you and your staff feel about serving safe food. One establishment added a sentence to their menu stating that a certified food safety manager would be on the premises at all times. Consider purchasing stickers that go on your leftover containers telling the customer that food should be refrigerated when they get home, and re-heated thoroughly before eating.

In the last few years consumers have heard about contaminated

spinach, peppers, onions, beef, berries, peanut butter...and the list goes on. Consider the competitive nature of the food service industry. What differentiates you from your competitors? As your potential customers make hard decisions in these troubling economic times, it just may be that your commitment to food safety, and how you let the public know about it, that helps a customer choose your eating establishment over the one across the street. What have you got to lose?



**UNH Cooperative Extension
Offices**

- Belknap County
527-5475
- Carroll County
447-3834
- Cheshire County
352-4550
- Coos County
788-4961
- Grafton County
787-6944
- Hillsborough County
641-6060
- Merrimack County
796-2151
- Rockingham County
679-5616
- Strafford County
749-4445
- Sullivan County
863-9200

UNH Cooperative Extension programs and policies are consistent with pertinent Federal and State laws and regulations and prohibits discrimination in all its programs, activities and employment on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sex, sexual orientation, veteran's, marital or family status. N.H. counties cooperating.

