



LESSON 3

SEAFOOD-BORNE ILLNESSES & RISKS FROM EATING SEAFOOD

INTRODUCTION

What or whom does one believe? For many food safety questions, experts have differing viewpoints about the actual risk to human health. The news media also have contributed to the confusion surrounding the issue of seafood safety. It seems almost every article extolling the health benefits of seafood consumption also warns of consequences from eating seafood. Communicating food-related risks is difficult at best and, in worst-case situations, can scare consumers away from a food more beneficial than harmful. After a well-publicized federal advisory in 2001 recommended pregnant women limit eating certain fish because of concerns about mercury, overall fish consumption declined among pregnant women. Other studies suggest unintended changes in consumption patterns appeared among individuals not belonging to the targeted group.

Communicating food-related risk requires alerting consumers when they need to be alerted—and reassuring consumers when they need to be reassured. Consider what people perceive as posing less or more risk (based on V. Hillers, 1990):

Less Risky	More Risky
Voluntary exposure	Involuntary exposure
Familiar	Unfamiliar
Controlled by self	Controlled by others
Not fatal	Fatal
Foodborne illnesses	Chemical residues
Natural	Artificial
Old risk	New risk
Known to science	Unknown to science

Evidence suggests consumers are most concerned about contaminants in seafood, especially mercury. In a survey, respondents were asked to identify seafood safety hazards. Sixty-five percent specifically cited mercury and 15% cited contaminants in general. Public perception does not reflect the actual risks associated with eating seafood. Most food safety experts believe improper handling is the most important safety concern and the leading cause of foodborne illness. Where the cause of a foodborne illness is known, the majority of cases are due to bacteria.

The media and others have given considerable attention to mercury and polychlorinated biphenyls (PCBs). Yet the risks may be overstated. Mercury presents the greatest health concern for women of reproductive age and young children. Children exposed prenatally to mercury are at increased risk of subtle neurodevelopmental problems, such as learning impairments and developmental delays.

The potential health risks associated with PCBs in seafood remain uncertain due to a lack of evidence or strong research findings. Unlike mercury, PCBs occur in other fat-containing foods, such as milk, butter, and meat, in addition to seafood. Reports of adverse health effects due to PCB exposure refer to workers in chemical plants or to those living or working near environmental contamination. This exposure is much greater than the tiny amounts the general population consumes in food.

The concerns about mercury have been overstated, and those about PCBs have been misrepresented. The key is to put the benefits and risks into perspective. Many varieties of seafood are safe. Some types of seafood can be risky for certain groups of people. The majority of the top ten species of seafood consumed in the U.S. are low in mercury. Some are very low (<http://www.fda.gov/food/foodborneillnesscontaminants/metals/ucm115644.htm>). In 2004, the Food and Drug Administration and the Environmental Protection Agency issued a joint mercury advisory for seafood specifically for the high-risk group comprising women of reproductive age and young children. The agencies recommended this high-risk population consume up to 12 ounces per week of seafood low in mercury, specifically shrimp, canned light tuna, salmon, pollock, and catfish—the top five species consumed in 2004. The four species to avoid—shark, swordfish, king mackerel, and tilefish—are rarely eaten by consumers.

A substantial and growing body of scientific evidence suggests the benefits of eating seafood outweigh the risks among individuals who consume seafood low in mercury. The majority of the population does not eat enough seafood to maximize the associated health benefits. Government agencies and private nonprofits encourage increased seafood consumption. Individuals should eat a variety of seafood twice a week to gain the most benefits and to minimize the potential risks. Women of reproductive age and young children should follow the FDA/EPA advisory (1) to eat up to 12 ounces a week of a variety of seafood low in mercury, but (2) to avoid species high in mercury, such as shark and swordfish.

Lesson 3 contains a large amount of technical information. The objective is to put the risks associated with seafood consumption into proper perspective. A greater public health concern arises from improper handling (temperature abuse), inadequate cooking, and poor hygiene, which can lead to microbial hazards. Certain hazards associated specifically with seafood persist, including scombroid poisoning and the eating of raw shellfish by at-risk individuals. These topics are covered in the lesson. The Seafood Network Information Center (Seafood NIC) is an excellent resource for additional information on the benefits and risks of seafood consumption: <http://seafood.oregonstate.edu/>