



Seafood Health Facts: Making Smart choices Balancing the Benefits and Risks of Seafood Consumption *Resources for Healthcare Providers and Consumers*

Raw Molluscan Shellfish [1]

Overview

Bivalve molluscan shellfish like clams and oysters are commonly eaten raw or partially cooked. Due to where they live, how they feed, and how they're eaten, these shellfish can contain bacteria or viruses that can cause illness. Bivalves live close to the shore in waters which may be contaminated with bacteria and viruses from runoff or from land or sewage discharges. These shellfish obtain food by pumping water through their system and filtering out small organisms. As a result, their digestive system, which is one of the parts that we eat, can contain bacteria and viruses from the waters in which they live. These microorganisms can then be ingested if the shellfish are eaten raw. For this reason, certain people should avoid eating raw or partially cooked shellfish including: young children, females who are pregnant or nursing, immune-compromised individuals, older adults, and individuals with decreased stomach acidity.

Food Safety Issues

Pathogenic bacteria may be present in raw bivalve molluscan shellfish like clams, oyster, and mussels. Some pathogens that may be present are associated with human or animal waste or sewage such as *Salmonella*, *Shigella*, *Campylobacter* or viruses such as Hepatitis A and Norwalk. Other pathogens such as *Vibrio vulnificus*, *Vibrio parahaemolyticus*, and *Vibrio cholerae* are naturally occurring in the marine environment and are not associated with sewage or animal waste. These *Vibrio* species can cause both gastrointestinal illness, and higher risk individuals with pre-existing conditions can develop severe infections and septicemia which may be life threatening.

To minimize the risk that bivalve shellfish will contain these pathogens, the FDA and coastal state governments oversee a program that sets standards for shellfish growing waters and ensures that these waters are regularly tested. This program, called the National Shellfish Sanitation Program, is designed to ensure that shellfish harvested from certified waters meet safety standards. In addition, there are requirements to ensure that that effective refrigeration controls are in place to prevent these pathogens from growing to levels high enough to cause illness. Additional requirements are designed to ensure that all shellfish are properly tagged, all shellfish firms are licensed, and that their facilities and operations meet appropriate sanitary standards. This program has protected consumers for many years and large amounts of raw clams and oysters are consumed without incident.

High Risk Groups Should Avoid RTE Foods

Certain groups of people with pre-existing health conditions should avoid raw bivalve molluscan shellfish (clams and oysters) because they are likely to be at increased risk for serious complications when exposed to pathogens. High risk individuals include those who may have a compromised or weak immune system because of health conditions such as liver disease, cancer, chemotherapy patients, HIV infection, and stomach or intestinal problems (decreased stomach acidity), and certain groups such as the elderly, pregnant women and young children. These individuals should not eat raw or partially cooked bivalve molluscan shellfish.

Tips to Minimize Risk

The following tips can help those who choose to eat raw or partially cooked shellfish, including clams, oysters, and mussels, manage or reduce potential risks associated with this unique type of seafood product. These tips do not necessarily apply to other types of crustacean shellfish like shrimp, crabs or lobsters which are usually

cooked before they are eaten.

Buying: Always buy clams, oysters, and mussels from a reputable dealer.

Use caution if you harvest bivalve shellfish yourself. Obey posted warnings and check with local authorities to verify that the waters are certified for shellfish harvesting before you harvest them or decide to eat them.

Don't eat dead shellfish whose shells don't close tightly when tapped or agitated. (Some shellfish like soft-shell clams can't completely close their shell, but should move when touched.)

Handle and store shellfish properly. Keep live shellfish cool and damp in the refrigerator. Rinse when necessary to remove dirt or debris, but avoid prolonged contact with fresh water, drastic temperature changes, and airtight containers. Don't allow other foods, containers, utensils, or food handlers to contaminate or drip on them during storage, and when preparing or serving them.

High risk individuals who are more vulnerable to becoming ill from bacteria and viruses should avoid raw or partially cooked shellfish. This includes pregnant women, young children, older adults and people with compromised immune systems that have conditions like: cancer (especially during chemotherapy), liver disease, diabetes, chronic kidney disease, HIV infection and people with decrease stomach acidity or disorders of the digestive system.

Cook shellfish properly to further reduce potential risks. Oysters, clams, and mussels should be cooked in small batches so that those in the middle are cooked thoroughly. To cook live shellfish properly follow these suggestions. When steaming, cook for 4 to 9 minutes after the start of steaming. When boiling, after the shells open boil for another 3 to 5 minutes. Shucked products should be boiled for 3 minutes, or fried at 375°F for at least 3 minutes or baked at 450°F for 10 minutes.

Resources for Health Educators and Consumers

Interstate Shellfish Sanitation Commission - *Vibrio vulnificus* Educational Materials. This resource provides factsheets for healthcare professionals to help them understand the food safety risks associated with this common type of *Vibrio* and its potential serious impact on high risk individuals. Factsheets are also available for patients in English and Spanish. [Click here to visit this site](#) [2].

FDA - *Vibrio Vulnificus* Health Education Kit. This resource provides tools including publications and other tools for health educators to use to educate consumers and patients on the risks of *Vibrio* in raw bivalve molluscan shellfish in both English and Spanish. [Click here to visit this site](#) [3].

Delaware Sea Grant Factsheet - Consumers: Know the Facts About Eating Raw Shellfish. This factsheet by University of Delaware Seafood Technology Specialist Doris Hicks summarizes food safety concerns associated with raw bivalve molluscan shellfish and outlines the precautions that consumers can take to reduce risk. [Click here to see this factsheet](#) [4].

Centers for Disease Control - General Information on *Vibrio vulnificus*. This site provides information in a Question and Answer format on *V. vulnificus* infection, diagnosis and treatment. [Click here to visit this site](#) [5].

Safe Oysters.org This Website developed by extension outreach specialists at the University of Georgia and the University of California-Davis University of Georgia Marine Extension Service and California Sea Grant Extension Program is designed to be a gateway to *Vibrio vulnificus* information for healthcare providers, food educators, consumers, fishermen and commercial processors.

[Click here to visit this site](#) [6].



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