



# Prevent Shellfish Poisoning

Poisoning can result from ingestion of shellfish contaminated with phycotoxins. These toxins are produced by free-living micro-algae, upon which the shellfish feed. Bivalve shellfish such as clams, mussels, oysters, fan shells and scallops are common vehicles responsible for shellfish poisoning. This is because they are filter-feeders and naturally ingest the toxic algae in water. When the algae are toxin-producing, the toxins will be concentrated in the shellfish tissue, particularly in the viscera. The amount of toxin in the shellfish depends on the number of toxic algae ingested.

### **Harmful Algal Bloom (Red Tide)**

Harmful algal bloom, commonly known as red tide, occurs when the micro-algae grow very fast and densely accumulate in water to the extent that visible coloured patches appear. The occurrence of such algal "blooms" is a natural phenomenon. The concentration of toxin in shellfish living in the affected seawater rapidly increases. These toxins often cause little or no ill-effect on the shellfish. However, shellfish can concentrate the toxins and act as a vector transferring these toxic compounds further up the food chain to carnivores, such as fish and crabs, and are ultimately consumed by humans.

### **Toxic Algae - Dinoflagellates**

Dinoflagellates, a group of unicellular flagellated micro-algae, are notorious for the production of certain potent toxins. The toxins are heat-stable and cannot be destroyed by normal cooking. Dinoflagellates produce two types of toxins. One causes gastrointestinal problems and the other causes respiratory paralysis.

### **Classes of Shellfish Poisoning**

Four major classes of shellfish poisoning associated with red tide phenomenon have been identified:

- Paralytic Shellfish Poisoning (PSP)
- Diarrhoetic Shellfish Poisoning (DSP)
- Neurotoxic Shellfish Poisoning (NSP)
- Amnesic Shellfish Poisoning (ASP)



## **Paralytic Shellfish Poisoning (PSP)**

PSP is a life-threatening syndrome. Symptoms are mainly neurological and their onset is rapid. Symptoms include tingling, numbness, burning of the perioral region, ataxia, fever, rash and staggering. These may last for a few days followed by spontaneous recovery. However, there are some severe cases that may result in respiratory arrest within 24 hours of consumption of toxic shellfish.



## **Diarrhetic Shellfish Poisoning (DSP)**

This is the second commonest shellfish poisoning that may affect humans. As the name implies, symptoms of DSP are gastrointestinal in nature. Symptoms, usually begin within 30 minutes to a few hours after consuming contaminated shellfish, include diarrhoea, nausea, vomiting, chills, and moderate to severe abdominal pain and cramps. Complete recovery is expected within three days. No known fatality has occurred.



## **Neurotoxic Shellfish Poisoning (NSP)**

NSP is rare and not a life-threatening syndrome. Symptoms tend to be mild and usually include tingling of facial muscles, cold and hot sensory reversal, bradycardia and dilation of pupils. Symptoms may resolve quickly and completely within a few days.

## **Amnesic Shellfish Poisoning (ASP)**

ASP is caused by marine diatoms and characterised by both gastrointestinal and neurological disorders. Symptoms include vomiting, abdominal cramps, diarrhoea, headaches and in particular a short-term memory loss. ASP could be life-threatening.

## Precautions

- Buy shellfish from reputable and licensed seafood shops.
- Eat a smaller amount of shellfish in any one meal, and avoid eating the viscera, gonad and roe.
- Toxins that are heat-stable cannot be destroyed through cooking. However, cooking at 100 °C until their shells open, once open boiling for an additional 3-5 minutes may highly reduce the risk caused by microbiological contamination.
- Children, patients and the elderly may be susceptible to poisoning and should be cautious in consuming shellfish.
- When symptoms occur after consuming shellfish, seek medical advice immediately from nearby hospitals and save leftovers for investigation and laboratory testing.

For further information,  
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