Fish safety notes

Scombroid Fish Poisoning: Histamine Poisoning

Throughout the world, scombroid toxicity is a common illness associated with seafood. Within North American it ranks among the top four most often reported seafood-borne illnesses. The most common sources within Canada have been tuna and smoked mackerel.

How Does The Toxin Originate?

Scombroid toxicity, also known as **histamine poisoning**, results from ingesting fish incorrectly held at warm temperatures after capture or during subsequent handling and storage. Histamine is formed by bacterial decomposition of free histidine. Histidine is a naturally occurring amino acid found in the muscle tissue of fish harvested in tropical and temperate marine waters. The fish species most often implicated with histamine illness include mahi mahi, marlin, bluefish, mackerel, bonito and tuna.

What Are The Symptoms?

The onset of symptoms from scombroid poisoning are rapid and usually occur within ten minutes to four hours after consuming contaminated fish. Rapid onset is one reason scombroid poisoning may be reported more often than many other food poisonings which react much slower.

Initial symptoms suggest an allergic response with facial flushing and sweating, burning-peppery taste sensations about the mouth and throat, dizziness, palpitations, nausea and headache. These initial symptoms can advance to facial rash, hives, edema, short term diarrhoea and abdominal cramps. Severe cases may cause blurred vision, respiratory stress and swelling of the tongue. Symptoms usually last for approximately four to six hours and rarely exceed one to two days.

Not an allergenic reaction: scombroid poisoning can be easily confused with allergy symptoms!

Histamine Production

The production of histamine on fish can be fairly rapid. In one outbreak, threshold toxin levels were reached after only three to four hours of storage at room temperature.

The greater the temperature abuse, the higher the level of histamine that can be expected.

Levels in excess of 50mg/100g fish tissue are considered potentially dangerous. In Canada, imported fish is rejected if it contains more than 10mg of histamine per 100g of fish.

How Can You Protect Yourself?

Histamine is heat stabile: cooking, freezing, smoking and canning will not destroy the toxin. The best way to avoid scombroid poisoning is by preventing its production. This can be accomplished by:

1) **Refrigerate fish to 4°C (40°F) at all times.**
2) Reject fresh fish >4°C at delivery. Review delivery vehicle temperature logs.
3) Fresh fish should be used within 48 hours at refrigerated temperatures.

Common Food Poisoning Scenario: In 2007, a scombroidal histamine fish poisoning in Vancouver occurred when fresh ahi tuna was temperature abused before cooking and serving to a customer. Temperature abuse caused rotting (decomposition) and the formation of histamine in this fish.

Consumers: if you've been served raw or cooked fish with an *off* odour – don't eat it!

Histamine poisoning can also be caused by other fermented foods such as aged cheeses, fermented dry sausages and sauerkraut (refer to Food Safety Notes – Histamine Poisoning – Not Just Fish!).

Reference(s)

Kent, Willis and Lepik. 1997/ Poison Management Manual, 4th Edition. BC Drug and Poison Information Centre.

Updated: Nov 2013

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

For further information please contact your Fish Safety Officer at 604.707.2458 | fpinfo@bccdc.ca or your local Health Authority