

Ciguatera Fish Poisoning

On a worldwide basis, ciguatera is one of the largest public health problems associated with seafood affecting ~50,000 people annually. The illness is due to a toxin associated with a wide variety of popularly consumed tropical and subtropical fish.

How Do These Toxins Originate?

The ciguatera toxins are derived from naturally occurring algal dinoflagellates, *Gambierdiscus toxicus*, which bloom sporadically in tropical reef areas. Fish eating the algae become toxic - the effect is amplified up the food chain - the largest predatory fish are potentially the most toxic. The toxins appear to be concentrated in the viscera or head of the effected fish. As little as 70 ug of ciguatoxin can cause intoxication (illness) in an adult human.

Where Does Ciguatera Occur?

Ciguatera is generally found in ocean waters located between 35 North and 34 South latitudes. Problem areas include the South Pacific, Japan, Hawaii and the Bahamas. Prior to January 2008, south-eastern Florida was the only US area at risk but the range has been extended to include fish caught in the northern Gulf of Mexico (Flower Garden Banks). Fish linked to ciguatera poisoning include barracuda, grouper, snapper, mackerel, eel, sea bass and amberjack.

What Are The Symptoms?

Ciguatera exhibits both gastrointestinal and neurological symptoms. The time of onset can be several hours, and is usually less than 24 hours. No deaths in North America have been reported although on a world-wide basis, the mortality rate of ciguatera is 7 - 20 percent.

Gastrointestinal symptoms, which usually persist for around 12 hours (range <1 hour - 7 days), include diarrhoea, abdominal pain, nausea and vomiting. The neurological symptoms commonly include paraesthesia (abnormal skin sensations), vertigo, ataxia (lack of muscle coordination), cold to hot sensory reversals, aching teeth, myalgia (muscular pain) and itching. Neurological symptoms can recur intermittently from months to years.

How Can Consumers Protect Themselves?

It is important to note that Ciguatera toxins impart no unusual tastes, odour or colour to the fish, and that ciguateric fish cannot be made safe to eat by cooking, freezing, drying or smoking.

Listed below are suggested methods to avoid ciguatera:

- avoid large reef fish potentially contaminated with toxins;
- avoid eating the viscera, roe and head sections of all reef fish;
- those affected by ciguatera should avoid eating potentially toxic fish for several months since a second episode might cause a more severe reaction to smaller amounts of the toxin.

References:

1. Brett, M. 2003. Food Poisoning associated with biotoxins in fish and shellfish. *Current Opinion in Infectious Diseases* 16:461-465.
2. Food Protection Report. January 2008.
3. Heymann, D. *Control of Communicable Diseases Manual*. 18th Edition.

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*For further information
please contact your Fish
Safety Officer (604.707.2458)
or your local Health Authority*