



Naturally occurring seafood toxins

Ciguatera fish poisoning

Ciguatera poisoning is a form of food poisoning. It is caused by eating warm water ocean finfish that carry ciguatera poison (toxin). This poison is produced by a very tiny organism called a dinoflagellate, which attaches itself to algae growing in warm ocean water reef areas. Small plant eating fish eat this toxic algae and in turn are eaten by larger predatory fish which are eaten by humans.

What types of finfish cause ciguatera poisoning?

There are no specific rules that can be followed to detect ciguatera-carrying fish. Fish that feed in warm ocean waters are potential carriers of ciguatera toxin. Fish like chinaman, red bass and paddle tail have, in the past, caused ciguatera poisoning and many seafood marketers refuse to sell them. Today, problems are encountered with many fish species types including coral trout, Spanish mackerel, red emperor, wrasse, reef cod, sturgeon fish, trevally and kingfish.

Who is affected?

Anyone can be affected by ciguatera poisoning. Cases are often members of an angler's own family who eat the larger fish of the catch. These larger fish usually belong to a predatory species like coral trout or Spanish mackerel which feed on smaller ciguatera-carrying fish.

Ciguatera toxin does not affect the appearance, odour or taste of fish, no matter how much is present. Processes like cooking and freezing will not destroy it and there is no known culinary method that can remove it from a fish.

What are the symptoms?

Symptoms usually start one to 24 hours after eating a toxic fish. The time before onset of illness and the range of symptoms can depend on how much fish is eaten, how much toxin is in the fish and the individual susceptibility of the consumer.

Symptoms include:

- tingling and numbness in fingers, toes, around lips, tongue, mouth and throat
- burning sensation or skin pain on contact with cold water
- joint and muscle pains with muscular weakness
- nausea, vomiting, diarrhoea and/or abdominal cramps
- headache, fatigue and fainting
- extreme itchiness, often worsened by drinking alcohol
- difficulty breathing in severe cases

Minimising the risk

To minimise the risk of ciguatera fish poisoning, pay attention to the following:

- be aware that ciguatera toxic fish can not be detected by appearance, odour, texture or taste
- be aware that ciguatera toxin will not be removed or destroyed by freezing, cooking or any other processes
- avoid eating the head, roe, liver or other viscera of warm water ocean fish. Ciguatera toxin concentrates in these parts
- vary the type of warm water fish eaten
- avoid eating large warm water fish. Limit whole weight to around six kilograms per fish, as ciguatera fish poisoning occurs more frequently when larger fish are eaten
- when first eating a warm water ocean fish, eat a small portion only – no more than 300 grams. If ciguatera-like symptoms develop, do not eat further portions of that fish. See your doctor
- avoid mixing together fillets taken from different species of large warm water ocean fish
- do not catch fish from known ciguatera areas
- do not eat any unidentified fish that you catch yourself

Recovering from ciguatera fish poisoning

People recovering from ciguatera fish poisoning should avoid eating warm water ocean fish for at least six months. Alcohol should also be avoided for three months as this can cause ciguatera poisoning symptoms to recur.

Once recovered, eat only a small portion of fish, no more than 200 grams, initially. If symptoms recur, seek medical advice and avoid eating warm water ocean fish for a few more months.

More information is needed about the distribution of ciguatera fish poisoning in Australia. It is important to know what type of fish was involved and where it was caught. People experiencing or having experienced what they believe to be ciguatera poisoning should contact their local Queensland Health Population Health Unit.

Treatment

Promptly seek medical attention at the onset of symptoms. There is anecdotal evidence that an intravenous infusion of mannitol may give significant relief if commenced promptly. However, this has not been verified by controlled studies. Some symptoms may last for several months. However, most symptoms normally will disappear within days to several weeks.

Scombroid (histamine) fish poisoning

Histamine poisoning has similar symptoms to Ciguatera poisoning and can also result from the consumption of fish. The common symptoms of histamine poisoning are burning around the mouth, facial flushing and diarrhoea. In serious cases, histamine poisoning can be treated with anti-histamines.

Histamine poisoning is caused by a build up of histadine in certain types of fish. Histamine poisoning usually occurs in certain species of fish. Scombroid fish include mackerel, tuna, bonito, sardines, marlin and butterfly kingfish. There are other fish that have also been associated with histamine poisoning.

After being caught, bacteria within the fish begin to convert histadine to histamine. This can occur rapidly if fish is not chilled properly. Freezing or cooking the fish once it has been contaminated will not kill the toxin and prevent illness. Therefore, chilling the fish as soon as possible is important to prevent contamination by histamine.

Shellfish poisoning

Shellfish can also carry naturally occurring seafood toxins that can cause poisoning in humans. These include:

Paralytic shellfish poisoning – a very serious, potentially fatal disease affecting the nervous system which can occur within half an hour to two hours after consuming the affected shellfish.

Amnesic shellfish poisoning – another serious illness that can potentially cause death or coma. It affects the nervous system and the gut and symptoms usually appear within a day of eating the affected shellfish.

Neurotoxic shellfish poisoning – has symptoms similar to ciguatera poisoning (see above), but less severe, usually only lasting a few days.

Diarrhetic shellfish poisoning – symptoms usually appear approximately half an hour after consuming affected fish but lasts only a few days.

Department of Human Services (2007), *Naturally Occurring Seafood Toxins*, State Government of Victoria, www.health.vic.gov.au/foodsafety/downloads/toxins.pdf.

For further information

Contact your local Queensland Health Population Health Unit if you have any further questions (contact details below).

Queensland Health Population Health Units

Population Health Unit	Phone number
Brisbane Northside	3624 1111
Brisbane Southside	3000 9148
Bundaberg/ Wide Bay	4150 2780
Cairns	4050 3600
Gold Coast	5509 7222
Ipswich/ West Moreton	3810 1500
Mackay	4968 6611
Rockhampton	4920 6989
Sunshine Coast	5409 6600
Toowoomba/ Darling Downs	4631 9888
Townsville	4753 9000

