CONDITION

Poisoning - fish and shellfish

Fish and shellfish poisoning is illness caused by seafood toxins, excess histamine, or harmful germs.

WHAT IT IS
Illness after eating contaminated or naturally toxic seafood

BODY SYSTEM
Digestive, nervous, breathing, heart and circulation

MAIN SYMPTOMS
Nausea, diarrhea, tingling, weakness

WHAT CAUSES IT
Seafood toxins, histamine, or harmful germs

HOW IT IS DIAGNOSED
Clinical pattern; toxin or germ testing when available

MAIN TREATMENT
Supportive care, fluids, symptom control, breathing support

CAN IT BE CURED?
Sometimes - most recover, but symptoms can persist

IS IT AN EMERGENCY?
Sometimes - breathing trouble, collapse, confusion, or severe weakness

LONG-TERM OUTLOOK
Most recover fully; ciguatera symptoms may persist

Overview

Fish and shellfish poisoning is not one single illness. It describes several conditions that can develop after eating seafood containing a natural toxin, excess histamine, or harmful germs.

Some toxins are produced by algae and build up in fish or shellfish. Others occur when fish is not chilled correctly after it is caught. Seafood can also carry bacteria or viruses.

The symptoms and severity depend on what caused the poisoning. Some types mainly cause vomiting and diarrhea. Others affect the nerves, breathing, heart rate, or memory. Symptoms may begin within minutes, although infections can take longer to appear.

Cooking does not destroy many marine toxins or the histamine involved in scombroid poisoning. Contaminated seafood may look, smell, and taste normal.

Fish and shellfish poisoning is different from a seafood allergy. An allergy is an immune system reaction to proteins in the food. However, scombroid poisoning can closely resemble an allergic reaction.

Symptoms

Symptoms may start during a meal, within several hours, or over the following few days. The timing and combination of symptoms can help identify the likely cause.

Common digestive symptoms include:

Scombroid poisoning is caused by high histamine levels in poorly chilled fish. It often causes flushing, headache, a burning or peppery feeling in the mouth, a fast heartbeat, itching, and a raised rash. Wheezing or low blood pressure can occur in more serious cases.

Ciguatera poisoning usually follows eating a large tropical or subtropical reef fish, such as barracuda, grouper, snapper, or amberjack. Digestive symptoms may be followed by tingling, itching, muscle pain, weakness, or unusual sensitivity to temperature. Cold objects may feel painfully hot or burning, sometimes called hot-cold reversal.

Several toxins can collect in mussels, clams, oysters, scallops, and other shellfish. Depending on the toxin, symptoms can include diarrhea, tingling around the mouth, poor coordination, weakness, confusion, or memory problems. Severe paralytic shellfish poisoning can weaken the muscles used for breathing.

Seafood infections are more likely to cause ongoing diarrhea, vomiting, stomach pain, and sometimes fever. Blood or mucus may appear in the stool. One important group of bacteria is Vibrio , which is associated particularly with raw or undercooked shellfish.

- Nausea or vomiting
- Watery diarrhea
- Stomach pain or cramps

Causes and risk factors

Marine toxins often begin with microscopic algae in the water. Shellfish filter these organisms from the water and can concentrate their toxins. Reef fish may collect ciguatera toxin through the marine food chain.

These toxins cannot usually be detected by looking at the food. Many also remain after cooking, freezing, smoking, or pickling.

Scombroid poisoning develops when certain fish are not kept cold enough after being caught. Bacteria in the fish convert a natural substance called histidine into histamine. Tuna, mackerel, mahi-mahi, sardines, and related fish are common sources, although other species can be involved.

Infectious poisoning occurs when seafood carries bacteria, viruses, or parasites. Risks include eating raw or undercooked seafood, poor refrigeration, cross-contamination in the kitchen, and seafood taken from polluted or closed waters.

The chance of severe Vibrio infection is higher in people with chronic liver disease, a weakened immune system, or certain other long-term health conditions. Pregnancy, older age, and very young age can also make dehydration or infection harder to tolerate.

Eating from the same batch as someone who becomes ill increases the chance of a shared exposure. Not everyone who eats the food will necessarily develop the same symptoms.

Diagnosis

There is no single test for all fish and shellfish poisoning. Diagnosis often depends on your symptoms, when they started, the seafood eaten, where it came from, and whether anyone else became ill.

Tell the healthcare team about:

Blood tests may be used to check hydration, salts in the blood, kidney function, or other effects of severe illness. An electrocardiogram, or ECG, may be needed if you have chest symptoms, fainting, or an abnormal heartbeat.

Stool or blood samples may identify an infection. Specialized public health laboratories may test leftover seafood for toxins or germs, but these tests are not always available and results may not be immediate. Do not eat the suspected leftovers. Keep them sealed and refrigerated or frozen only if a poison centre, public health service, or healthcare professional asks you to preserve them.

Other conditions may cause similar symptoms. These include seafood allergy, an unrelated stomach infection, medication effects, and poisoning from another food.

- The fish or shellfish species, if known
- Whether it was raw, cooked, canned, smoked, or frozen
- Where and when it was bought, caught, or eaten
- How soon symptoms began

- Whether other people ate the same food

Treatment and management

Treatment depends on the type and severity of poisoning. Many people need observation, fluids, and treatment of symptoms while the toxin leaves the body.

Replacing lost fluid is important after vomiting or diarrhea. Small, frequent sips may be easier to manage than drinking a large amount at once. Medical care may include fluids through a vein if you cannot keep drinks down or become dehydrated.

Medicines may be used to control nausea, pain, itching, or other symptoms. Antihistamines like cetirizine or loratadine can help with many cases of scombroid poisoning. Severe reaction-like symptoms may need emergency treatment and monitoring.

There is no widely available antidote for most marine toxins. People with marked weakness, breathing problems, seizures, confusion, or heart rhythm changes may need hospital care. Breathing support can be lifesaving when a toxin temporarily paralyses breathing muscles.

Antibiotics like amoxicillin or doxycycline do not treat marine toxins or histamine poisoning. They may be used for certain confirmed or strongly suspected bacterial infections. The choice depends on the germ and the seriousness of the illness.

Do not make yourself vomit. Avoid taking anti-diarrhea medicine without professional advice if you have fever, bloody stool, severe pain, or suspected bacterial infection.

Complications

Repeated vomiting and diarrhea can cause dehydration and an unhealthy loss of salts from the blood. Signs include very dark urine, urinating less often, dizziness, dry mouth, and unusual tiredness.

Nerve toxins can cause severe weakness, poor coordination, seizures, or paralysis of the breathing muscles. Some toxins can also disturb heart rate or blood pressure.

Ciguatera symptoms sometimes continue or return over weeks or months. Ongoing symptoms may include tingling, itching, fatigue, muscle pain, or altered temperature sensation.

Amnesic shellfish poisoning can cause confusion, seizures, and lasting memory problems in severe cases. This is uncommon, but prompt assessment matters when mental changes develop after eating shellfish.

A Vibrio infection can occasionally spread into the bloodstream, especially in someone with

chronic liver disease or reduced immunity. This requires urgent hospital treatment.

Prevention

Not every case can be prevented because seafood containing a toxin may look and smell normal. Careful sourcing, storage, and attention to local warnings can reduce risk.

Buy seafood from regulated suppliers. Follow local shellfish-harvesting closures and harmful algal bloom warnings. Do not gather shellfish from unapproved waters, even if the shellfish appear healthy.

Keep fish and shellfish cold from purchase until preparation. Refrigerate leftovers promptly and discard seafood that has been left unrefrigerated for too long. Proper chilling helps prevent histamine from forming, but it cannot remove histamine that is already present.

Cook shellfish thoroughly to reduce the risk from many germs. Cooking does not reliably remove ciguatera toxin, shellfish toxins, or histamine.

Avoid eating large reef predators in areas known for ciguatera. Local public health or fisheries advice may identify higher-risk species and locations. Pufferfish can contain tetrodotoxin, a powerful nerve toxin, and should only be prepared where trained, legally authorised specialists are permitted to do so.

People at increased risk from severe Vibrio infection, especially those with chronic liver disease or weakened immunity, should avoid raw or undercooked shellfish.

Living with it and what to expect

Many digestive illnesses from seafood improve over several days with fluid replacement and rest. Scombroid poisoning often settles more quickly once treated and after the histamine has cleared.

Recovery from nerve toxin poisoning is less predictable. Weakness from paralytic shellfish poisoning may improve as the toxin leaves the body, but severe cases need close monitoring until breathing and muscle strength are stable.

Ciguatera can have a longer course. Digestive symptoms often improve first, while tingling, itching, fatigue, or temperature sensitivity may continue. Symptoms can sometimes return after they appeared to have settled. Persistent symptoms deserve routine medical follow-up because they can affect sleep, work, exercise, and eating.

After a straightforward recovery, fish and shellfish poisoning does not usually cause

permanent digestive problems. It also does not mean you have developed a seafood allergy. If later reactions occur after eating seafood, seek assessment rather than assuming they have the same cause.

Arrange routine follow-up if symptoms are not steadily improving, if nerve symptoms remain, or if you are unsure whether an infection has cleared.

When to get medical help

Seek emergency care now if you develop:

Contact urgent medical services or a poison centre promptly for tingling around the mouth, spreading numbness, marked weakness, unusual hot-cold sensation, or vomiting and diarrhea after eating reef fish or shellfish. Early advice is important because some nerve symptoms can worsen.

Get same-day medical advice for bloody diarrhea, persistent fever, severe stomach pain, repeated vomiting, very little urine, or signs of dehydration. People who are pregnant, older, very young, immunocompromised, or living with chronic liver disease should seek advice earlier.

For mild symptoms that are improving, routine follow-up is reasonable if they last longer than expected or return after initially settling. Report suspected outbreaks to the relevant local public health or food safety service, particularly when several people became ill after sharing seafood.

- Trouble breathing, shallow breathing, or rapidly increasing weakness
- Fainting, collapse, blue or grey lips, or severe chest symptoms
- Confusion, a seizure, inability to walk, or difficulty speaking
- Swelling of the tongue or throat after eating seafood
- Severe drowsiness or inability to stay awake

Common questions

How quickly does fish or shellfish poisoning start?

Toxin and histamine reactions often begin within minutes or hours. Infections may take several hours or days. The timing alone cannot identify the exact cause.

Does cooking make toxic fish or shellfish safe?

Cooking kills many germs, but it does not reliably destroy ciguatera toxin, shellfish toxins, tetrodotoxin, or histamine. Seafood affected by an official toxin warning should not be eaten.

Is scombroid poisoning a fish allergy?

No. It is caused by histamine that formed in fish because of inadequate chilling. It can look like an allergy because it causes flushing, itching, rash, wheezing, and a fast heartbeat.

How long does seafood poisoning last?

Many digestive symptoms settle within a few days. Scombroid poisoning is often shorter. Nerve symptoms from ciguatera or shellfish toxins may last longer, and ciguatera symptoms can sometimes continue for weeks or months.

Can I get sick from seafood leftovers?

Yes. Germs and histamine can become a problem when seafood is not kept cold. Reheating may kill some germs, but it does not remove toxins or histamine already present.

Is fish or shellfish poisoning contagious?

Marine toxin and histamine poisoning do not spread between people. Some viral or bacterial infections linked to seafood can spread through contaminated hands, surfaces, food, or close contact, so careful handwashing remains important.

Sources

- Centers for Disease Control and Prevention. CDC Yellow Book: Food Poisoning from Marine Toxins
- Centers for Disease Control and Prevention. Clinical Overview of Vibriosis
- US Food and Drug Administration. Bad Bug Book: Foodborne Pathogenic Microorganisms and Natural Toxins Handbook , second edition
- US Food and Drug Administration. Fish and Fishery Products Hazards and Controls Guidance