

Foodborne Botulism and its Symptoms

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About the Study

Under low-oxygen circumstances, *Clostridium botulinum* creates lethal poisons called botulinum toxins.

Botulinum toxins are among the most dangerous chemicals ever discovered.

Botulinum toxins cause respiratory and muscle paralysis by blocking nerve activities.

Foodborne botulism, newborn botulism, wound botulism, inhalation botulism, and various kinds of poisoning are all examples of human botulism.

Foodborne botulism, which is caused by eating or prepared foods, is an uncommon but potentially lethal disease if not recognized and treated quickly.

Foodborne botulism is commonly found in homemade canned, preserved, or fermented foods, and their preparation necessitates special attention.

Botulism caused by food is a dangerous and sometimes deadly illness. It is, however, a somewhat uncommon occurrence. It's a type of poisoning produced by ingesting strong neurotoxins called botulinum toxins, which are found in contaminated foods. Botulism does not spread from one person to another.

Clostridium botulinum spores are heat-resistant and extensively distributed in the environment, where they germinate, develop, and exude toxins in the absence of oxygen. Botulinum toxin comes in seven different kinds, A-G. Human botulism is caused by four of them (types A, B, E, and, in rare cases, F). Other animals, birds, and fish are afflicted by Types C, D, and E.

Botulinum toxins are consumed through contaminated food, where bacteria or spores survive, proliferate, and create the toxins. Human botulism is mostly a foodborne illness, although it may also be caused

by *C. botulinum* infection in babies' intestines, wound infections, and inhalation.

Symptoms of foodborne botulism

Because botulinum toxins are neurotoxic, they have an impact on the nervous system. Botulism caused by food causes descending, flaccid paralysis, which can lead to respiratory failure. Early signs and symptoms include extreme weariness, weakness, and vertigo, which are frequently followed by impaired vision, dry mouth, and swallowing and speech difficulties. Vomiting, diarrhea, constipation, and stomach swelling are all possible side effects. The condition can advance to weakness in the neck and arms, followed by impairment in the respiratory muscles and lower body muscles. There are no symptoms of a fever or a loss of consciousness.

The symptoms are caused by the toxin generated by the bacteria, not by the bacterium itself. Symptoms commonly emerge 12 to 36 hours after exposure (with a minimum and maximum range of 4 hours to 8 days). Botulism has a low incidence rate, but it has a significant fatality rate if it is not diagnosed quickly and treated appropriately (with antitoxin and extensive respiratory care). In 5% to 10% of patients, the illness can be deadly.

C. botulinum is an anaerobic bacterium, which means it can only survive without oxygen. *C. botulinum* thrives and manufactures toxins in food before being consumed, resulting in foodborne botulism. *C. botulinum* generates spores, which may be found in a variety of places, including soil, rivers, and sea water.

Bacterial growth and toxin development occur in items with low oxygen concentration and particular storage temperature and preservative parameter combinations. This is especially common in foods that have been weakly preserved and in foods that have been improperly prepared, such as those that have been home-canned or home-bottled.