

BOTULISM

What is botulism?

Botulism is a rare but serious disease that can result in paralysis of certain muscles.

Botulism is caused by toxins produced by bacteria called *Clostridium botulinum*. The bacteria are found in soil, water and the intestinal tract of animals as extremely tiny, hardy spores that are invisible to the naked eye. *Clostridium botulinum* spores are very resistant to heat and can only be de-activated at temperatures over 160°C/320°F. If food is processed incorrectly (usually through home-canning), a botulism spore can become reactivated, grow and produce a concentrated, powerful toxin. Botulism is not transmitted from person to person.

There are three main kinds of botulism: Food-borne botulism, wound botulism and infant botulism.

What is food-borne botulism?

Food-borne botulism results from eating something that contains the *botulinum* toxin. This could happen if food contaminated with spores of *C. botulinum* is preserved or stored improperly. Food contaminated by botulism may not look or smell spoiled. Food-borne botulism has often been associated with:

- Home-canned fruit and vegetables
- Home-canned or fermented fish
- Commercially prepared potpies
- Sautéed onions and mushrooms
- Foil-wrapped baked potatoes
- Minced garlic in oil
- Seal meat
- Smoked salmon or fermented salmon eggs
- Sausages and smoked or preserved meats/seafood
- Bloated cans

Symptoms of food-borne botulism include nausea, vomiting, diarrhea, constipation, fatigue, weakness, dizziness, drooping eyelids, double or blurred vision, dry mouth, difficulty swallowing and speaking. If untreated, these symptoms may progress to cause paralysis of the arms, legs, trunk and respiratory muscles. Botulism usually appears within 12 to 36 hours after eating contaminated food, but sometimes may develop after several days.

What is wound botulism?

Wound botulism happens when *C. botulinum* grows in injured tissue and produces toxins. It can occur after serious flesh wounds or crush injuries, or after using contaminated intravenous drug needles.

Symptoms of wound botulism are similar to symptoms of food-borne botulism, but the symptoms may take up to two weeks to appear.

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What is infant botulism?

Infant botulism (also called intestinal botulism) is a rare disease that can affect children under one year of age. It occurs when an infant swallows spores of *C. botulinum*, which then grow and produce a toxin in the baby's intestine.

In most cases of infant botulism, the source of spores is not identified and may be airborne from soil or dust. Honey that has not been pasteurized and peanut butter may contain botulism spores and should not be given to infants under one year of age. Light and dark corn syrups are not sterilized when packaged and may also be contaminated by *C. botulinum* spores.

Symptoms of infant botulism include constipation, tiredness, loss of appetite, difficulty sucking, weakness, drooping eyelids, an altered cry and a striking loss of head control ("floppy baby"). It is unknown when the symptoms will appear after having contact with the organism.

How is botulism treated?

Botulism must be treated quickly with an antitoxin, which can prevent further paralysis. The antitoxin does not reverse the effects of the disease. Antibiotics are not effective against toxins but may be used to treat secondary bacterial infections.

How can botulism be prevented?

- Never eat food from cans that are dented, leaking or have bulging ends. The food may not look or smell spoiled, but may still contain the toxin
- When canning foods at home, be sure to process all low-acid products (e.g., vegetables, mushrooms, seafood) in a pressure canner closely following the manufacturer's instructions. Be sure to follow strict hygienic procedures to reduce contamination of foods
- Boil and stir home canned foods for at least 10 minutes before eating to destroy any botulinum toxins
- Take precautions with home-prepared foods stored in oil (e.g., vegetables, herbs and spices). If these products are prepared using fresh ingredients, they must be kept refrigerated and for no more than 10 days
- If potatoes have been baked wrapped in aluminum foil, keep them hot until served or refrigerated

To prevent wound botulism, seek medical care promptly for infected wounds and avoid using injectable street drugs.