

## BOTULISM

Botulism is serious but relatively rare illness caused by the toxin produced by the bacterium *Clostridium botulinum*. These bacteria are able to produce a protective casing, called a spore, that allows them to survive conditions such as cooking and drying. *Clostridium botulinum* spores are commonly found in soil and therefore can be found on agricultural products. There are three forms of botulism: food borne, wound, and intestinal (infant and adult).

**Food borne botulism** results from eating a food contaminated with the botulism toxin. Food may become contaminated with the toxin through improper preserving, cooling or storage. Improper home canning of low acid, low salt foods (such as vegetables and fruit) is the most common risk factor for botulism. If, during canning, food is not heated to a high enough temperature to kill the bacterial spores (120°C/248°F for at least 10 minutes), the bacteria will be able to produce the toxin inside the sealed can. Other foods that have caused botulism include foil wrapped baked potatoes that were not refrigerated after cooking (the foil provided the airtight conditions these bacteria prefer, while the potatoes provided the bacteria); garlic in oil products that were not refrigerated after opening (the oil provided airtight conditions for bacteria that were on the garlic) and lightly fermented fish and smoked meat. The toxin can be destroyed by boiling foods (85°C/185°F) for at least five minutes.

**Symptoms:** initially may include vomiting and/or diarrhea, followed by one or more of the following: vertigo, weakness, dry mouth, difficulty swallowing, blurred or double vision, constipation, followed by descending muscle paralysis and respiratory failure. Botulism can be fatal if not treated promptly.

**Incubation period:** symptoms usually occur 12 to 36 hours after eating the contaminated food, but can also occur as early as 6 hours or as late as 10 days. The shorter the incubation period, the more severe the disease is.

**Intestinal botulism** can occur in infants under 1 year of age, and in adults with altered gastro-intestinal anatomy and micro flora. Illness occurs when *Clostridium botulinum* spores are ingested, and are able to produce the toxin in the intestinal tract. Unpasteurized honey is a suspected source of infant botulism.

**Symptoms:** constipation followed by lethargy, loss of appetite, difficulty swallowing, weakness (floppy baby) and altered cry. In adults the symptoms are similar to those for food borne botulism.

**Incubation Period:** unknown.

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**Wound botulism** occurs when the spores get into an open wound, and are able to reproduce in an anaerobic (without oxygen) environment, usually associated with severe trauma.

**Symptoms:** similar to those of food borne botulism, without vomiting and diarrhea.

**Incubation Period:** about 10 days.

**How can you prevent botulism?**

- Use a pressure canner when preserving low acid foods (such as vegetables, fruit and meats) and follow the instructions for the product you are preserving.
- Cool cooked foods quickly and store them in the refrigerator (4°C/40°F or colder).
- Do not use canned goods with bulging lids or other signs of damage.

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