

# Botulism

Botulism is a rare but potentially fatal condition that causes progressive and often rapid weakness. In Australia, there is typically only one case of botulism reported per year. Botulism is caused by nerve toxins made by *Clostridium botulinum* bacteria. These bacteria are found worldwide in soils, but people who develop botulism most commonly get it from eating food that is contaminated with the bacteria or its toxin. Occasionally, the bacteria can get into the body through a break in the skin. The toxin that causes botulism is one of the most powerful known poisons and small amounts can do lots of damage to nerves. While death from botulism is rare, full recovery may take months.

## Signs and Symptoms:

Symptoms in adults may include:

- blurred or double vision
- difficulty in speaking, swallowing and breathing
- nausea and vomiting
- dry mouth
- increasing weakness, fatigue and ultimately paralysis

Symptoms in infants may include:

- constipation
- weak, feeble cry
- loss of head control
- loss of appetite (poor sucking and feeding)
- breathing difficulties, choking and gagging
- reduced movement of limbs and increased weakness and floppiness, paralysis

Paralysis of breathing muscles can cause loss of breathing and death unless assistance with breathing (mechanical ventilation) is provided [1].

Adults may start with feeling weak and dizzy. A dry mouth, swallowing difficulties, speaking difficulties, and visual disturbances such as blurred or double vision follow. Paralysis then progresses from the upper to the lower body. Death can occur when the breathing muscles are affected.

Babies may have constipation, poor sucking and feeding, choking and gagging, a weak feeble cry, reduced movements of the limbs, inability to control head movements, increasing weakness and floppiness, breathing difficulties and paralysis.

Diagnosis is confirmed by checking for the presence of the toxin. Testing may include blood, food, stool (faeces) or wounds.

[1] Heymann David L 2004, Control of Communicable Diseases Manual, 18th Edn, American Public Health Association, Washington DC, USA.

## Treatment:

The most important treatment for botulism is supportive care, which may include assisting breathing using a ventilator and fluids via a drip if the person cannot swallow. Depending upon the type of botulism, other treatment may include:

- use of special antitoxin (antibodies)
- making the person vomit, pumping their stomach and giving them enemas after ingestion of bacteria or toxin
- draining infected wounds

- antibiotics, such as penicillin, in cases of secondary infection.

## Transmission:

There are three common forms of botulism.

**Intestinal botulism** – this is the most common form. Children under the age of 12 months are most at risk, but adults who have certain gastrointestinal problems may also get this form. Intestinal botulism is caused by eating food, or swallowing dust or soil that contains the bacteria, *Clostridium botulinum*. In a number of studies, raw honey given to infants has been the suspected source of botulism. Thus, it is not recommended to feed honey to infants less than 12 months of age. The bacteria multiply inside the gut and produce toxins. Healthy adults aren't usually affected because they have natural defences in their gut that prevent the bacteria from multiplying.

**Food-borne botulism** – the toxins are eaten in contaminated food. Symptoms generally occur between 12 and 36 hours after eating the contaminated food. This form of botulism can be severe and may lead to death.

**Wound botulism** – this rare form of botulism is caused by bacteria (often in soil or gravel) entering the body through a wound. Injecting drug users can also get this form. Symptoms can occur up to two weeks after the wound.

## Prevention:

### Intestinal botulism

Most infant botulism cases cannot be prevented because the bacteria that causes this disease is in soil and dust. The bacteria can be found inside homes on floors, carpet, and countertops even after cleaning. Honey can contain the bacteria that causes infant botulism so, children less than 12 months old should not be fed honey. Honey is safe for persons 1 year of age and older.

### Food-borne botulism

Botulism has been linked to canned foods, vegetables in oil, and some other foods.

People who preserve their own fruit, vegetables or meats should take special care with hygiene, cooking time, pressure, temperatures, container sterilisation, salt and acidity levels, refrigeration and storage to make sure the process does not encourage bacteria to grow. Pressure cooking is the only recommended method for preserving foods such as meat, poultry, seafood and most vegetables.

Make sure you use the correct equipment, properly sterilise containers and always follow the manufacturer's instructions for your equipment. Use only recipes with tested proportions of ingredients and be sure to follow recommendations for time, pressure and safe preserving methods appropriate to the size of container, style of pack and kind of food being processed. Please refer to the other resources below for more information on canned goods and home canning [2].

Discard all raw or canned food that shows any sign of being spoiled. Don't keep food past its use by date.

Don't taste food from swollen or dented containers or food that is 'foamy' or has a bad odour. However, don't rely on smells or lack of swelling of container lids alone to signal that food 'is off', as it is not always possible to detect *Clostridium botulinum* in this way. When in doubt, throw it out.

### Wound botulism

Ways to reduce the risk of wound botulism include:

- wash any wounds thoroughly with soap (or detergent) and running water
- don't inject recreational drugs.

[2] [Better Health Channel - Botulism](#)

(<https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/botulism>), Victoria State Government

### Other resources:

For further information on food safety, canned goods and home food preservation, see the following websites:

- [Preservation of vegetables in oil and vinegar](https://www.csiro.au/en/Research/Health/Food-safety/Vegetable-preservation)  
(<https://www.csiro.au/en/Research/Health/Food-safety/Vegetable-preservation>) - CSIRO
- [Food poisoning bacteria and viruses](http://foodsafety.asn.au/food-poisoning-bacteria-and-viruses-overview/)  
(<http://foodsafety.asn.au/food-poisoning-bacteria-and-viruses-overview/>) - Food Safety Information Council
- [Canned foods: purchasing and storing](http://www.foodstandards.gov.au/consumer/safety/cannedfoods/Pages/default.aspx)  
(<http://www.foodstandards.gov.au/consumer/safety/cannedfoods/Pages/default.aspx>) - Food Standards Australia New Zealand
- [Home Canning and Botulism](https://www.cdc.gov/features/homecanning/) (<https://www.cdc.gov/features/homecanning/>) - Centres for Disease Control and Prevention (<http://www.cdc.gov/features/homecanning/>)

### Help and assistance:

Contact your [local public health unit](#)

(<https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units>).

### Health Insite:

[Botulism](#) (<https://www.healthdirect.gov.au/botulism>)