

Risks of Canning

Fruits and vegetables, such as tomatoes, strawberries, blueberries, carrots, beets, and garlic are often popular choices when it comes to food preservation and canning at home. However, bacteria called *Clostridium botulinum* are often associated with these food products. *C. botulinum* can make the consumer violently ill and possibly result in death if ingested. If not done correctly, home canning may provide an optimal growing or toxin-producing environment for *C. botulinum*.



What is *Clostridium botulinum*?

C. botulinum is a spore-forming bacterium that is found in our environment and can produce deadly toxins. It is important to understand that because spores cover and protect the bacteria, it is more resistant to heat. The bacteria are then difficult to destroy during the cooking process.

The bacteria favour low acidic conditions, meaning products with pH greater than 4.6, warmer temperatures, and environments having little or no oxygen. Canned products are often found to have some or all of these characteristics. Thus, it is important that you follow proper canning procedures to prevent the survival and growth of *C. botulinum* after food is canned.

C. botulinum has the ability to produce a toxin that is strong enough to kill approximately 10,000 people with only one teaspoon. Food contaminated with *C. botulinum* often gives no sign of being contaminated. This means that the canned food may look, taste, and smell normal while actually being dangerous for consumption.

What are the Symptoms of Botulism?

- Symptoms may appear 12-36 hours after the bacteria and toxin are ingested
- Symptoms may last 2 hours to 14 days, however, the symptoms and possible long-term side effects may last for several months or longer
- If not promptly and properly treated, botulinum poisoning may lead to death

- Common symptoms are as follows:
 - o Nausea, vomiting, constipation, fatigue
 - o Headache, double vision, dizziness, dry mouth
 - o Descending weakness of the limbs
 - o Respiratory failure, paralysis, and sometimes death
 - o Floppy Baby Syndrome

Commonly Canned

Here are examples of commonly home-canned or pickled food items:

- Salsa
- Pasta sauce
 - o Tomato sauce
 - o Meat sauce
 - o Cream sauces
- Vegetables
 - o Beets
 - o Pickles, Cucumbers, and Onions
 - o Carrots
 - o Beans
 - o Mushrooms
 - o Tomatoes
 - o Garlic



- Fruit
 - o Jams and jellies
 - o Whole fruits
- Eggs
- Honey

Foods Often Associated with *C. botulinum* Illness

Such vegetables as corn, green beans, mushrooms, garlic, and tomatoes that are not properly canned or preserved have been identified as a source of *C. botulinum*. Low acid fruit juices, such as carrot juice, being stored at temperatures greater than 4°C (40°F) have led to botulism. Baked potatoes have also been acknowledged as a source because they are often wrapped in aluminum foil while baked. This provides the bacteria a warm, low oxygen and low acidic environment to produce toxin and lead to illness once eaten. Infantile botulism has been associated with the ingestion of honey by children under the age of one because botulinum spores occasionally contaminate honey. Home bottled meat, canned fish, and smoked fish may be contaminated with *C. botulinum* and provides an adequate growing environment because of the low acidity of the foods and the low levels of oxygen present in the can or bottle.

It is important to understand the risks of home canning in order to process the food safely for your friends and family.

For more information on food safety, contact your local Food Safety Specialist, or visit the Department of Agriculture's food safety website at <http://www.gov.ns.ca/agri/foodsafety>