

Home Canning – How to Avoid Botulism

What is botulism and how is it caused?

Botulism is a serious form of food poisoning that can cause death. The poison is produced by *Clostridium botulinum*, a bacterium that is commonly found in soil, on raw fruits and vegetables, on meat and fish, and on many other foods and surfaces.

Botulism spores are tough, and cannot be killed with boiling water or heat without including canning pressures.

Botulism bacteria (the bacteria that grow out of germinated spores) can multiply quickly in a moist, oxygen-free environment and create a very powerful poison. One teaspoonful is enough to kill 100,000 people.

Improper home canning creates the perfect environment to grow botulism bacteria.

Because food contaminated by botulism may look and smell normal, you cannot tell by looking at the food whether it is poisoned by botulism bacteria.

What steps can I take to avoid botulism?

To avoid botulism, you need to make sure you “home can” properly using extreme care. There are different methods of canning for high-acid and low-acid foods.

High-Acid Foods

High-acid foods only need the “boiling water bath” method of canning. Plums or rhubarb are examples of high acid foods. The “boiling water bath” is a food preservation method commonly used in making jams. It involves dropping a basket of sealed jars into a large pot of rapidly boiling water. Boiling water temperatures will kill most yeasts, moulds and bacteria while the high acid in the foods will prevent botulism bacteria from growing.

Low-Acid Foods

Low-acid foods such as most vegetables, meats and seafood must be canned at a higher temperature using a pressure canner.

What do I need to know about pressure canning?

A pressure canner is a large, cast-aluminum pot with a locking lid and a pressure gauge. By cooking under pressure, you can increase the temperature of boiling water from 100°C (212°F) up to 116°C (240° F). This is the minimum temperature necessary to destroy botulism spores, and the only way to guarantee safe canning for food items such as vegetables, meats and seafood.

Your pressure canner should come with complete instructions. Always follow them carefully. Keep these points in mind:

- Foods can be processed at 5, 10 and 15 pounds pressure. Consult a chart provided in the instructions to determine what pressure is safe for the food you are canning.
- Processing time will vary depending on the type of food being preserved and the size of the jar. Never shorten the cooking time or change the pressure recommended in the instructions otherwise botulism bacteria could remain in the final canned food.
- If you live more than 300 metres (1,000 feet) above sea level, the pressure and cooking time will have to be adjusted because water boils at a lower temperature as altitude increases. Consult a chart.
- Once the right pressure level is reached during cooking, it must be kept constant throughout the cooking step.
- Both weighted gauges and dial gauges should be checked for accuracy. Read the manufacturer’s directions carefully for recommended testing

and frequency procedures, to make sure your canner is being operated safely and correctly.

- Check seals. Ensure the rubber seal on the canner lid is not broken or cracked. Replace if necessary.
- Never open a canner when it is under pressure.
- Do not cool jars in water, instead allow jars to cool slowly at room temperature.
- Do not retighten lids.

What jars are best for canning?

It is important that you use heavy-duty jars made specifically for home canning.

“Mason” type jars – which screw shut with a threaded neck – are the most common choice. Do not re-use the lids. A perfect fit can no longer be guaranteed after a lid has been pried off once. The jars can be used many times, as long as the rims are perfectly smooth and there are no scratches or cracks that would prevent a perfect seal.

It is very important to sterilize the jars and seals before use. To sterilize jars, boil them for 10 minutes. To sterilize tops, follow the manufacturer’s instructions.

Do not use commercial jars, such as empty peanut butter jars for home canning. Commercial jars are not strong enough to be safely used.

What should you do if the home-canned food does not seem right?

Never eat, or even taste any home-canned food that:

- appears to be spoiled;
- foams;
- develops a bad smell during cooking;
- has a bulging container lid or is leaching; or
- you are not sure if the food was properly canned or not.

Place any questionable containers and food in a waterproof container and throw it in the garbage. Do not feed the questionable food to your pets or any other animals. After throwing it away, wash

your hands well with warm soapy water. Also wash any utensils or surfaces the food, container, or your hands may have touched.

What are important steps to take when canning?

Never substitute the jar size or the amounts of ingredients that are recommended in the recipe. Fill the jar leaving the recommended space at the top. Use new and tested recipes when canning, for safety.

Wash hands with soapy water for at least 20 seconds during all stages of canning. Use only good quality produce (fruits, vegetables) that do not have any cuts, bruises or moulds. The food being preserved must be rinsed clean using cold drinking water before canning. Use separate cutting boards for produce, and raw meat, poultry, fish and seafood. Sanitize all work surfaces before and after preparing food. For more information on sanitizing surfaces, see [HealthLinkBC File #59a Food Safety: Easy Ways to Make Food Safer](#).

Label and date all home canned foods before you store them in a cool, dry place. Once the container has been opened, refrigerate leftovers, and use within one week. For best quality, use all unopened canned or bottled foods within one year.

For More Information

Home canning is perfectly safe but needs to be done correctly. It is a good idea to read about home canning before you try it. Books are available on the subject, either at the library or in the stores. Pressure canners almost always come with instructions. If you have an older pressure canner and cannot find operating instructions, contact the manufacturer for a copy.

For more information, visit:

- [UnlockFood.ca – Introduction to Home Canning](http://www.unlockfood.ca/en/Articles/Cooking-Food-Preparation/Home-Canning.aspx)
- [USDA Complete Guide to Home Canning](http://nchfp.uga.edu/publications/publications_usda.html)