

Unpasteurized Fruit Juices: A Potential Health Risk

What is the problem?

In 1996, there were 3 outbreaks of illness in North America associated with drinking unpasteurized (raw) apple juice. The juice was contaminated with bacteria called "*E. coli* 0157:H7". In all, 86 people got sick, and one child died.

More recently, in 1999, 19 people in British Columbia and Alberta became ill after drinking unpasteurized orange juice contaminated with *Salmonella*.

Since 1990, there have been at least 14 outbreaks of illness in North America linked to unpasteurized juices, including apple, orange, watermelon, carrot, and coconut juices.

Is this a serious problem?

Yes! *E. coli* 0157:H7 and *Salmonella* can make you very sick. For instance, some people get permanent kidney damage from *E. coli* 0157:H7 infections. Others have died.

Who is at greatest risk?

Infants and young children, older adults, and people with weakened immune systems (people with HIV, or AIDS, or who are being treated for cancer) are most at risk. These people should drink pasteurized juice only.

Facilities such as schools, child and adult daycares, and hospitals should make sure the juices they serve are pasteurized. Children on field trips to farms or farm markets should not drink unpasteurized juice.

Where does *E. coli* 0157:H7 come from?

This bacteria is commonly found in cattle feces (poop). Most outbreaks of *E. coli* 0157:H7 illness have been linked to food or water that

has been contaminated with cattle feces. In the case of fruit juice, the fruit that the juice is made from can be contaminated with animal feces in several ways -- from lying on ground where cattle or other animals have been, from fertilizers made from animal wastes, or from being carried in a container that has been contaminated. *E. coli* 0157:H7 can also be spread by birds and humans.

How can you protect your family?

The best way is to buy juice that has been pasteurized by the manufacturer. Most juices sold in stores are pasteurized.

How can *E. coli* 0157:H7 bacteria be killed?

The best way to kill *E. coli* 0157:H7 and other bacteria is by pasteurization. The Canadian Food Inspection Agency says that people who are at greatest risk of serious illness (see above) should boil unpasteurized juice before drinking it. This is the safest way to protect yourself at home.

Does heating spoil the juice?

No! Most commercially processed juices are heated to about 85°C for about 16 seconds to destroy yeast and mould. These products are just as nutritious as if they were not heated. And, they taste good and last much longer than untreated juice.

Will refrigeration make the juice safe?

No! Refrigeration does not destroy *E. coli* 0157:H7 or other bacteria. Refrigeration will slow the growth of germs, bacteria, yeast and mould in juices, but it will not make or keep unpasteurized juice safe.

What about washing the fruit before you make the juice?

Washing the fruit before you make juice will reduce the numbers of harmful germs and bacteria on the peel, but it will not remove them all. Using a mild soap and/or weak bleach solution (one teaspoon bleach to a litre of water) will help when you wash the fruit. Because it takes only a few of these organisms to make you sick (especially if you are at higher risk), washing alone cannot be relied upon to eliminate the risk of getting sick.

How to pasteurize apple juice for home storage...

If you prepare juices at home, the following steps will help make the juice safe:

1. Make sure you get your unpasteurized juice from an operation that follows the “*Code of Practice for the Production and Distribution of Unpasteurized Apple and Other Fruit Juices/Cider in Canada*”, which is published by the Canadian Food Inspection Agency (CFIA). You can read this code on the Internet, at www.cfia-acia.agr.ca/
2. Ascorbic acid may be added to prevent the juice from darkening. Ascorbic acid and instructions for use are available from wine-making shops.
3. Remove pulp, if desired, by adding a pectic enzyme. After settling overnight, siphon the clear juice into another container for heating. Pectic enzymes are also available at wine-making shops.
4. Pasteurize the juice using a double-boiler. Heat the juice to about 80°C (176°F), stirring frequently. Keep it at 80°C for at least 2 minutes. This will make sure that all *E. coli* 0157:H7 bacteria, as well as other organisms (moulds, etc.) are destroyed.
5. Pour the juice into clean, preheated bottles. Seal with new caps. The bottles must be preheated to prevent them from breaking due to heat shock.

6. This juice should keep a fairly long time if poured into bottles while it is still hot. The heat will destroy airborne yeast and mould. If the juice is bottled after it has cooled down, it will have a limited shelf-life, even if it is refrigerated.

NOTE: Research shows that almost all *E. coli* 0157:H7 bacteria (99.99%) are killed by heating apple juice to at least 60°C (140°F) for 2 minutes. Less acidic juices (such as carrot or watermelon juice) or high pulp juices should be heated to a higher temperature (at least 70°C) for 2 minutes.

For further information about food safety, see these BC HealthFiles:

[#02 Hamburger Disease](#)

[#03 Raw Milk - A Risk to Public Health](#)

[#17 Salmonellosis](#)

[#22 Home Canning - How to Avoid Botulism](#)

[#43 Toxoplasmosis](#)

[#58 Campylobacter](#)

[#59a Food Safety: Ten Easy Steps to Make Food Safe](#)

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