

Caramel apples stored at room temperature for extended periods can pose risk

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People should not eat caramel apples that have been stored at room temperature for an extended period as they can present a health risk, according to a food scientist in Penn State's College of Agricultural Sciences. Credit: Pixabay

It's the time of the year when grocery store shelves are overflowing with Halloween goodies, but there is one treat that consumers should be wary of, according to a food scientist in Penn State's College of Agricultural Sciences.

"Under no circumstances should consumers eat caramel-covered apples that have not been kept stored at refrigerated temperatures," said Luke LaBorde, Casida Development Professor for Food Safety in the Department of Food Science. "Doing so can place one at risk for serious health issues."

The serious health consequence that LaBorde referred to is listeriosis, an infection caused by eating [food](#) contaminated with the bacterium *Listeria monocytogenes*. Foods commonly associated with this illness include uncooked meats and vegetables, [unpasteurized milk](#) and cheeses including soft cheeses made with unpasteurized milk, ready-to-eat deli meats and hot dogs, smoked seafood, and raw sprouts.

The good news is the bacteria is destroyed easily by cooking foods to the proper temperatures. However, when not destroyed, the bacteria can fester insidiously in certain foods. Most people may experience only unpleasant symptoms such as fever, muscle aches, vomiting, nausea and/or diarrhea.

Although healthy people can bounce back in a day or two, those in high-risk groups, including the elderly, pregnant women and those with [weakened immune systems](#), are at an increased risk for long-term health problems and even death.

That, unfortunately, was the case when several people succumbed to the illness following a listeriosis outbreak a few years ago that infected 35 people from 12 states. The cause—caramel apples.

LaBorde explained that whole apples normally are not an issue for *Listeria*. If the bacteria is present, it is only at very low, harmless levels and cannot grow to higher levels on the skin of the apple. It was the combination of processing and storage practices on the part of the caramel apple manufacturer that set the stage for the tragic outcome.

"What was learned in the aftermath was that a few cells of *Listeria monocytogenes* on the apples' skins probably got pushed into the flesh of the fruit when the sticks were inserted into them as part of the production process," he said. The caramel coating, in turn, sealed in the bacteria while providing a sugary microenvironment where the *Listeria* could grow unchecked to high enough levels to cause illness.

The situation became more dire, LaBorde pointed out, when the products were stored at room temperature for extended periods, accelerating the bacteria's growth.

"With that known, it's amazing to me that we still see caramel apples on store shelves or in the produce aisle and not in refrigerated display cases where they should be," he said.

For those who cannot fathom going through the season without enjoying a caramel-dipped apple, not all is lost—LaBorde said the treat can be enjoyed safely by "purchasing refrigerated caramel apples or preparing them at home," and, of course, refrigerating them at a safe temperature of 40 degrees Fahrenheit or lower if not consumed within about two hours.

He further advised that it is important for manufacturers of caramel apples to work with their apple suppliers to ensure the fruit has been cleaned and stored properly and to confirm that retailers display the caramel apples under refrigeration.

"Food is a necessity, so it's imperative that what we eat is healthy and safe," LaBorde said. "We can take steps to make that happen, including good hand hygiene, appropriate handling and cooking techniques, and safe storage. A little due diligence can go a long way for good health."

Provided by Pennsylvania State University

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