

Keeping Food Safe

Using your eyes or nose to decide whether to eat a questionable refrigerated food won't tell you if the food is safe.

"Eyeballing and sniffing just detects the presence of spoilage micro-organisms, not necessarily food pathogens," says food-safety expert O. Peter Snyder of the Hospitality Institute of Technology and Management. "Most of the organisms in food that can make you sick do not create slime, stink, and smell."

The "sell by," "best before," and "use by" dates on packages of perishable foods aren't much help either. Those are just clues to how long the taste or peak quality of a food is expected to last. They don't tell you whether the food is safe.

Here are a few things you can do:

■ **Avoid mouldy foods.** Since moulds can cause allergic reactions and respiratory problems, it's not a good idea to sniff food with visible mould. Health Canada recommends avoiding mouldy foods in part because "the conditions that allow the growth of mould could also allow the growth of harmful bacteria that cause food-poisoning."

Small spots of mould on porous foods like bread or on soft foods with high moisture content like yogurt, soft cheeses, and luncheon meats could mean they're also contaminated below the surface. But it's difficult for moulds to penetrate dense foods like hard cheeses or firm fruits or vegetables like carrots and bell peppers, so it's safe to trim off any mouldy spots and eat the rest. Foods like hard salami and cheeses like Brie and Stilton are supposed to have surface mould.

■ **Follow food recalls.** Last year, the Canadian Food Inspection Agency (CFIA) issued 129 Class I recalls for food products. A Class I recall means that there is a "high risk that eating or drinking that product will lead to serious health problems or death."

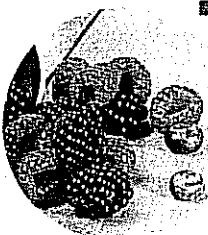
Despite an average of about 10 Class I recalls a month, only half of Canadians surveyed recently said they had heard anything about food recalls during the previous six months.¹ Aside from paying attention to the news, the easiest way to keep up with foods that have been recalled is to visit the government Web site inspection.gc.ca/english/corpaft/recarapp/recaltoce.shtml.

■ **Know what to do when the power goes out.** Keep the freezer and refrigerator doors closed as much as possible to keep the cold air in. Unopened, a refrigerator will keep food cold for about four hours, while a freezer will keep food frozen for two days if full and one day if half full.

Meat, poultry, and seafood can be refrozen if they still contain ice crystals or they (or the freezer) haven't risen above 4°C (40°F). Refrigerated perishable foods like milk, meat, leftovers, and deli foods should be discarded after four hours without power.

■ **Prevent cross-contamination.** Keep raw meat, poultry, seafood, and eggs separate from other foods. Keep a separate cutting board and utensils for them. Try to prepare your vegetables and salad before you take the raw meat, poultry, seafood, or eggs out of the refrigerator.

■ **Ignore the five-second rule.** Some people believe that if you pick up food just a few seconds after it has fallen on the floor, it somehow won't become contaminated with germs. "That's a myth," says microbiologist Paul Dawson of Clemson University in South Carolina. "Food picks up bacteria immediately on contact."



To show that, Dawson and his students applied *Salmonella* bacteria to three different surfaces—tile, wood flooring, and carpet—and then dropped bread and bologna on them. "Whether the food was in touch with the surfaces for just a few seconds or a few minutes, it picked up enough bacteria to make you sick," says Dawson.²

■ **Know where to get help.** There's a wealth of useful information at foodsafety.gc.ca, which is a partnership of Health Canada, the Canadian Food Inspection Agency, and the Public Health Agency of Canada. For practical advice on how to store foods, try stilltasty.com, a site run by a Canadian mother-daughter team that draws on U.S. government and industry sources.

¹ epe.lac-bac.gc.ca/100/200/301/pwgsc-lpsgc/por-el/canadian_food_inspection_agency/2011/048-10/report.pdf.

² *J. Appl. Microbiol.* 102: 945, 2007.

death than any other bacterial food poisoning. In high-risk individuals like pregnant women and the elderly, 20 to 30 per cent of food-borne *Listeria* infections may be fatal.

To protect yourself from *Listeria*, don't store ready-to-eat refrigerated foods like hot dogs and luncheon meats in the refrigerator "for longer than 4 days and preferably only 2-3 days," says Health Canada. The longer you store them, the more chance *Listeria* has to grow.

And clean the inside of your refrigerator regularly with soap and water to remove spills and leakages of food where *Listeria* can grow. "The more often it is cleaned, the less chance that *Listeria* will be transferred from contaminated food and surfaces to non-contaminated foods," Health Canada explains.

If you're pregnant or have a weakened immune system, don't eat wieners or luncheon meats unless they've been reheated until steaming hot. And keep in mind that freshly sliced cold cuts from the deli are five times more likely to cause a *Listeria* infection than lunch meats from sealed packages.⁷

Freezers

Foods kept frozen continuously at -18°C (0°F) or colder are safe to eat indefinitely, although the taste will eventually deteriorate and they may develop unappetizing, leathery spots known as freezer burn.

What to do: To measure your freezer's temperature, place a freezer thermometer between frozen food packages. Wait five to

eight hours. If the temperature is greater than -18°C to -17°C (0°F to 2°F), lower the freezer temperature and check again after another five to eight hours.

Microwave Ovens

Microwave ovens cook food by bombarding it with short-wavelength radio waves. The microwaves cause the molecules of water, fat, and sugar in the food to vibrate, which creates heat.

"The challenge of cooking in a microwave oven is that food doesn't cook evenly, so cold spots can develop where harmful bacteria can survive," says the Hospitality Institute of Technology and Management's O. Peter Snyder. "Food two inches apart can be eight degrees centigrade different in temperature," he

explains. That can mean the difference between germs' dying or surviving.

"And microwaves penetrate solid foods like meat to a depth of only about three-quarters of an inch," adds Snyder, "so you have to leave enough time for the rest of the food to heat by conduction."

Internet rumours that microwaving turns food "toxic" are based largely on an amateurish study conducted in a hotel during the late 1980s by a maverick Swiss food scientist named Hans Hertel. Although Hertel later dropped out of sight and his "research" was never published in a scientific journal or confirmed by others, it has attained immortality on the Internet.

What to do: The safest way to cook a food like soup or stew in a microwave oven is to heat it, remove it from the oven, stir it, then take its temperature, says Snyder. "If it's not hot enough, put it back in the microwave and heat it some more until it reaches the recommended temperature."

As for solid food, "it's important to let it stand for a few minutes after cooking, so the heat can spread throughout the food," says Snyder.

It's also important to know whether your microwave oven has enough firepower. More food labels are now recommending the minimum wattage that's needed to thoroughly cook the food. (Michelina's Macaroni and Cheese, for example, specifies 1,100 watts.)

A microwave oven's wattage is typically printed inside the door or on the back. The American Frozen Food Institute publishes information about the wattages of popular ovens at microwaveovenfacts.com.

You should also only cook or reheat food in containers labelled "microwave safe." Don't reuse frozen or shelf-stable food containers whose directions call for just one use. Thick, non-decorative glass (like Pyrex or CorningWare) is safe.

Containers like yogurt cups, margarine tubs, or Styrofoam cups and plates aren't meant to be microwaved. They can warp or melt, leaching chemicals (like the plasticizers that make the containers flexible) into your food.

Dishwashers

"A dishwasher has a lot going for it to prevent food-borne illness," says University of Georgia food-safety expert Joseph Frank.

"It can use a much stronger, more effec-

tive cleaning agent than dish detergent, since you're not sticking your hands in it. And the very strong alkali solution of dishwasher soap gets dishes very clean, while the heat-dry cycle gives you an additional kill."

Contrary to what some people believe, modern dishwashers use less water than hand washing dishes in the sink, according to the U.S. Environmental Protection Agency.

What to do: "If your household has members who are at high risk of infection, everything should go through the hot water and heat-dry cycles in the dishwasher," says Frank. "In my house, we don't use any dish or utensil that hasn't."

Whether you wash dishes by hand or in the dishwasher, "it's important to rinse them off soon after eating," says Melvin Pascall of Ohio State University, who studies kitchen sanitation in the foodservice industry.

"Do that right away before the food dries, because the longer eating utensils and dishes sit in the sink with food on them, the more the bacteria on them will grow and the harder it will be to clean the bacteria off," he notes.

If dirty dishes are going to sit in the dishwasher overnight, the U.S. EPA suggests using the dishwasher to rinse them off, since the rinse cycle uses only a fraction of the water used in hand rinsing dishes.

What's the toughest utensil to clean of bacteria? The fork, says Pascall.

"Some foods, especially fatty foods, get stuck between the tines, which actually shield the food from the action of scrubbing," he notes. "Taking extra time to wash forks is a good idea, especially those covered with fatty, sticky foods like cheese."

It's also important to clean the inside of your dishwasher—including the rubber seals—regularly with a disinfectant or bleach solution.

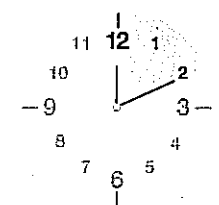
This year, an international team of

researchers sampled 189 private homes in 101 cities on six continents. They found two nasty species of black yeast along the rubber seals of the doors in 56 per cent of the dishwashers they examined.⁸

Black yeast, which are rarely encountered in nature, are resistant to high temperatures and detergents. They seem to have found a worldwide niche in dishwashers, where they thrive in the heat and moisture, the researchers reported.

Rules for Leftovers

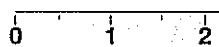
2 Hours — 2 Inches — 4 Days



2 Hours

from oven to refrigerator.

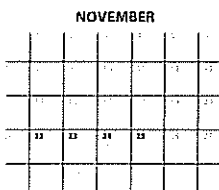
Refrigerate or freeze leftovers within 2 hours of cooking. Otherwise throw them away.



2 Inches

thick to cool it quick.

Store food at a shallow depth—about 2 inches—to speed chilling.



4 Days

in the refrigerator

—otherwise freeze it.

Use leftovers from the fridge within 4 days. Exception: use stuffing and gravy within 2 days. Reheat solid leftovers to 74°C (165°F) and liquid leftovers to a rolling boil. Toss what you don't finish.

The cleanest kitchen won't keep you safe if you don't know how to handle and store leftover food.

The yeast can cause diseases like mycetozoma, a rare skin infection. They can also colonize the lungs of patients with cystic fibrosis, leading to respiratory infections, though that's more common in Europe than in North America.⁸

¹ nsf.org/consumer/home_and_family/germs_home.asp.

² *Food Control* 20: 310, 2009.

³ *Int. J. Food Microbiol.* 85: 227, 2003.

⁴ *Infect. Control Hosp. Epidemiol.* 21: 33, 2000.

⁵ faculty.vetmed.ucdavis.edu/faculty/doc/iver/Research/cuttingboard.htm.

⁶ *J. Food Prot.* 70: 1640, 2007.

⁷ *J. Food Prot.* 73: 612, 2010.

⁸ *Fungal Biology*, doi:10.1016/j.funbio.2011.04.007.