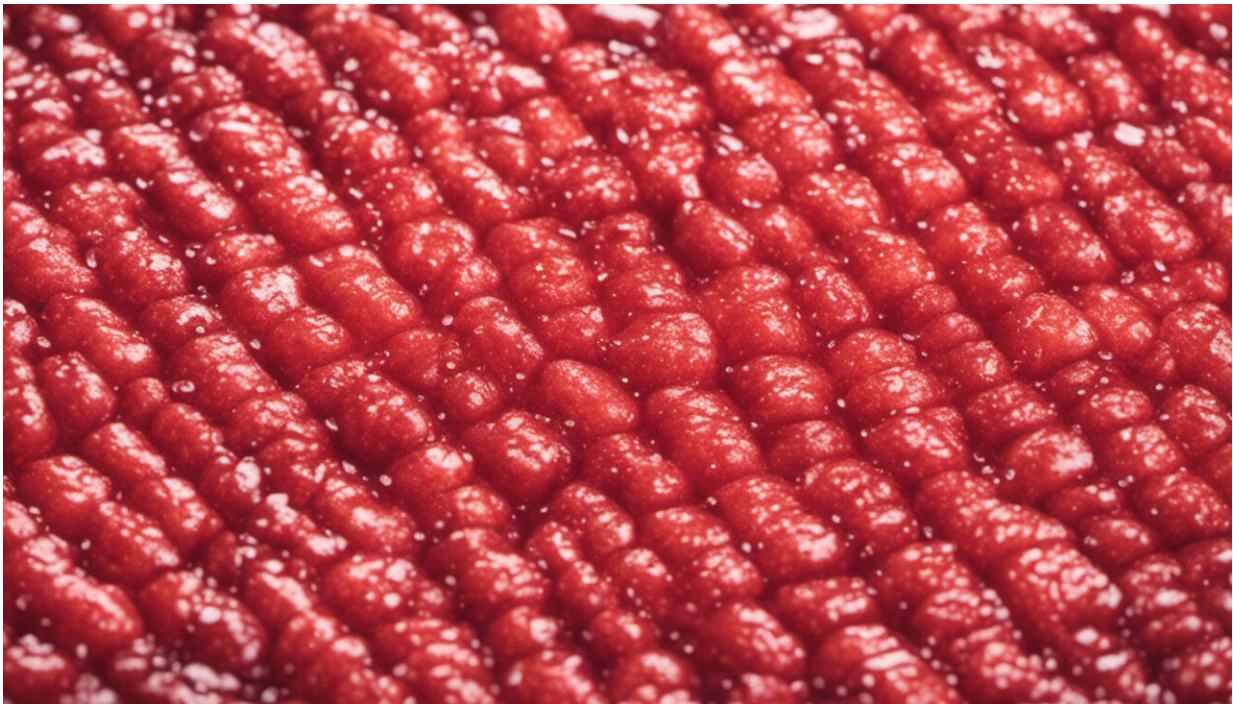


Why you may be more at risk for foodborne infections during the holidays

December 21 2018, by Yvonne Sun



Credit: AI-generated image ([disclaimer](#))

There's no place like home for the holidays, many people agree, and millions of people will travel long distances to get there. Along the journey, however, you may be at higher risk of becoming infected with a foodborne pathogen also along for the ride.

And, that pathogen could make your day a real downer, bringing diarrhea.

Intestinal illness is experienced by almost everyone at least once in their lifetime. At the minimum, it is an unpleasant and inconvenient experience. At its worst, diarrhea is [a leading cause of death](#), particularly in young children.

Here are my tips on how to avoid foodborne [pathogens](#) and the misery they cause, from my perspective as a microbiologist.

You can run, but you can't hide

We people live in a microbial world where microbes inhabit every corner of the Earth. A very small proportion of those microbes have figured out ways to inhabit us in a manner that makes us sick. A proportion of the disease-causing microbes can do it in our digestive tract. These are foodborne pathogens, germs that have special means to survive in our digestive tract and cause damages.

Escherichia coli (E. coli) and Salmonella enterica (Salmonella) are two infamous bacterial pathogens collectively responsible for [more than 1.5 million episodes](#) of foodborne illnesses per year. They are common causes of [food recalls](#) and appear frequently in news coverage.

In fact, in a quick search using the [XWord Info search tool](#), E. coli and Salmonella have appeared in *New York Times* crossword puzzles more than 80 times since 1992. Norovirus, a viral pathogen that causes [more episodes of foodborne illnesses than all bacterial pathogens combined](#), has not yet received such honor of recognition by the *New York Times* crossword.

Not quite famous, but dangerous

Another dangerous but less recognized [foodborne pathogen](#) is [Listeria monocytogenes](#), a bacterium found in all kinds of environments and the cause of infections with a high mortality rate in susceptible individuals. Infections by *Listeria monocytogenes* go beyond diarrhea. Once inside our intestines, this bacterial pathogen can cross our intestinal barrier and enters our circulation to reach other parts of our body where infections lead to death.

If it reaches our central nervous system, it breaches the [blood-brain barrier](#), which protects our brain from general circulation, and causes meningitis. In a pregnant woman, it can invade the placenta and infect the developing fetus. For this particular risk, pregnant women are often advised to avoid ready-to-eat [food products](#), such as deli meats and soft cheeses, where *Listeria monocytogenes* can grow to lethal numbers. *Listeria monocytogenes* is well-adapted to grow under typical food preservation conditions, [such as refrigeration temperatures](#), rendering the pathogen extremely difficult to eliminate.

The best strategy against *Listeria monocytogenes* infections, similar to other foodborne infections, is prevention. We have to consume these pathogens to get sick. If we can reduce the amount of pathogens we consume, we reduce the risk of infections. Individuals can [sign up for email alerts](#) from the Food and Drug Administration to stay informed of ongoing recalls in the United States and avoid potentially contaminated food products.

Following [basic food safety guidelines](#) when shopping, preparing and storing food is effective in minimizing exposure to foodborne pathogens and preventing subsequent illnesses. In addition, the United States Department of Agriculture hosts [a live chat](#), available also as the Ask Karen mobile app for [iOS](#) and [Google Play](#), between 10 a.m. and 6 p.m.

EST on weekdays to answer any food safety questions.

Sleep well, eat well

After all the precautions to minimize your exposure to foodborne pathogens, what else can you do? An individual's susceptibility to infections is also determined by the state of the immune system. A competent immune defense can protect us from illnesses or reduce the severity of illnesses even if we unknowingly consume some E. coli or Salmonella. White blood cells are a critical group of immune cells that protect us from diseases.

As it turns out, subsets of [white blood cells](#) respond strongly to our sleep pattern as well as our circadian rhythm, resulting in [diurnal cycles of immune responses](#) during nocturnal sleep and daytime wakefulness.

In [a large population study](#) with 22,726 individuals, when adjusted for age and sex, those with five hours or less of sleep each night were more likely to report respiratory infections or illnesses than those with seven to eight hours of sleep. While this study did not address susceptibility to foodborne infections, it showcases a potential role for the amount of sleep in our immune defenses.

Traveling also elevates our risk for infections. In addition to sleep disruption, traveling for long distances also exposes us to pathogens not common in our hometowns. Without prior exposure and immunity, these exposures may lead to [higher risk](#) of infections and more severe diseases. Traveler's diarrhea is a real thing and [the most common travel-related illness](#). The most common cause of traveler's diarrhea is enterotoxigenic E. coli, a close cousin of E. coli O157:H7 that was the culprit of the most recent outbreak associated with [romaine lettuce](#).

While [E. coli O157:H7](#) produces shiga toxin and causes bloody diarrhea

that can lead to haemolytic uremic syndrome, [enterotoxigenic E. coli](#) produces two different types of toxins that result in watery diarrhea. Check out these [travel guidelines](#) prior to traveling to be ready and stay safe. Some important things to know: Eat only food that is served hot, and eat only vegetables that you clean and peel yourself. Also, avoid ice in drinks, and do not consume unpasteurized milk products, including ice cream.

As the holiday season starts, whether we are losing sleep from traveling or trying out new and exciting food in a foreign locale, let's be conscientious of what is going into our mouths. Be part of the holiday celebration, not a foodborne [infection](#) outbreak.

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Provided by The Conversation

Citation: Why you may be more at risk for foodborne infections during the holidays (2018, December 21) retrieved 26 April 2024 from <https://medicalxpress.com/news/2018-12-foodborne-infections-holidays.html>

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