

# Chow Line

News from the College of Food, Agricultural, and Environmental Sciences

## Study: It's best not to test five-second rule

**So, I keep hearing different things about the five-second rule. Is it OK to pick up food and eat it after it has dropped to the floor?**

Um, no. It's not OK. At least not if you're concerned about the potential for foodborne illness.

Your confusion is understandable, though. Just a few years ago, a researcher at Aston University in the United Kingdom announced that the five-second rule was really a thing. The professor led his final-year biology students in a study examining whether bacteria would contaminate different types of foods when they were dropped onto different floor types and left for different times — from three to 30 seconds. They found that time is a significant factor in the transfer of bacteria to a piece of food, and that the type of flooring also has a significant impact. Although the research was never published in a scientific journal, a university press release quoting the professor concluded that, while it carries some risk, the five-second rule "is real."

Today, we have evidence that's a little more definitive. A Rutgers University study published online in September in the American Society for Microbiology's journal, *Applied and Environmental Microbiology*, concluded that, depending on circumstances, bacteria can transfer onto food dropped onto the floor nearly instantaneously, in less than a second.

The researchers were incredibly methodical in this study. First, they tested four different foods: watermelon, bread, bread and butter, and gummy candy. They tested four different contact times: less than one second, five seconds, 30 seconds, and five minutes. They tested four different surfaces: stainless steel, ceramic glazed tile, maple laminate wood and indoor-outdoor carpet. And



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they tested two different solutions that they used to spread the bacteria.

For the study, each surface was inoculated with a non-disease-causing "cousin" of Salmonella called *Enterobacter aerogenes*. The researchers waited until the surface was completely dry, and then dropped food samples onto them for the different time periods. In all, they collected and tested 2,560 samples.

As in the other study, these researchers found that bacteria's ability to transfer onto food varies depending on circumstances. Foods with higher moisture content — in this case, watermelon — were the quickest and easiest to get contaminated. The researchers said that this isn't surprising, since bacteria tend to move with moisture.

As for surfaces, tile and stainless steel seemed to be the most susceptible in allowing foods to become contaminated. The indoor-outdoor carpet allowed the least contamination.

Also, the longer the food was in contact with the surface, the more likely it was to become contaminated. Even the solution used to spread the bacteria seemed to make a difference.

Conclusion? Don't count on the five-second rule to protect you. This study is a reminder to keep all surfaces around meal preparation and consumption clean. And if your food falls to the floor, think twice instead of just popping it into your mouth.

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**Editor:** This column was reviewed by Sanja Ilic, food safety specialist for Ohio State University Extension.

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