

The Future of Our Food: Climate Change and Food Poisoning

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Ever feel sick to your stomach after eating something? Most of us have. You may not have realized it then, but you were most likely experiencing some form of food poisoning. Food poisoning is a major cause of illness in the United States. According to a study done by Paul Mead and associates, from the Centers for Disease Control and Prevention, in the US alone it is estimated that food-borne illnesses cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths annually. Understanding food poisoning is important because of its prevalence and because food poisoning is preventable.

What is Food Poisoning?

Food poisoning is a class of illnesses caused by consuming contaminated food. Bacteria, viruses or pathogens can contaminate food at any stage of its production. This means that food can be contaminated when it is in the slaughterhouse, during packaging, or even when it is sitting in your refrigerator. Food poisoning symptoms vary, but most types of food poisoning cause nausea, diarrhea, vomiting, fever, and/or stomach cramping. Symptoms are usually mild and generally last between one and 10 days, but they can also be very severe and require hospitalization. One of the leading causes of food poisoning is the bacterium *Salmonella*. The *Salmonella* bacteria live in the intestinal tracts of humans and other animals. Eating foods contaminated with animal feces is usually how humans are infected with *Salmonella*. For example, *Salmonella* can contaminate plants grown in manure-treated soil and can contaminate meat as it is processed at a slaughterhouse. Contaminated foods are often of animal origin, such as beef, poultry, milk or eggs, but any food, including fruits and vegetables, may become contaminated. Contaminated foods usually look and smell normal. You can't tell if the food is contaminated by looking at it or by smelling it.

What does Food Poisoning Have to do with Climate Change?

Recent studies by Cristina Tirado, a researcher from the UCLA School of Public Health, have shown that climate change has the potential to increase the incidence of food poisoning because it is likely to change precipitation patterns, increase the frequency and

intensity of extreme weather events, warm the ocean, but most importantly it is likely to increase temperatures. Temperature increases are predicted to increase food poisoning in the future. This is because pathogens that cause food poisoning grow best in warm and moist environments. The higher temperatures expected in the coming years will likely increase the prevalence of the organisms that cause food poisoning. Conditions for these pathogens are becoming more ideal for their growth and reproduction.

Where is the Proof?

The study of food poisoning and climate change is an emerging field of research. Most studies being done on the topic have come out of Europe. One study, by Sari Kovats of the London School of Hygiene and Tropical Medicine, showed that Salmonella incidence in 10 European countries was positively correlated with the previous month's temperature. Kovats and associates explained that if a given month had a high average temperature, there would be a large number of Salmonella cases the next month.

In another European study, Graham Bentham and Ian Langford showed that over the next 50 years, as the temperature increases, the number of food poisoning cases per year is likely to increase by almost 6000 in ten European countries

What does this Mean for the Future?

The relationship between temperature and food-borne illness has implications for both the present and future. As the temperature rises, the frequency of food poisoning is expected to increase. We must prepare ourselves for the inevitable: an increase in the risk for Salmonella. However, since food poisoning is preventable, public health programs instituted now could prevent the increase. This can be done in various ways. First, food producers, managers of commercial food outlets, and the public should be educated about the added risk of food poisoning with increased temperatures. They must understand that as the risk of contamination increases, we must pay closer attention to how our food is processed. Also the importance of proper storage, preparation, and hygiene must be stressed. We as consumers must be careful in how we store and cook our food. If we are going to protect ourselves against food poisoning in a warming world, we must know why it's critical and how we have to do it.

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