Fact or Fiction?



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Food-borne Illness— It's Caused by Bacteria, Not Chemicals

"Bacteria, by any reasonable criterion, were in the beginning, are now, and ever shall be, the most successful organisms on earth."

Stephen Jay Gould, quoted in Nicols Fox¹

Chemicals and synthetic pesticides take serious hits in the press because of their alleged dangers when present in food. Because of this, more dangerous risks such as bacteria-borne food-related illnesses such as salmonella and E-Coli bacteria don t get the attention they deserve.²⁻⁴ Eric Schlosser in his recent book, Fast Food Nation, notes: "Every day in the U.S., roughly 200,000 people are sickened by a food-borne disease, 900 are hospitalized, and fourteen die. According to the Centers for Disease Control, more than a quarter of the American population suffers a bout of food poisoning each year ."5 The estimated cost each year of food-borne bacterial illness in the U.S. is approximately \$4 billion to \$6 billion .6

Microorganisms and toxins are almost always present at some level in the food we eat. Although the majority of these may be benign, most of us have experienced "food poisoning" at one time or another. Further, we often read newspaper accounts of deaths and illnesses associated with contaminated foods. The amazing fact is not that food sometimes harms us, but that our diet is not killing more of us because we consume so much. Larry Laudan presents these statistics: The average person eats about 70,000 meals in a lifetime, which amounts to some 50 tons of food and about 10,000 gallons of liquid.⁷

The most critical factor involved in food poisoning with meats is temperature control. Often, food is cooked too far in advance of consumption or it is kept at room temperature for too long.⁷ Also, the temperature of cooking is important for some foods. For example, with well-done hamburgers, there s the problem of the creation of potentially carcinogenic compounds (heterocyclic aromatic amines).8

One technique for reducing microbial activity is the use of spices. Sherman and Flaxman⁹ reported that there is overwhelming evidence that most spices have antimicrobial properties, and the four most potent spices garlic, onion, allspice and oregano killed every bacterial species tested. They also pointed out that use of spices was greatest in hot climates where unrefrigerated foods spoil quickly. Others have reported that hot peppers contain a substance that kills bacteria.¹⁰

Another way to protect food is to use irradiation. As Daniel Hager says, however, "This "languishes on the sidelines ."11 Irradiated foods are currently available in 28 nations. On February 22, 2000, the U.S. Department of Agriculture began to allow use of irradiation to treat refrigerated or frozen uncooked meat, meat byproducts, and certain other meat products to reduce levels of food-borne pathogens and extend shelf life.11, 12 This process has been not finding acceptance as quickly as it should, however, because of anti-irradiation activists.¹¹ Perhaps the recent anthrax scares and the press reports about how food irradiation technology can kill anthrax will speed this process along.13

Some folks worry about pesticides and chemicals in food causing cancer. According to an analysis by Scheuplein, reported by Andrea Arnold, the risk of dying from cancer from dietary exposure to both natural and man-made carcinogens or cancerinducing substances is 7.7 percent. The risk from naturally occurring carcinogens alone is 7.6 percent. In other words, the lifetime cancer risk in foods from spices and flavorings, indirect additives, pesticides and contaminants all add up to less than 0.1%. Scheuplein says, "The clearest cancer-causing agent in food is fat, which has been linked with several kinds of tumors."¹⁴

Can't Avoid Natural Carcinogens

What these figures make absolutely clear is that the principal killer in the food we eat is the food itself not the additives nor the residues, which get so much public attention.7 Roger Coulombe states, "It is not necessary or practical for consumers to stop eating foods that contain natural carcinogens indeed, nearly every food type contains them, and it is impossible to completely avoid them.15 About 99.99 percent of all pesticides in the human diet are natural pesticides from plants.¹⁶ All plants produce toxins to protect themselves against fungi, insects and animal predators, such as man. Tens of thousands of these natural pesticides have been discovered, and every species of plant contains its own set of different toxins, usually a few dozen. When plants are stressed or damaged (such as during a pest attack), they increase their levels of natural pesticides manifold, occasionally to levels that are acutely toxic to humans. Ames and Gold¹⁶ estimate that Americans eat about 1,500 mg per person per day of natural pesticides, which is 10,000 times more than we eat of synthetic pesticide residues. The concentration of natural pesticides is usually measured in parts per million (ppm) rather than parts per billion (ppb), which is the usual concentration of synthetic pesticide residues or of water pollutants. They also estimate that a person ingests annually about 5,000 to 10,000 different natural pesticides and their breakdown products.

Many folks assume that *natural* is safe and *synthetic* is toxic. This is overly simplistic and inaccurate.¹⁵ As already mentioned, synthetic chemicals are present in foods at much lower levels than are many naturally occurring carcinogens and toxins. Also, in many cases, the synthetic chemicals are less potent carcinogens than the ones that are a natural part of our food. Morris and Bate report, "Dennis Avery found that people eating natural and organic foods were eight times more likely to contract this new and potentially deadly bacterium E-Coli O157:H7. The reason for this is that some *natural* and *organic* foods are produced using manure as a fertilizer, and if manure is not treated properly, it can contain these harmful bacteria, which can then spread onto the food being produced."¹⁷

Our Worries Are Displaced

Craven and Johnson state that concerns over food safety fall predominantly into three categories:¹⁸

- nutritional concerns;
- contamination by infectious agents;
- contamination by chemicals.

They note, "Nutritional concerns include fat, salt, sugar, cholesterol, and junk food (with concomitant overeating/obesity and poor nutrition, which are generally recognized as major contributors to degenerative diseases such as heart disease and diabetes). However, the public does not exhibit a great deal of fear regarding these issues, and they do not tend to escalate into major food scares. Deaths ascribed to contamination by infectious agents account for a minuscule number of the total, and deaths from contamination by chemicals are not recorded at all. Yet the public experiences a great deal of fear and apprehension over possible microbial and chemical contaminants and many disastrous food scares have resulted."¹⁸

Clearly, we worry about the wrong risks in our diets. P&SF

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