Keeping Your Food Safe

Bonus Article for HELPGUIDE.ORG from Harvard Health Publications

Aside from being nutritious, healthy foods must also be safe — untainted by bacteria, free from dangerous levels of pesticides and other impurities.

Concerns about food safety have grown stronger and more far-reaching. Headlines warn of contamination in beef, eggs, lettuce, and other fruits and vegetables. Fears of toxic pesticides and potential problems from genetically engineered foods are widespread.

Key Points

- As food production has increased, so has the potential for food contamination.
- Meat, fish, dairy products, and fresh produce can all become contaminated by bacteria.
- Protect yourself by preparing food, cooking it, and storing it safely.

Modern farming and food processing methods have done a great job of making more food available more cheaply. But these methods have also created several safety issues.

In truth, our food supply is reasonably safe, but it could be safer. The government is working with farmers and slaughterhouses to take greater precautions against the spread of germs. Organic and sustainable agriculture and other strategies can help reduce the need for synthetic fertilizers and toxic pesticides, but drive up the cost.

Meanwhile, there are steps you can take in selecting, handling, and storing food to minimize safety problems.

Why concerns about food safety have grown

In many ways, modern farming is a success story of increased productivity. Yet efforts to maximize yield have created situations that can affect the safety of food. These include:

- **Greater use of chemicals.** All sorts of chemicals are found in the pesticides sprayed on crops. Meanwhile, animals are injected with hormones to increase growth or milk production.
- **Spread of bacteria.** The crowded animal pens of factory farms and the large-scale assembly-line nature of slaughterhouses and food processing plants have increased the spread of dangerous bacteria in food.
- **Rise of antibiotic resistance.** Farmers' routine addition of antibiotics to animal feed has given rise to bacteria that are resistant to treatment with medications.

Larger Amounts of Food—And Stronger Germs

The main reason that food contamination is on the rise is that large-scale processing and packaging involves larger batches of food. So when contamination does occur, it affects larger amounts of food than ever before — which is shipped to more supermarkets, restaurants, and school cafeterias.

The widespread use of antibiotics in animal feed is another factor because it promotes the emergence of disease-resistant pathogens that are resistant to antibiotics. These resistant germs breed inside the animals and are then passed to humans in meat, eggs, and other foods.

Bacterial Contamination is the Worst Threat

The food safety threat that eclipses all others is bacterial contamination — a problem that mainly affects meat, fish, and dairy products, and also some fresh produce.

Not long ago, microbes were either unheard of or considered a minor threat. Now they cause 76 million cases of food poisoning and 5,000 deaths in the United States each year.

You can help guard against food poisoning by washing meat and produce before handling it, cooking foods thoroughly, and refrigerating them. But these measures aren't foolproof, because contamination can spread during delivery to other foods that aren't normally affected. Fruits, vegetables, and milk have become tainted after being shipped in the same trucks as contaminated eggs or meat.

Foods most at risk for bacterial contamination

The foods most prone to bacterial contamination are:

- meat
- poultry
- eggs or foods made with raw eggs
- raw shellfish
- cold cooked seafood such as smoked salmon
- soft cheeses
- bean sprouts

The Most Common Food Pathogens

The two most prevalent sources of food-borne illness are:

- Escherichia coli (E. coli) in ground meat
- Salmonella in ground meat, poultry, and eggs.

Slaughterhouses must regularly test meats for the presence of E. coli, and government inspectors must test for Salmonella.

You can also play your part by becoming aware of the nature of food safety problems and taking steps to ensure your own safety when handling and cooking foods. Start by becoming familiar with three common sources of contamination.

E. coli. A toxic variation of the bacterium E. coli, found mainly in ground beef, causes an estimated 25,000 cases of food poisoning in the United States each year and kills about 100 people. It's the most common cause of sudden kidney failure in children and can also cause kidney damage in adults.

Contamination occurs during meat processing, when E. coli from the animals' intestines becomes mixed in with the meat. E. coli contamination has prompted massive recalls of millions of pounds of ground meat. The damage is done by a toxin known as shiga, which is commonly found in the O157:H7 subtype.

Salmonella. This bacterium is found mostly in meat and eggs. But it spreads to other foods, such as ice cream, vegetables, and fruit, when they're shipped with contaminated meat or eggs.

A study in *The New England Journal of Medicine* showed how alarmingly prevalent it is: 20% of 200 samples of ground chicken, beef, turkey, and pork contained Salmonella. Of particular concern, 84% of the Salmonella samples were resistant to at least one antibiotic, and 53% to at least three antibiotics. This means that when animals carry Salmonella — and when people get Salmonella food poisoning — it's more difficult to cure than it was in years past.

Campylobacter. Usually transmitted by poultry, this bacterium is the most common cause of bacterial gastroenteritis in the United States, causing approximately 2.5 million cases of diarrhea, fever, and abdominal cramps each year.

Antibiotic-resistant strains are becoming more prevalent because of the widespread use of antibiotics in chicken feed. In 2007, the CDC reported increasing resistance to ciprofloxacin, a fluoroquinolone, the most common antimicrobial drug prescribed for Campylobacter infections in people. To help control this problem, the FDA has begun to reduce the use of fluoroquinolones in poultry. One, enrofloxacin, is now prohibited in poultry.

How to Handle Food Safely

You can prevent most cases of food poisoning in your household by preparing and storing your foods safely. These precautions will help kill germs that are present in the meat and eggs you buy and help you avoid introducing new bugs to your food at home.

Rinse foods. Rinsing can wash off some germs from meat, poultry, and fish and pesticide residues from produce. Some tips:

- Rinse all meat, poultry, and fish under running water before cooking.
- Rinse all fruits and vegetables under running water before cooking or serving them.

Wash your hands. Frequent handwashing helps prevent you from passing germs from one food to another. Two things to keep in mind:

- Use soap and water to wash your hands each time you handle a raw food.
- Don't wipe your hands on a dishtowel without washing them first.

Use separate utensils. Don't prepare meat and fish on the same surface that you use for other foods — otherwise, you risk contaminating those foods with bacteria from the meat and fish. A few helpful hints:

- Use one cutting board for meats and fish and a second one for produce.
- Be sure to wash the cutting boards with soap and water after each use.
- Use different knives to cut different foods to prevent cross-contamination.

Cook thoroughly. Cook all meat, poultry, eggs, and freshwater fish thoroughly. Don't rely on color alone to indicate whether meat is fully cooked. Some advice:

- The USDA recommends that everyone use a meat thermometer. Different temperatures are required to kill off germs in different kinds of meat.
- It's also important to cook hot dogs and other precooked meats and fish, to destroy bacteria that may have contaminated them in the processing plants.

Store quickly and safely. Don't leave any foods, before or after cooking, at room temperature for more than two hours (one hour if the air temperature is above 90° F). Put them in the refrigerator or freezer. A few tips to keep in mind:

- The temperature inside your refrigerator should be 40° F or below; your freezer should be at 0° F or below.
- If you have large amounts of leftovers, divide them into small batches when you put them away in the refrigerator or freezer. That way, the temperature of each batch will reach a safe level faster.
- Keep in mind that freezing does not necessarily kill bacteria; wash meats and poultry thoroughly after thawing, and handle them the same as you would fresh meats.

How Long You Can Store Food Safely

Discard foods after the given time period has elapsed.

Food	Refrigerator	Freezer
Fresh meat and fish		
Ground beef	1–2 days	3–4 months
Steaks and roasts	3–5 days	6–12 months
Pork chops	3–5 days	4–6 months
Ground pork	1–2 days	3–4 months
Pork roasts	3–5 days	4–6 months
Lean fish (flounder, haddock, cod, etc.)	1–2 days	Up to 6 months

Fatty fish (blue fish, perch, salmon, etc.)	1–2 days	2–3 months
Whole chicken	1–2 days	12 months
Chicken parts	1–2 days	9 months
Giblets	1–2 days	3–4 months
Cured meats		
Lunch meats (ham, turkey, etc.)	3–5 days	1–2 months
Sausage	1–2 days	1–2 months
Dairy products		
Milk	5 days	1 month
Cheese	3–4 weeks	2–4 months
Ice cream, ice milk	–	2–4 months
Uncooked eggs (in shell)	3 weeks	–
Hard-boiled eggs	1 week	–
Source: U.S. Food and Drug Administration		

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