

Prepare Meat and Poultry Safely

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Meat and poultry products are well known for their high protein content and nutritional benefits. They are also known for causing many cases of foodborne illness each year.

Meat and poultry processors operate under strict guidelines by the U. S. Department of Agriculture for producing safe, wholesome products. However, the food preparer and handler also shoulder some of the burden to make sure these products are prepared and served safely.

The work area

When preparing foods of any type, especially meats and poultry that are to be cooked, follow these procedures:

- Keep the work area as clean as possible.
- Wash your hands often while preparing food, especially when changing food groups such as from meat to raw vegetables or vice versa.
- Prevent cross-contamination. Exchange cutting boards, knives, and other utensils, or wash them thoroughly between uses.
- Prevent recontamination of the cooked food. Keep raw and cooked foods separate until they are ready to be served on the plate.

The cooking process essentially destroys the bacteria present on raw meat. However, pathogenic (disease-causing) bacteria from

an unclean utensil or container will grow very well on any cooked meat it touches.

Some basic microbiology

To understand the dangers that meat and poultry products may pose, we need to understand some basic microbiology. All animal food products contain bacteria from two general sources:

- **Naturally occurring bacteria** are typically found on the bird or animal and in its living environment, such as pine shavings, litter, and dust.
- **Introduced bacteria** come from sources other than the bird or animal and its environment. These introduced bacteria often come from people, equipment, water, and other materials when the animal is processed after it leaves the farm. Not all pathogenic bacteria are introduced microbes. Some naturally occurring microorganisms are considered pathogenic to humans.

Typical poultry processing operations reduce the naturally occurring bacteria by about 95 percent though procedures such as scalding, chilling, and antimicrobial treatments. Processing plants also follow strict guidelines for cleaning and sanitation practices that are followed in the plant.

However, even the best of these processes cannot eliminate all bacteria from the carcass or the environment. It is possible that, after processing, meat and poultry may still contain some pathogenic bacteria.

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Spoilage bacteria—unpleasant but not harmful

Bacteria classified as spoilage organisms do not cause diseases in humans. These bacteria often belong to a class of microbes called psychrotrophs, which can grow in low temperatures. Because of this ability, many spoilage organisms can grow even if the food is refrigerated.

Spoilage bacteria are responsible for the “off odors” and “off flavors” associated with old or spoiled food. It is usually very easy to tell if a food is beginning to spoil. If the poultry emits a slightly sweet to strong, sweet odor, this is a sign that spoilage bacterial numbers are increasing. This odor means that the product will usually be considered “spoiled” within 24 to 36 hours.

These odors are caused by microorganisms breaking down the carbohydrates, fats, and proteins in the product. If you detect these smells, discard the product.

Another sign of a food beginning to spoil is an extra slimy texture on the raw product. This is a layer of bacteria that indicates that the food is about to spoil. Although poultry products may feel slick, they should have no visible slime layer of bacteria.

Foodborne illness

Compared with the amount of spoilage bacteria found on meat and poultry, there are often only a few harmful or pathogenic bacteria. However, it takes only a minimal number of these organisms to cause disease.

The bacteria commonly associated with foodborne illness in poultry are *Salmonella* spp., *Clostridium perfringens*, *Staphylococcus aureus*, and *Campylobacter jejuni*. All of these organisms are considered mesophilic, which means that they grow at “middle temperatures.” These microbes easily grow and reproduce at or near

the body temperatures of animals, poultry, and humans.

Salmonella spp. and *Campylobacter jejuni* produce illness in people by actually growing and reproducing inside the body. *Staphylococcus aureus* and *Clostridium perfringens* produce a toxin on the food. This toxin is ingested and it, not the bacteria itself, is the disease agent.

Once these toxins are present in the food, heating it does not destroy them. These organisms are often difficult to detect in raw foods because there are fewer of them than of spoilage bacteria and because they do not produce the same “off odors” as from spoilage bacteria.

The foods that have the greatest risk for bacterial growth are those high in protein, such as meat and poultry. Because bacteria are living organisms, several requirements must be met before they can grow and reproduce:

- Available nutrients
- Adequate moisture
- Proper growth temperature
- Adequate time

If one of these requirements is missing or disrupted, bacterial growth on the food product will be deterred.

As a consumer, you have control over temperature and time. When cooking poultry, heat it to a deep-muscle temperature of 165 degrees F. If this poultry is to be served later, cool the product to 40 degrees F or below as quickly as possible after cooking.

The serving temperature after cooking should be at 140 degrees F or above. The amount of time that foods are held at temperatures between 40 and 140 degrees F must be kept to a minimum.

Following these guidelines will help you prepare your meat and poultry products safely.

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