

# Poultry

**P**OULTRY is one of the most common foods in the world. The types, cuts, and cooking methods are endless. Some poultry is farm-raised. Other poultry types are wild. Each type has a slightly different taste, and all share common threads for safe food handling. List some classic poultry dishes. Look online if you need help. What is your favorite way to cook poultry?



## Objectives:



1. Differentiate between types, cuts, and grades of poultry.
2. Practice the safe handling of poultry during storage, cooking, holding, and keeping.

## Key Terms:



broilers and fryers  
carving  
chicken  
cross-contamination  
dark meat  
domesticated  
dry cooking methods  
eviscerate  
fabrication  
fowl  
free-range

game birds  
giblets  
gizzards  
moist cooking methods  
opaque  
organic  
poultry  
quality grades  
resting  
Rock Cornish game hens  
salmonella

squab  
stewing  
temperature danger  
zone  
translucent  
trussing  
USDA  
white meat  
wholesomeness

## Poultry Types, Cuts, and Grades

**Poultry** is any domesticated fowl raised for meat or eggs. **Fowl** are typically hens, but the word “fowl” is also a generic descriptor of all domesticated and game birds. **Domesticated** is

any poultry that are farm-raised or otherwise handled by humans for the purpose of harvesting for food. The most common types of poultry are chicken, turkey, duckling, and geese. A broader definition of poultry includes any animal with wings. Poultry includes all birds, such as pheasant; quail; **squab** (pigeon; a very expensive choice); ostrich; and **Rock Cornish game hens** (very small, plump birds that are a hybrid between a Plymouth Rock and a Cornish chicken).



**FIGURE 1.** It looks like a small chicken, but this is a roasted quail. It is a game bird, so it only has dark meat.

## TYPES

Domesticated birds are generally milder in flavor than game birds because of control of the birds' food supply and limited movement. The more exercise the bird gets, the more its muscles develop, resulting in tougher and stronger tasting meat. Domesticated birds include chicken, turkey, geese, duck, capon, roasting chicken, stewing chicken, Rock Cornish game hen, and squab.

### Chicken

**Chicken** (in French, *poulets, poulardes, volaille*) is a generic term for barnyard fowl that runs the gamut from young tender chickens (in French, *poussin*) to tougher stewing hens. Chicken and turkey have the mildest flavors; domesticated ducks and geese are a bit stronger; and wild ducks and geese are considerably stronger yet in taste and texture.

Domesticated types of poultry from largest to smallest are:

- ◆ Turkey—hens and toms (5 to 25 pounds)
- ◆ Goose (6 to 14 pounds)
- ◆ Duck and duckling (up to 16 weeks old) (4 to 5 pounds)
- ◆ Capon (6 to 9 pounds)
- ◆ Roasting chicken (4 to 7 pounds)
- ◆ Stewing chicken (3 to 7 pounds)
- ◆ Rock Cornish game hen (1 to 2 pounds)
- ◆ Squab ( $\frac{3}{4}$  to 1 pound)



## BROADENING AWARENESS...

### AMAZING ASPECTS: Goose Down

Geese are game birds that have a lot of fat and make a delicious meal, but they are more prized for their down fluff than their meat. Geese are high in fat to help them keep warm since their habitat is generally cold. Similarly, they are protected from cold by the fluffy fibers under their feathers. Down is not a feather; it feels like cotton balls under the feathers. Down has the ability to absorb moisture and expel it. In addition, down holds considerable amounts of air within its fluffy texture. The result is the best warmth-to-weight ratio of any fiber, making goose down highly desired as fill for coats, pillows, and comforters. Crispy roasted goose is a European favorite, but geese are harvested more for their down than for food.

### Game Birds

**Game birds** are wild birds or non-domesticated birds (e.g., pheasant, quail, grouse, and squab) caught in the wild and not farmed. Wild ducks and geese are considered “game birds” as a way to identify them as non-farm raised. They are hunted and harvested for sport and food. An advantage of eating wild birds is that they have eaten a natural diet, without any antibiotics or hormone drugs. The flavor of the flesh is “pure,” and eating them passes on no chemicals in contrast to farm-raised birds. The downside is that game birds are less available and are more expensive.

### Free-Range Birds

**Free-range** are birds allowed to roam and eat whatever they find naturally, as opposed to caged birds that are fed bird feed. Free-range birds provide meat on a quality par with wild birds. They are a popular variation of farm-raised birds because they are in captivity.

### Organic Birds

**Organic** are farm-raised birds that are not fed any artificial feeds, antibiotics, or growth hormones. These birds are harder to raise and to keep healthy, often resulting in smaller weight, higher mortality, and high costs. Some consumers are willing to pay these costs for meat considered “purer” than farm-raised varieties.

## CUTS

Poultry is a versatile meat that can be transformed for various uses during processing and fabrication.

### Processing

After the slaughter of poultry, the processing involves the removal of the feet, neck, head, feathers, and internal organs. Whole processed birds typically contain a packet of pieces—neck,

giblets, and gizzard—in the bird’s chest cavity. **Giblets** are a grouping of organs that usually include the heart, liver, and gizzard. **Gizzards** are a “second or third stomach” in most domestic birds that are quite muscular and tough, as they help with digestion. The neck, back, wing tips, and other bits of skin and carcass (plus aromatic vegetables and spices) are typically saved and used to prepare a white stock.

## Fabrication

**Fabrication** is the process of butchering the bird into pieces, along with any further processing (e.g., removal of the skin and/or bones). After processing, regardless of the bird variety, they are all comprised of two identical halves. Each half is comprised of four standard pieces of meat or eight standard “restaurant cuts” per bird: two breasts, two thighs, two legs, and two wings. These eight pieces may be cut into even smaller pieces (e.g., for stir-frying and chicken tenders) and are examples of further fabrication.



**FIGURE 2.** This chicken half would be fabricated into four standard pieces. Can you identify the restaurant cuts in this image?

## White and Dark Meat

Chickens and turkeys are the only poultry sources of **white meat** or flesh that are pinkish pale when raw and white when cooked. These two birds do not fly, so the breast and wing muscles do not get much work. As a result, they stay pale in color and delicate in flavor. Also, they are lower in fat than dark meat. Breasts and wings are white meat. Conversely, the birds’ legs and thighs do more work and have more muscle fiber than the wings and breasts. **Dark meat** (e.g., legs and thighs) is the portion of the chicken or turkey that is darker pinkish red when raw and turns dark grey when cooked. Dark meat is stronger in flavor, tougher in texture, and contains more fat. All other poultry has only dark meat. Typical restaurant servings of chicken are:

- ◆ A half (one breast, one wing, one thigh, and one leg)
- ◆ A quarter (either one breast and wing or one leg and thigh)
- ◆ A white meat quarter (a breast and wing)
- ◆ A dark meat quarter (a leg and thigh)

## GRADING POULTRY

The United States Department of Agriculture (**USDA**) is an organization that grades all commercially processed poultry. The grading is for food product **wholesomeness** (the



## ON THE JOB...

### CAREER CONNECTION: Becoming a Butcher

Butchering is a specialty career path that requires learning anatomy and the ability to fabricate all livestock (e.g., hogs, poultry, beef, and lamb). The typical educational path is a high school diploma or GED followed by one to two years of on-the-job training. Some college certificate and degree programs are available (e.g., AAS in Meat Processing and Food Safety). Butchers must be proficient in knife skills and the use of machinery—handsaws, table saws, meat grinders, and wrapping and packaging equipment. In addition, they must follow safety regulations and have inventory and ordering skills.

Employment is found in grocery stores, meat warehouses, slaughtering and meat packing plants, and major hotel and resort complexes. The downside to being a butcher is working in refrigerated rooms. Also, there is the constant danger of injury, long hours standing resulting in physical fatigue, and boredom from repetitive duties. Pay varies from state to state and with skill level. The average salary is approximately \$29,000 annually.

health and vigor of the bird, the shape, flesh, and appearance) and for the lack of microbial infection and chemical contamination. Poultry that passes inspection is literally stamped with ink that reads “Inspected for Wholesomeness by the U.S. Department of Agriculture.” The grading is singular; the animal passes inspection or it does not.

### Eviscerate

All poultry sold in interstate commerce must be eviscerated. To **eviscerate** is to remove the entrails, head, and feet. Poultry sold within a state is graded and inspected on a voluntary basis, and packing plants must pay for their meat to be graded. This type of grading is for quality evaluation of the bird shape, the meatiness, and freedom from physical defects. The USDA Agricultural Marketing Service is the agency that conducts quality grading for producers. NOTE: It is recommended that eviscerated poultry be cleaned of all traces of blood by soaking in cold water and drying as necessary before cooking.

### Grade

**Quality grades** for poultry are U.S. Grade A, U.S. Grade B, and U.S. Grade C. The grade stamp is in the shape of a “shield” with a large A, B, or C in the middle, with USDA in small letters above and “GRADE” in small letters below.

- ◆ Grade A is the highest quality, indicating the bird is free from bruises, defects, discolorations, feathers, and broken bones. Grade A is the standard for poultry sold by retailers.
- ◆ Grade B and Grade C poultry are typically sold after further processing, such as smaller pieces, canned, ground, or incorporated into other processed foods. Typically, these two poultry grades are not sold whole and do not bear visible grade labels.
- ◆ Other classifications that affect tenderness are sex, weight, and age.

# Safety in Working with Poultry

## STORAGE

All poultry is considered highly perishable and potentially hazardous due to the likelihood of bacterial contamination, specifically from ingesting **salmonella** (pronounced sal-meh-nella, a disease-causing microbe that can cause a salmonellosis infection). Temperatures between 41°F and 135°F are considered the **temperature danger zone**, a temperature range in which bacteria grow best. Foods considered potentially hazardous must be kept out of this temperature range as much as possible, limiting exposure to a total of no more than four hours. Controlling the growth and development of this bacterium is critical in preventing foodborne illness, and proper storage is the first control step.

Fresh poultry must be stored below 41°F and is best stored on crushed ice if storage will extend beyond several days. Poultry must be frozen if it will be stored longer than several days before cooking. Poultry must be stored in the coldest part of the refrigerator (away from the door). To prevent cross-contamination, poultry must be kept on a bottom shelf where its blood or juices have no opportunity to drip onto other foods. Whole birds should not be stored with stuffing in their body cavity (which acts as insulation from heat and cold) because of the likelihood of bacterial growth.

According to the National Institute for the Foodservice Industry (NIFI), **cross-contamination** is “the transfer of harmful micro-organisms from one food to another by means of a non-food surface, such as utensils, equipment, or human hands.”

- ◆ Salmonella bacteria are frequently present in raw poultry, so a person must not use the same utensils or cutting boards for raw and cooked poultry without cleaning and sanitizing the tools and equipment between uses. Separate cutting boards for raw and cooked poultry are recommended.
- ◆ Personal hygiene should be practiced. Frequent and thorough hand washing after handling raw or cooked foods or after using the restroom is mandatory.
- ◆ Food should be cooked adequately, and it should be chilled promptly.

## Thawing Frozen Poultry

Frozen poultry must be thawed over several days under refrigeration or in a sink under cold running water. If poultry is thawed in a microwave, the cooking process must immediately continue in another cooking method—boiling, baking, roasting, grilling, etc. because of the nature of microwave heating. A large turkey could take two days to thaw under refrigeration.

## COOKING TEMPERATURES AND DONENESS

The thickest part of the flesh, away from bone, must reach a minimum internal temperature of 165°F to guarantee bacterial safety, regardless of the poultry type. A meat thermometer, a

stem-type probe thermometer, and/or a digital thermometer must be used to get an accurate reading of the internal temperature of the flesh. The outside color of the bird has little bearing on the doneness of the meat.

**Resting** is the period of time during which the internal temperature of the bird continues to rise, and its juices are reabsorbed into the meat prior to carving and slicing. Larger birds (e.g., turkeys, geese, and roasting chickens) have considerable body mass and continue to cook for several minutes after removal from the cooking source. As a result, they can be cooked to an internal temperature of 155°F and then covered with foil and left at room temperature for 15 or 20 minutes to reach 165°F. Resting for 15 to 20 minutes also facilitates easier carving. Resting is not required or particularly useful with individual pieces of meat or smaller birds.

Poultry is fully cooked when the juices of the bird run clear as the flesh is pierced. Pink or cloudy juices indicate that the meat is undercooked. Also, poultry flesh that has firmed significantly and changed in color from its raw **translucent** (light passes through) state of pink/red coloring to an opaque white or gray-reddish brown coloring is an indication that the meat is fully cooked. **Opaque** is cloudy; light does not pass through. Pressing the drumstick flesh is another good indicator of doneness; cooked poultry loses its soft, raw feel and becomes firm but yields easily. NOTE: Overcooking makes poultry dry and stringy.

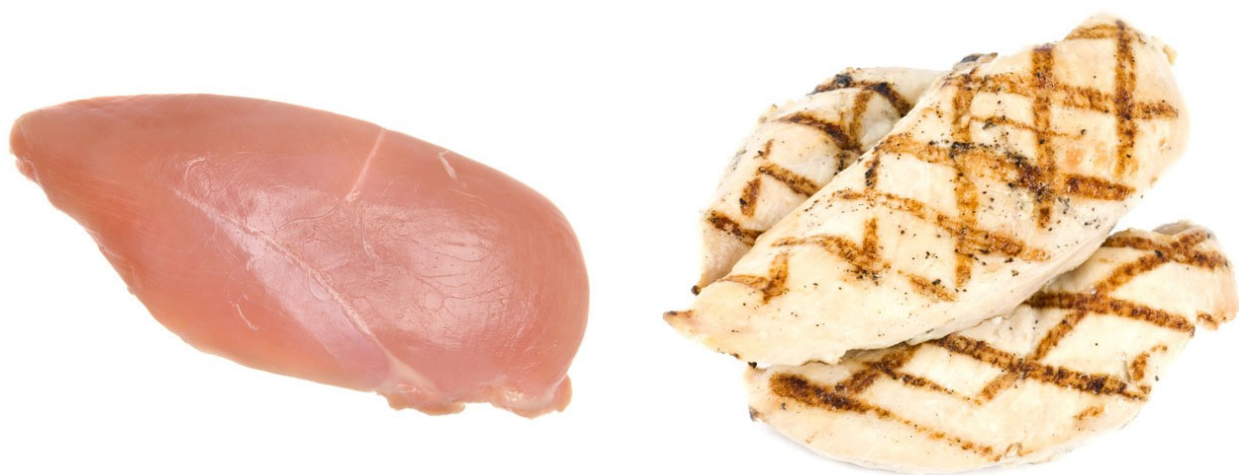


FIGURE 3. Compare these chicken breasts. The raw one is translucent; the cooked one is opaque.

## COOKING TECHNIQUES

Poultry's generally mild flavor and tenderness allows for a variety of cooking methods and is a natural choice for young cooks who wish to be creative by experimenting with flavors and techniques. Common around the world, virtually every culture has unique ways to prepare and serve poultry.

International cooking techniques vary from mild to spicy, from whole to pieces, bone-in to boneless, chopped, minced, breaded, and battered. Poultry is combined with other meats and with endless numbers of spices, vegetables, and starches. It is used for sandwiches or roll-ups, entrées, appetizers, soups, stews, and more. In addition, poultry, especially turkey and chicken,

is processed with spices and binding agents to turn it into other “look alike” products (e.g., ham, salami, and hot dogs).

## Dry Cooking Methods

Young birds are very tender and can be cooked using **dry cooking methods**, which are cooking techniques used with tender cuts that have little connective tissue; quick, hot cooking methods. Dry heat cooking methods include roasting, baking, frying, broiling, stir-frying, sautéing, barbequing, and grilling. Young chickens are known as **broilers and fryers** (specific terms that relate to a young age and tenderness, making them appropriate for dry heat methods). Packaging for turkeys, ducklings, and geese typically include the word “young” to stress tenderness. For example, ducks have tough flesh, and ducklings have tender meat with a high fat content; ducklings can be roasted.



FIGURE 4. Fried chicken is prepared by a “dry” cooking method, usually pan-frying or deep-frying.

## Moist Cooking Methods

**Moist cooking methods** are techniques used for meats with more connective tissue and involve long, slow cooking. Moist cooking options are suggested for older and tougher birds and include boiling, **stewing** (cooking in liquid or sauce with vegetables), braising, simmering, poaching, and steaming. Most game birds benefit from long, moist cooking methods, as they tend to be tougher than domesticated poultry. Dry cooking methods do not tenderize older tougher meat.



FIGURE 5. Stewing is a moist cooking method best used with tougher birds. This is a picture of a traditional Thai dish—Chicken Massaman Curry—that contains chili peppers, curry powder, sauce, and coconut milk.

## Trussing

**Trussing** is a technique to help maintain shape and ensure even roasting (or simmering) by tying a whole bird together using a trussing needle and strong string. The steps in trussing a bird are easy to learn. Take notes as your instructor demonstrates.



**FIGURE 6.** Trussing is a technique that you can practice. You will improve each time you do it. Notice the heavy string tying this turkey into a uniform shape.

## Carving

**Carving** is cutting up the cooked poultry meat to serve at the table. A good knowledge of anatomy is essential if a person is to carve well, whether in the kitchen or at the table. A pointed knife with a very sharp edge and a long, flexible blade is essential. The knife must be heavy enough to easily cut through a joint, with enough “bend” to follow the bird contours. To control the carving, a two-tined fork or a pair of tongs can hold the bird in place while carving. Take notes as your instructor demonstrates.

## HANDLING

### Holding

Poultry is a potentially hazardous meat product. Once cooked, it must be held hot at a minimum internal temperature of 140°F. This may be accomplished by using heated “hot boxes,” placing under a heat lamp, heating on a stovetop, or placing in warming drawers or in ovens. Poultry that is fried crispy would typically be held in an open hot environment (e.g., under heat lamps) to prevent steam from moistening the crispy outside. Conversely, tender roasted or stewed poultry is best kept warm by covering it and then placing it in a sealed warming unit to retain moisture.

### Reheating

To safely reheat poultry, the requirements are strict. It must reach an internal temperature of 165°F quickly to reduce bacteria formation. It can then be kept at 140°F internally for hot holding. As with all potentially hazardous foods, poultry can safely be reheated one time, after which it should be discarded.

### Keeping

Leftover cooked poultry must be cooled to 70°F within two hours and then to below 41°F within four hours or less. Large birds—turkey, geese, and capon—should be cut up and/or sliced to ensure the meat cools within the required time frame. Thick poultry products—stews, soups, and casseroles—should be placed in enough shallow hotel pans or dishes to ensure they cool within the prescribed time frame.

## Summary:



Poultry includes numerous types—from turkey to squab. They are all comprised of eight primary cuts: two wings, two breasts, two thighs, and two legs. Domestically raised poultry is primarily chicken and turkey, both of which have mild flavors and contain white and dark meat. Wild game birds—pheasant, geese, and quail—have a stronger flavor and are comprised of dark meat only. The USDA grades domestically farm-raised birds for wholesomeness, with quality grading offered as an option.

Salmonella is a microorganism of major concern when working with poultry. To control Salmonella infection requires controlling the time poultry spends in the temperature danger zone, proper cooking, proper holding, and keeping temperatures. Poultry lends itself to endless cooking techniques, with domestic and younger birds suited to dry cooking methods. Meanwhile, game and older birds have the best results with moist cooking styles.

## Checking Your Knowledge:



1. Cutting a whole bird into eight pieces is called fabrication. Describe two other examples of fabricating poultry.
2. List four dry cooking methods for poultry.
3. What is the required internal temperature for cooked duck?
4. What are giblets and gizzards?
5. Explain the difference between “free range” and “organic” poultry.

## Expanding Your Knowledge:



Salmonella remains a major concern around the world and the new drug-resistant strains of the bacteria make it more of a concern. Why are antibiotics losing their effectiveness when people become ill? Are the birds ill? What options do we have? Do some research.

## Web Links:



### Poultry Recipes

<http://www.foodnetwork.com/topics/poultry/index.html>

### Carving a Turkey

<http://www.youtube.com/watch?v=RdNhA38rwnY>

### Trussing a Chicken

<http://www.youtube.com/watch?v=HpSPfuJQVOA&feature=fvsv>

### Inspection & Grading

[http://www.fsis.usda.gov/Factsheets/Inspection\\_&\\_Grading/index.asp](http://www.fsis.usda.gov/Factsheets/Inspection_&_Grading/index.asp)