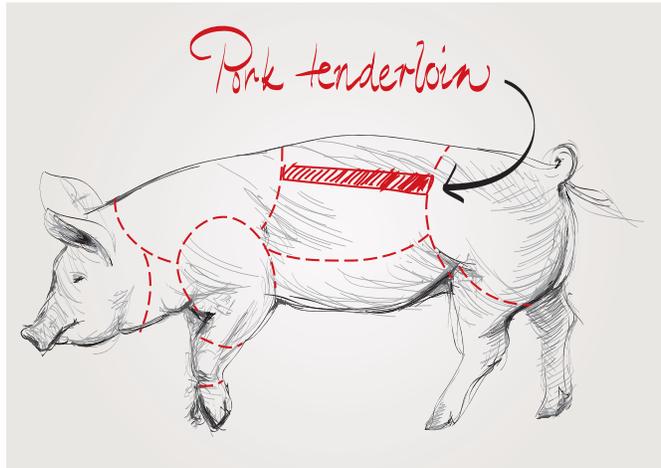


Pork

PORK IS VERSATILE. Its meat is cooked in endless ways. Pork primal and retail cuts have different characteristics and require different cooking methods to achieve the best results. Knowing how the parts of the animal impact tenderness and flavor provide keys to choosing the proper cooking method for each pork product.



Objective:



Analyze pork primal and retail cuts, and select appropriate cooking methods for each cut.

Key Terms:



barding	fabricated	retail cuts
Boston shoulder	fatback	ribs
carryover cooking	ham	side
charcuterie	hocks	silverskin
collagen	loin	spareribs
combination cooking	moist heat cooking	tenderloin
connective tissue	offal meat	trichinella spiralis
curing	picnic shoulder	trichinosis
dry heat cooking	pork	trussing
elastin	primal cuts	USDA

Pork Primal and Retail Cuts

Pork is the flesh of mature swine (hogs and pigs) eaten fresh, not cured. The flesh of an adult pig is called pork when it is fresh and is called ham or bacon when it is cured. **Curing** is the process of preparing meat for immediate or future use by drying, salting, smoking, and other methods of preservation (e.g., sugar-cured ham and smoked-cured bacon). When cooked

simply, the flesh remains whitish or pale pink. The lack of color is due to the pork butcher draining the blood for processing. Black puddings are prepared with pork blood.

Most retail pork cuts are from young hogs, making these cuts uniform in quality and tenderness. Lean, high-quality pork flesh is light gray to pink in color with flecks of white fat throughout and sometimes a fat cap. Pork is the most often used meat in the Chinese culture. Many pork dishes are Chinese in origin.

INSPECTION AND GRADING

The United States Department of Agriculture (**USDA**) is a federal regulatory agency that oversees all food production in the United States for safety and quality standards. It inspects all pork carcasses that travel in interstate commerce. Quality grading for pork after slaughter is optional and voluntary, and processing plants must pay for the grading. While all pork is inspected, the only pork grades are “Acceptable” and “Utility.” All pork sold in grocery stores, or at the commercial restaurant level, is an Acceptable grade. Utility grade pork is used in processed products and is not available for consumer purchase. Major factors in assessing pork quality are high levels of lean meat to fat and meat color (a lighter color equals higher quality). Pork quality is assessed through microscopic and chemical testing of the flesh to ensure that trichinosis—a disease found in infected swine—is not present. Trichinosis is caused by a parasite in the muscle tissue, and it is transmissible to humans.

PRIMAL CUTS

Primal cuts are large sections of carcass from which retail cuts are made. Primal cuts are **fabricated** (broken down) into smaller retail cuts of meat. **Retail cuts** are pieces of meat ready for sale to the public.

Hind Legs/Ham

Ham is a primal cut from the hind leg of the pig. The ham extends from just above the tail, down the leg, and inward like a half circle. Relatively tender meat, it is most commonly cured or smoked. Ham is often processed to include water or flavoring juices to keep it moist and to

Cuts of pork

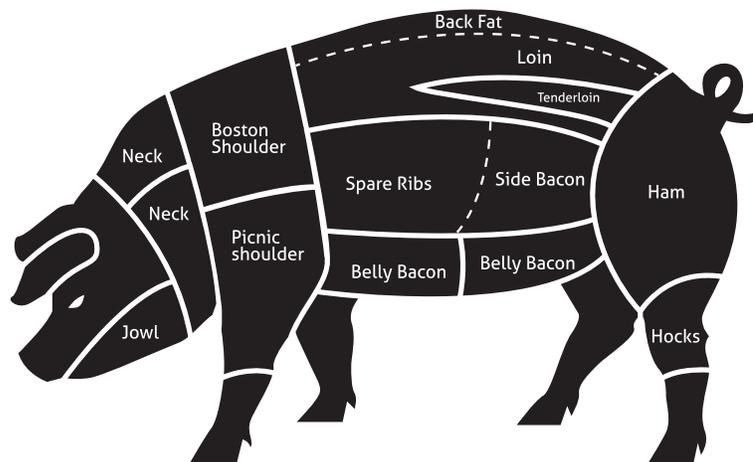


FIGURE 1. Look at this detailed primal cut drawing of a hog as you review the pork primal cuts.

increase its weight when sold by the pound. Retail cuts are whole hams, ham steak, shank portion (lower end ham down to the leg), and butt portion (higher end of ham with less bone).

Loin

The **loin** is a very lean, tender, and high-quality primal cut located in the top middle back of the hog, between the ham and the shoulder. Buried under the rib section is the tenderloin. The **tenderloin** is the most tender, expensive, and delicious cut of meat on the animal. **Fatback** (backfat) is a long, thin strip of fat running immediately atop the loin. Fatback provides very pure fat for making lard and salt pork. In addition, it is added to sausage or ground pork when extra fat is needed. Retail loin cuts are whole pork loin roast, loin chops, cutlets, center cut roast (from the center of the loin), and sirloin roast (closer to the back end of the loin near the tailbone).

Ribs

Ribs are the primal cut from the sides of the hog between the loin and the belly. Ribs (spareribs) are the name of a primal and a retail cut. The ribs are quite tough and are larger than baby back ribs. They include more cartilage and waste than baby back ribs. Baby back ribs are cut from the top of the rib cage between the spine and the spareribs, below the loin muscle.

Side

The **side** is the primal cut below the rib section. Most bacon comes from this region, and it is the primary retail cut from the side. Under the side is the lower belly of the hog; additional bacon is cut from this region.

Boston Butt

The **Boston butt** is a primal cut in the front of the hog, the area on top behind the neck, including the shoulder area. Boston butt is flavorful, but it is quite tough meat muscle that requires specific cooking methods to tenderize it. Retail cuts are butt roasts, butt steaks, ground pork, and sausage.

Picnic Shoulder

The **picnic shoulder** (pork shoulder) is the primal cut from the neck region, going down the



FIGURE 2. The Boston butt roast has a lot of connective tissue and is quite tough. When cooking with a moist heat cooking method, it is so tender it shreds.

front shoulder and about half way down the leg. This meat is quite tough and is often cured or smoked. More commonly, it is made into ground pork or is seasoned for sausage meat. If purchased whole and raw, using the right cooking method is essential to end up with tender meat.

Hocks

The **hocks** are primal cuts below the bottom of the picnic shoulder and continuing down the leg to the ankle. The hocks are tough and have little meat to offer. However, the hocks are exceptionally rich in flavor, especially when smoked. Hocks are best used as a flavoring agent for soups, stocks, greens, and stews.

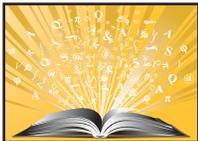
Other Cuts

Tails, snouts, ears, and jowls (or the area under the jaw to the neck) are not considered primal cuts. Yet there are uses for all parts of the hog. These retail cuts are used as flavoring agents when cooking other foods.

PORK STORAGE

All pork products require proper temperature control. Fresh pork is held at 41°F and below and must be used within several days. Securely wrapped and frozen pork is safely held for up to six months before quality begins to diminish.

All raw pork products are kept on trays or pans to catch and secure any dripping blood or fluids. Further, the panned pork is kept on the lowest shelf in the refrigerator so any fluids that



BROADENING AWARENESS...

AMAZING ASPECTS: Pigs Are Skinny!

Pork has typically been thought of as very fatty meat and a particularly unhealthy food source in the diet. That image used to be well deserved. By comparison, however, modern pigs are skinny. In the 1970s, nutrition and health became more highly promoted. At that point, pork farmers responded, particularly as they saw product sales plummet.

Through new breeding techniques, genetic engineering, and different hog feed products, the fat content of hogs has dropped almost 50 percent since the early 1970s. Today, lean cuts of pork have fat content similar to and, in some cases, less than that of chicken. Pork is consistently lower in fat than beef. Even fatty cuts of pork—ham and pork shoulder—contain vastly lower fat content than they did 30 years ago. Do not look for lower fat bacon because bacon comes directly from fatty tissue.

The trade-off of having less fat in pork is that the meat may dry out and toughen faster if it is overcooked. Some believe the meat simply does not taste as good as it used to because there is less fat. Yet overcooking is easily controllable. With the sales of pork soaring as a healthy protein source, the naysayers about pork flavor are clearly losing that argument.

drip will not contaminate other foods. Frozen pork is best thawed under refrigeration on pans or trays on the lowest shelf.

Cured and smoked pork cuts are considered fully cooked, with heating suggested only for serving purposes. These meats are not held in the same location with raw, uncooked pork products.

COOKING METHODS: PORK PRIMAL CUTS

Dry Heat Cooking Methods

Dry heat cooking are methods used with better cuts of meat (e.g., with little connective tissue and often ample fat) that quickly become tender when cooked. Dry heat methods cook without the addition of moisture and are used with less tender cuts that have been marinated. Methods include grilling, roasting, baking, broiling, stir-frying, panfrying, sautéing, searing, and deep fat frying. Choosing the correct cooking method for pork is simple if you know the texture of the meat. Primal cuts are identified as tender for two reasons: The animal does not use the muscles as much as other muscles, thereby remaining tender. In addition, the primal cut contains minimal connective tissue. Pork primal cuts that may use dry heat cooking are loin (or tenderloin), fatback, side (bacon), and shoulder (ham).



FIGURE 3. Tender cuts of pork, such as these chops, are cooked using dry heat methods—grilling, roasting, panfrying, etc.

Moist Heat Cooking Methods

Moist heat cooking are methods used with tougher cuts of meat to break down tough connective tissue. Moisture is added during preparation; the steam that is produced helps tenderize less tender cuts. Moist cooking methods include boiling, parboiling, simmering, steaming, braising, stewing, fricasseeing, pot-roasting, and poaching. Moisture may be in the form of water, stock, wine, or any number of other flavorful liquids. Typically, less tender meat



FIGURE 4. Braising this pork shoulder roast brings out color and flavor as it tenderizes tough cuts of meat.

cuts require long, slow cooking to allow the moisture time to break down the collagen and the tougher muscle fibers; muscle that has been highly used and developed during the hogs' life. Pork primal cuts that may use moist heat cooking are hind leg (shank), hock, picnic shoulder, and Boston butt.

Combination Cooking Methods

The **combination method** is the use of dry and moist heat cooking methods on the same cut. Combination methods are those in which the meat is browned via searing (or another dry cooking method) to bring out a more intense flavor and color. Moisture is added. Then the meat is covered and cooked slowly for a long period of time. The two most common combination cooking methods are braising and stewing. The Boston butt and shoulder primal cuts are best for moist or combination cooking. Pulled pork is a great example of treating a tough butt roast with combination cooking to shred the meat into tender bits after braising. Combination cooking creates the most tender baby back ribs and spareribs.

Connective Tissue

Connective tissue is a fibrous material that supports the structure of body tissues and may surround organs and major muscles. It separates major muscles in the animal and sometimes runs through the muscle. Connective tissue is comprised of two primary types: elastin and collagen.

Elastin

Elastin is a protein that coils and recoils within the connective tissue and accounts for the elasticity of structures (e.g., the skin, organs, and ligaments). Elastin does not become tender no matter what type of cooking process is used or how long the meat is cooked. Elastin is found encompassing most whole primal cuts (e.g., tenderloin and loin). It is also found running through the picnic shoulder cut, making the shoulder quite tough and best for grinding.

Silverskin is a type of elastin with a tough shiny and silvery membrane that surrounds most individual muscles. The silverskin membrane will not become tender and is removed before cooking; it is inedible.

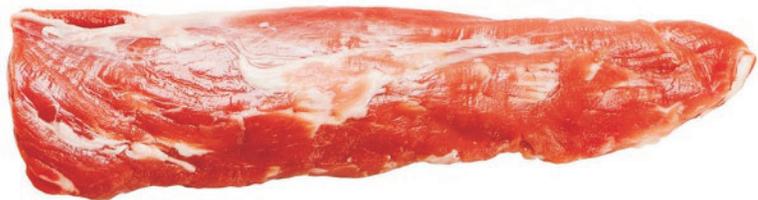


FIGURE 5. The thin, shiny, silvery looking membrane on the surface of this pork tenderloin is “silverskin.”

Collagen

Collagen is a fibrous protein found in bone, cartilage, tendons, and other connective tissues that give connective tissue rigidity. When cooked, collagen produces gelatin, usually through long and slow cooking with moisture. The primal cut and the amount of connective tissue in each fabricated piece of meat directly impact the preferred cooking methods. Collagen is found in large quantities in the Boston butt and picnic shoulder. Meat high in collagen

becomes fall-apart tender when cooked appropriately, but it will remain tough if it is not cooked properly. Since elastin never becomes tender, it is best to physically remove this tissue before cooking.

Barding and Trussing

Barding is draping or tying fat on meat to tenderize and add moisture to a cut. Some cuts of quite tender meat have minimal fat (e.g., the loin). A layer of fat (e.g., bacon or another fat source) is sometimes tied around meats to keep the meat juicy and to prevent it from drying out during dry cooking. Meanwhile, **trussing** is tying meat with cooking twine to create a more compact shape for more uniform cooking. Tender and tough cuts may be trussed.



FIGURE 6. This chef is tying a rolled raw pork shoulder to prepare for roasting.

Ground and Marinated Meats

Grinding tough cuts of pork tenderizes the meat via physical means. Grinding breaks down fibers by processing the meat in a machine that physically cuts or punctures the meat (e.g., cube steaks) to tenderize it. Tough cuts are ground into pork patties or are turned into a variety of sausages.

Marinating tougher pork cuts in solutions of salt, oil, acid (e.g., wine or vinegar), and other flavorings helps break down fibers to tenderize the meat. Marinating meat adds great flavor as well. Regardless of the method, tenderized meat can be successfully cooked using dry cooking methods. Being able to identify the inherent tenderness of meat based on the characteristics of the primal cuts is essential to choosing the right cooking method.

Safe Internal Temperatures for Pork

Pork cooked using moist or combination methods is generally done when the meat is tender—the guideline of “doneness.” Pork cooked with a dry cooking method requires a minimum internal temperature of 145°F. Pork may contain **trichinella spiralis**—the larvae of a parasitic roundworm that buries itself in the flesh of the hog. When the larvae are not killed during cooking, they are able to survive the human digestive process. As a result, an illness known as trichinosis occurs. **Trichinosis** is a foodborne illness infection caused by the trichinella spiralis parasitic roundworm that occurs when the pork is undercooked. Cooking to 145°F or above insures destruction of the larvae. The more well done the meat is, the drier and

tougher it becomes. It is sometimes difficult to avoid overcooking pork when using dry cooking methods.

Carryover cooking is the additional cooking that occurs after removal of the meat from the heat. It occurs because the residual heat within the meat continues the cooking process. For instance, larger cuts of meat (e.g., roasts) absorb heat energy and continue to cook even after removal from the oven. The effects of carryover cooking must be considered when deciding at which temperature to remove the meat from the oven. The goal is to attain an internal temperature of 145°F without dramatically overcooking the meat.

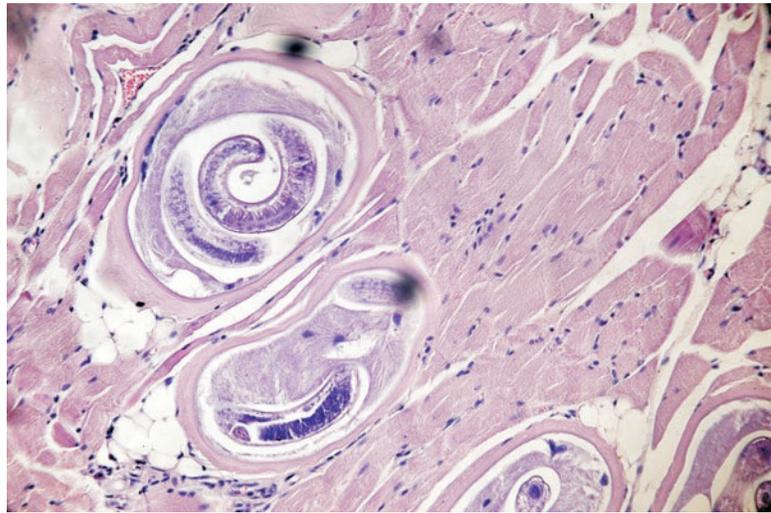


FIGURE 7. This slide of pork tissue shows the trichinella worm curled up and buried in the flesh.

OFFAL MEAT

Offal meat is internal organs (e.g., liver, kidneys, heart, and brains). Offal meat tends to be high in fat and is commonly cooked using a dry cooking method.

CHARCUTERIE

Charcuterie is the art of making specialty foods, primarily from pork (e.g., sausage, forcemeats, patés, terrines, and smoked meat). Charcuterie was originally created as a method of preserving pork products prior to reliable refrigeration. The varieties of charcuterie meat products are plentiful (e.g., salami, liverwurst, pancetta, headcheese, and special and dramatic presentations glazed with chaud froid—aspic or clear jelly made from stock and gelatin used as a glaze for meat products).



FIGURE 8. Charcuterie includes a wide variety of sausages made from pork.

Charcuterie platters are colorful, fragrant, and delicious. Sausage is of three primary forms: dried, smoked, and fresh.

- ◆ Dried sausages (e.g., hard salami products) are ground, formed, compressed, and dried until quite hard; it needs no further cooking.
- ◆ Smoked sausages (e.g., hot dogs and other sausages) need no cooking. They have been cured, smoked, and typically include preservatives.
- ◆ Fresh sausage (e.g., Italian and breakfast sausage) is completely raw and must be cooked before eating. Tender from grinding, dry cooking methods are most commonly used with fresh sausage products. However, moist or combination cooking methods can be used to promote different flavors and to preserve juiciness.

Summary:



Cooking pork using the correct dry, moist, or combination method is crucial to the outcome. Knowing which part of the animal the meat comes from provides many clues about the most appropriate cooking method. Tender cuts are best cooked using dry heat cooking methods; tough cuts require moist cooking methods and/or the addition of tenderizing techniques (e.g., grinding and puncturing).

Checking Your Knowledge:



1. What is the primary use of the hocks retail cuts?
2. List three retail cuts of meat from the loin. Are these cuts tender or tough?
3. What is carryover cooking? Why is it important for the cook/chef to consider?
4. What is collagen? How is knowledge of the properties of collagen helpful when selecting a cooking method for specific pork cuts?
5. What is charcuterie? What makes pork such a vital part of charcuterie platters?

Expanding Your Knowledge:



Pork is a forbidden food in some cultures. Which people of the world avoid pork? What explains their avoidance of consuming pork products? Are the reasons historic, religious, cultural practice, or based on current information? Are any cultures that avoid pork easing their restrictions?

Web Links:



Pork

<http://www.smithfield.com/?s=how+to+cook+pork>

Pork Primal Cuts

<http://culinaryarts.about.com/od/beefporkothermeats/ss/cutsofpork.htm>

Pork Quick Facts

<http://www.pork.org/Resources/95/QuickFacts.aspx#>

Pork Recipes

<http://www.porkbeinspired.com/Recipes.aspx>

Side of Pork

<http://www.youtube.com/watch?v=rU0pmJT79gk>