



Selecting the Perfect Chop (or Steak)

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As I looked through the meat counter at the grocery store recently, I started watching what other consumers were picking out for their dinners. What I noticed was that it appeared (and consumer studies have shown) that there was a significant difference between the cut that was chosen and the eating expectations. Tenderness, juiciness and flavor are all qualities that are subjective to a certain extent. Different consumers like different levels of each. Many factors can affect the eating experience that the consumer will have. A little physiology, anatomy and home economics knowledge can prevent some common mistakes made at the meat counter.

Factors affecting tenderness

Marbling: Marbling really drives quality. Marbling is intramuscular fat – the flecks of fat within a muscle. In our society, fat has become such a taboo that many consumers shy away from selecting cuts with any marbling at all. In fact, this fat adds tenderness and juiciness during cooking. Marbling is the primary factor influencing the quality grades of beef cattle. Prime and choice cuts have more marbling than select cuts. Marbling acts as an “insurance factor”, helping to ensure tenderness through the cooking process, when moisture can be lost. Cuts with less marbling can still be tender and juicy, but may require more exact cooking methods to prevent a dry, tough entrée.

Location of the muscle: What the muscle was used for in the animal’s life will also influence tenderness. If the muscle is from the shoulder or leg, for instance, and used for locomotion, it will tend to be tougher than support muscles such as from the loin or rib eye. Beef steaks and roasts used in locomotion include the arm, shoulder, blade, or round. Comparable cuts are the arm, shoulder or leg in lamb and the Boston butt, picnic shoulder and ham in pork. Loin, rib and sirloin cuts are used more for support during the animal’s life and have a tendency to be more tender. The tenderloin, also known as the psoas major, or filet, lies underneath of the loin or rib eye and is the most tender muscle in the body.

Age of the animal: As an animal ages, the meat toughens. While the consumer has little control over this, those producers who raise their own meat to put in the freezer could be affected. Animals are evaluated in the cooler after slaughter for an estimated age. Young animals (less than 42 months of age in beef, less than a year of age in lamb, and virtually market hogs) are used for cuts such as steaks or roasts. The meat from older animals, such as cull cows, is usually ground for hamburger. Ossification of certain joints is the main indicator of age. The break joint in lambs (similar to our wrist) ossifies at approximately a year of age and “buttons” (thoracic vertebrae) in beef cattle begin to ossify about 30 months of age. Ribs become wider and flatter with age and sacral and lumbar vertebrae fuse beginning at the sacrum. The color of the lean also darkens as an animal ages, although this could be caused by other factors as well.

Cookery method: As meat is cooked to more advanced degrees of doneness, it toughens. Well-done meat is tougher than meat that is cooked to medium doneness. Marbling helps to ensure tenderness at higher levels of doneness, but even the heaviest marbled steak can be cooked until it is tough. Moist heat cooking methods, such as braising, stewing, poaching and steaming are often used to cook less tender cuts. Using a covered dish to create steam will help to tenderize the meat. Dry heat cooking methods are used to cook tender cuts of meat and include roasting, broiling, grilling, panbroiling and stir-frying.

Beef and lamb should be cooked to an internal temperature of 140° F for rare doneness, with a red to pink center and slightly brown outside. Medium doneness will have a slightly pink center and brown outside and should have an internal temperature of 160° F. Well done requires an internal temperature of 170° F and will have a brown center and dark brown outside.

Pork is often overcooked because of the age-old scare of trichinosis. When hogs were fed garbage, as was often the case in farmyards, the trichinae worm eggs would be ingested by the pigs, hatch and invade muscle tissue. Hearty cooking was the only way to rid the meat from this parasite. Now that almost every hog is fed a scientifically formulated diet that does not include garbage, the threat of trichinae is virtually non-existent. Pork should be cooked to a medium degree of doneness, with an internal temperature reaching 160° F. A slight blush of pink may still be present in the center. Even if the trichina organism is present, it is killed at temperatures much below 160° F.

Any ground products should be cooked to an internal temperature of 160° F. Ground meat has a greater surface area that could be potentially exposed to bacteria. Proper cooking, as well as proper handling and storage, will help ensure the safety of the product.

Pork Quality Defects

There are two types of quality defects that are caused by stress on the animal. Both defects are considered unacceptable. The first condition is called PSE, or pale, soft and exudative (watery). This condition is created by short-term stress, such as rough handling and transport just prior to slaughter, as well as porcine stress syndrome, caused by the stress gene. The muscle tissue is very pale, and can be almost white, has a very soft texture and consistency and exudes water. A chemical reaction in the muscle causes it to lose water. When this meat is cooked, it is usually dry, since the water has left the muscle. Long term stress on animals leads to meat that is DFD, or dark, firm and dry. The stress causes the animal to burn up all of the muscles’ glycogen, or sugar source. This defect reduces the shelf life of the product considerably.

Picking the perfect chop or steak does not have to be a guessing game. The chances of having a positive eating experience can be quite good if you know a little science and cook it properly. Producers and packers are becoming more conscious of the consumers’ demands and are striving to produce the perfect product. With improved meat quality and consumer education, the perfect chop or steak will be on your plate!