

Frequently Asked Questions about the Retail Meat Case, Part 1: Hamburger (Ground Beef)

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Each year the average American will consume more than 65 pounds of beef, and ground beef accounts for more than 60% of that total. The hamburger is an American icon that is the center-of-the-plate item at family reunions, picnics, and neighborhood barbecues. Hamburgers can also be found on the menus of all types of restaurants, including upscale white-tablecloth restaurants. The hamburger has evolved from a simple grilled patty with cheese on a bun to a gourmet item that is sometimes served in combination with portabella mushrooms, pineapples, and gourmet cheeses. However common this product, consumers still have questions about the meat from which the hamburger is made. Below you will find answers to some frequently asked questions.

Q. Why is the ground beef I buy brown or dark in the middle?

Generally, ground beef on the outside edge of the package is bright cherry-red, while the middle may be a darker brown. Some consumers mistakenly believe the retail meat cutters covered the old ground beef with fresh ground beef as a way to sell old or spoiled product. This is not the case at all! The color of meat is dictated by a protein molecule called myoglobin, which is similar to hemoglobin, the protein that carries oxygen in blood. This myoglobin protein can change from a dark purple or brown color in the absence of oxygen to bright cherry-red when it is exposed to oxygen in the air. The dark purple or brown color you may see in the center of a package of ground beef is caused by the lack of oxygen in the middle of the package. In most cases, if you open the package of ground beef and expose the center to oxygen (air), the myoglobin molecule will oxygenate to re-form the bright cherry-red color. Although color can be an indication of spoilage, a temporary dark color at the center of a package of ground beef is not an indication that the product has spoiled.

Q. What is the difference between ground beef and hamburger?

These two names are often used interchangeably, and some people might tell you that there is no difference between the two. However, the United States Department of Agriculture (USDA) has a distinct but sometimes confusing definition of each term. Ground beef and hamburger can both be made of fresh or frozen beef. Ground beef must be made of trimmings that contain the targeted fat percentage. For example, if a package is labeled 80% lean/20% fat ground beef, then the beef trimmings it is made from must contain those percentages. On the other hand, hamburger may be made of beef fat added to the meat block to create the desired fat percentage. Ground beef and hamburger cannot contain seasonings, water, dyes, extenders, binders, or phosphates unless otherwise labeled in accordance with Federal Standards and Labeling Policy.

Q. What is hamburger made from?

Ground beef or hamburger is typically made from whole muscle cuts and/or trimmings from less tender or less popular cuts of beef. If variety meats or extenders, such as hearts, livers, cereals, or soybean proteins, are used, they must be identified and labeled on the package label.

Q. What do the labels such as ground beef 80/20, ground round, etc. mean?

According to the USDA, ground beef or hamburger can only contain a maximum of 30% fat and a minimum of 70% lean by law. Most ground beef and hamburger packages are labeled by the percentage of lean and fat in the product. Therefore, a package that is labeled 80/20 contains 80% lean and 20% fat.

Other packages may be labeled for the wholesale cuts from which the product is made. Packages labeled “ground chuck,” “ground round,” and “ground sirloin” must be made from those wholesale cuts or from trimmings of those wholesale cuts. Additionally, certain lean and fat percentages are typical of ground beef from certain wholesale cuts. For example, it is generally accepted that ground chuck contains approximately 80% lean and 20% fat. Similarly, ground round will generally contain 90% lean and 10% fat, and ground sirloin is slightly leaner, containing 92 to 95% lean and 8 to 5% fat.

Q. Why can't I have a rare hamburger, and to what temperature should I cook hamburger?

Our environment is full of bacteria, much of which is good and helpful. Unfortunately, some bacteria, called pathogenic bacteria, in the environment have the potential to make humans sick. Ground beef, like all foods, could be contaminated with pathogenic bacteria. The main pathogen of concern in ground beef is *E. coli* 0157:H7, but other pathogenic bacteria such as Salmonella, Campylobacter, or Listeria can be present in the product. These bacteria are commonly found in the digestive tract of warm-blooded mammals such as humans, cattle, pigs, and sheep.

Packing plants and grocery stores have strict guidelines for the prevention of bacterial contamination and take every possible measure to keep all foods safe, but contamination does sometimes occur. Because ground beef has a greater amount of surface area that can be exposed to pathogenic bacteria as compared to whole muscle cuts, ground beef is of special interest for taking safety precautions. This increased surface area means that the inside of a hamburger patty may have been exposed to bacteria during processing. The good news is that pathogenic bacteria are killed easily by cooking. Therefore, hamburgers should be cooked to an internal temperature of 160°F and monitored with an accurate meat thermometer. Hamburger should not just be cooked until the juices run clear, as the juices can be clear before the meat has reached 160°F internal temperature. This phenomenon is called premature browning.

Q. How long can I freeze ground beef, and if I do freeze it, what is the best way to thaw it?

Ground beef should be frozen within one to two days of purchase. The plastic wrap covering the package of ground beef is oxygen permeable so, to avoid freezer burn, tightly wrap the package in aluminum foil, freezer paper, or a re-sealable plastic bag. Freezer burn occurs when moisture escapes from the surface of food during frozen storage, thus dehydrating and discoloring the surface. As the moisture escapes, it will re-freeze within the package, producing ice crystals in the package. Food that is freezer burnt has a distinct off-flavor and odor as well as poor texture and mouth feel, although it is important to note that freezer-burnt food is not harmful if consumed.

Freezing will not kill spoilage or pathogenic bacteria, and proper food handling techniques must be practiced. Thawing hamburger on the countertop or in the kitchen sink is not a good idea. The rising temperature of the food provides an ideal environment for bacteria to grow. Plan ahead and slowly thaw the meat in the refrigerator. This will take more time but is a much safer alternative to the countertop or sink. If you are in a pinch, ground beef can be thawed using a microwave. Ground beef should always be cooked immediately following thawing.