

BEEF 101

A student's
guide to the
nutrition,
purchasing,
safety and
cooking of
beef.

BEEF



BEEF 101

Nutrition

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This booklet is all about beef. The information is designed to help you get the most value when you buy beef and to show you how to prepare beef to enhance the tenderness and flavor. But why should you choose beef in the first place? The most important reasons are to obtain many of the key nutrients needed by your body and to enjoy its taste.



NUTRITION

When it comes to choosing proteins, lean beef is a delicious choice for beefing up your high-quality protein needs. It's also a perfect partner for fruits, vegetables and whole grains, making it even easier to enjoy a balanced diet to meet the Dietary Guidelines and MyPlate recommendations.

Naturally nutrient-rich foods such as lean beef also help people get more essential nutrients in fewer calories. A 3-oz serving of lean beef contributes less than 10 percent of calories to a 2,000-calorie diet, yet it supplies more than 10 percent of the Daily Value for 10 essential nutrients. You'd have to consume 18 oz of cooked chicken breast to get the same amount of zinc and at least 7½ oz of cooked chicken breast to get the same amount of iron as in 3 oz of cooked beef. In addition, lean beef supplies significantly fewer calories and more nutrients than many plant proteins. A 3-oz serving of lean beef (about 150 calories, on average) provides about the same amount of protein as 1½ cups of cooked black beans (341 calories) but in less than half the calories.

A DIETARY SOLUTION FOR OPTIMAL HEALTH

Research suggests that many of the 10 essential nutrients in lean beef, including high-quality protein, could be a dietary solution to many issues facing Americans today.

- ✦ A growing body of evidence indicates high-quality protein plays an increasingly important role in muscle maintenance, weight management, and the prevention of chronic diseases such as sarcophagi, type 2 diabetes and cardiovascular disease.
- ✦ Research shows the iron, zinc and 8-vitamins found in beef play an essential role in developing and maintaining cognitive ability in children and across the life cycle.

PROTEIN

A 3-oz serving of lean beef is an excellent source of protein, supplying nearly half the protein most people need each day. In addition, the protein in lean beef is a complete, high-quality protein which means it supplies all of the essential amino acids the body needs to build, maintain and repair body tissue. In addition, coupled with physical activity, the high-quality protein in lean beef can help you

maintain a healthy weight, sustain weight loss and keep a favorable body composition over time, and also promote satiety to help you feel full longer.

IRON

A 3-oz serving of beef is a good source of iron. Unlike plant proteins, beef is the food supply's most readily available and easily absorbed source of iron. Iron not only helps red blood cells carry oxygen to body tissue, it also plays an important role in cognitive health, including memory, ability to learn and reasoning.

ZINC

A 3-oz serving of beef is an excellent source of zinc, which is an essential nutrient that fuels thousands of bodily processes, including building muscles and healing wounds, maintaining the immune system, and contributing to cognitive health. In addition to containing a high level of absorbable zinc, beef also increases the absorption of zinc from other foods when eaten at the same meal.

PROTEIN BENEFITS

Beef gives your body more of the high-quality protein you need to achieve and maintain a healthy weight and preserve and build muscle.

WHY FOCUS ON PROTEIN?

Heart healthy diets with high quality lean protein helps lower cholesterol (the bad kind!), **reduce the risk of chronic disease and reduce high blood pressure.**

Protein **helps support strong, lean bodies.**

Feeling hungry? People who eat a higher-protein diet (about 30% of daily calories from protein) feel **more satisfied, which may help prevent overeating.**

Get more from your workout! Studies show exercise is more effective when paired with a higher-protein diet, and beef provides the amino acids necessary for **building and replenishing muscles.**

50%
of your recommended Daily Value of protein

a 3-oz serving of beef provides 25 grams of protein and 10 essential nutrients in one tasty package.

A single serving of beef is about the size of a smartphone.



MYTH vs FACT

SURPRISING FACTS ABOUT LEAN BEEF

Many people are often surprised to learn that the bundle of nutrients in lean beef, like high-quality protein, iron and zinc, comes in such a delicious package with relatively few calories. There are several other facts about beef that many people may not realize, therefore, we are busting some common myths about many people's favorite protein, beef.

Myth #1: Beef consumption should be limited because it's bad for your heart and raises cholesterol.

FACT: Contrary to conventional wisdom, research shows that including lean beef every day, as part of a heart-healthy diet and lifestyle, can reduce risk factors for heart disease.^{1, 2, 3} A randomized-controlled trial found that participants who consumed lean beef, as part of a dietary pattern rich in fruits, vegetables and lowfat dairy and low in saturated fat, experienced a 10% decrease in LDL cholesterol and a moderate decrease in blood pressure, both markers of lower heart disease risk.^{1, 2} Another study found that subjects who followed a healthy and higher-protein weight loss dietary pattern, combined with physical activity, and consumed lean beef four or more times a week, saw reductions in total cholesterol, LDL cholesterol, triglycerides, and systolic and diastolic blood pressure.³ In addition, evidence has shown that beef has a similar effect on total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides as poultry or fish.⁴ The current body of evidence provides convincing support that lean beef can support a strong heart, as part of a healthy dietary pattern and lifestyle.

Myth #2: Americans already consume too much protein.

FACT: Although the American diet has evolved over time, Americans have not increased their percentage of calories from protein in 30 years.⁵ On average, Americans (age 2 years and older) consume 5.7 ounces from the Protein Foods group each day (meat, poultry, eggs, fish/seafood, nuts, seeds and soy products), which is at levels consistent with the recommendations of the 2015-2020 Dietary Guidelines for Americans (DGAs).⁶ Including high-quality protein, like lean beef, in a healthy dietary pattern can help Americans meet their protein needs, improve satiety and preserve lean muscle mass.^{7, 8}

Myth #3: Americans consume too much red meat, especially beef.

FACT: On average, Americans consume 1.7 ounces of beef daily, which is well within the recommended amount of 5.5 ounces from the Protein Foods group per day.^{6, 9} The fact is, beef is a natural source of essential nutrients with relatively few calories, which makes it a great lean protein option that Americans can enjoy at any meal.

Myth #4: Beef is the primary source of fat in the diet.

FACT: Beef contributes ten percent or less of saturated fat and total fat to the American diet.⁹ Many people are surprised to learn that not all the fats in beef are saturated fats. In fact, half of the fatty acids in beef are monounsaturated – the same heart-healthy type of fat found in olive oil. Approximately one-third of beef's total saturated fat is stearic acid, which has been shown to be neutral in its effects on blood cholesterol levels in humans.^{10, 11}

Myth #5: It is difficult to find lean cuts of beef in the grocery store.

FACT: Thanks to enhancements in cattle breeding and feeding, today's beef is leaner than ever as more than 65 percent of the whole muscle cuts sold through the supermarket meat case are lean when cooked with visible fat trimmed.¹² In fact, the number of beef cuts that qualify as "lean" increased sixfold from 1989 to 2013.¹³ Many Americans' favorite cuts, such as Top Sirloin, Tenderloin (Filet Mignon), Strip Steak and Flank Steak, are lean, when cooked with visible fat trimmed.¹²

What does "lean" mean?¹⁴

- To be considered lean, a 3.5 ounce (100 grams) serving of cooked beef must have:
 - Less than 10 g total fat
 - Less than or equal to 4.5 g saturated fat
 - Less than 95 mg cholesterol

Myth #6: Beef is difficult and time-consuming to prepare.

FACT: Beef is a nutrition powerhouse that can be easy to prepare by using common ingredients and matching the right cooking method to the right cut. By planning ahead, you can also save time in the kitchen when preparing recipes made with beef. Beef can be paired with fruits, vegetables and whole grains, and there are many cuts of beef available in the marketplace. Therefore, you have an endless amount of culinary possibilities at your fingertips to create a delicious, satisfying and healthy meal.

Myth #7: Grass-finished beef is more nutritious than grain-finished beef.

FACT: There are a variety of beef choices, including grain-finished and grass-finished, but no matter the choice, there is a delicious and nutritious beef option for you. All cattle, whether grass- or grain-finished, spend the majority of their lives eating grass on pastures, and beef is a natural source of more than 10 essential nutrients, like protein, iron and zinc. While grass-finished tends to be a little leaner, there are a number of variables that contribute to leanness, including breed, age, grade and cut.^{15, 16}

BUYING BEEF

There are several factors to consider as you purchase beef:

- ✦ Wholesomeness
- ✦ Quality
- ✦ Appearance
- ✦ Storage
- ✦ Cost per serving and number to serve
- ✦ Cookery method and time needed for preparation

WHOLESOMENESS

Wholesomeness has to do with the safety of food. Federal law requires that all beef sold must pass inspection for wholesomeness.

BEEF INSPECTION

The purpose of inspection is to assure the consumer that all beef sold is from healthy animals which were processed under sanitary conditions, and that the beef is safe to eat.

Some states have their own inspection programs which regulate beef that is processed and sold only within that state. If a state does not have an inspection program or if the beef is to cross state or national borders, it must be federally inspected. Federal inspection is supervised by the USDA

Experienced veterinarians or specially trained, supervised inspectors inspect beef both before and after processing. Beef which passes federal inspection is stamped with a round, purple mark made with a safe-to-eat vegetable dye. The number inside the mark is the official number assigned to the plant where the beef animal was processed.

State inspected beef will usually have a different inspection mark which varies state to state. The

inspection mark is generally placed only once on larger (wholesale) cuts, so it is unlikely you will see it on the cuts you buy.

Whether done by the federal government or the state government, beef inspection is extensive and thorough, resulting in U.S. beef products with a safety record envied throughout the world. In addition to inspection of animals and of processed beef at the plant, beef is subject to further inspection as processing continues, in product manufacturing facilities, supermarkets and restaurant kitchens.

QUALITY

Quality is a factor to consider in buying beef. Quality refers to characteristics associated with the palatability of the beef (tenderness, juiciness and flavor). The names you see on beef labels often indicate the level of meat quality. These names may be either the USDA grade names or the beef packer and retailer brand names.

USDA BEEF GRADING

Unlike mandatory inspection, beef quality grading is voluntary and paid for by beef packers and, ultimately consumers. Grading sets standards of quality and yield used in the buying and selling of beef. The beef grading program is administered by the USDA, using highly trained specialists. Recently, the USDA has approved grading instruments to assist in determining the official quality grade. This enhancement to the grading program will result in improved consistency and uniformity across all beef plants throughout the country.



Remember, beef inspection is mandatory. The inspection mark means the beef is wholesome and safe to eat. Beef grading, on the other hand, is voluntary. The grade mark indicates a level of quality (tenderness, juiciness and flavor).



photo from beefitswhatsfordinner.com

GRADES OF BEEF

Prime: The grade of beef which contains the greatest degree of marbling.* It is generally sold to finer restaurants and to some selected stores. It is usually higher priced because it is produced in very limited quantities.

Choice: The grade preferred by many consumers because it contains sufficient marbling for taste and juiciness. It is usually less costly than U.S. Prime.

Select: Generally lower-priced grade of beef with less marbling than U.S. Choice. Select beef cuts are leaner but also less juicy and flavorful.



OTHER NAMES INDICATING BEEF QUALITY

Because beef grading is a voluntary program, not all beef is graded by the USDA. Some beef processors use "brand names" their customers can readily identify with a desired level of quality. Therefore, you may find varying names on beef labels.

APPEARANCE

When buying beef, consider how it looks at the meat counter. Look at the color of the cut, the amount of marbling and seam fat, and the trim fat.

LEAN

The color of the lean part of the beef should be bright cherry-red unless it has been cured and/ or cooked. (Cured beef is further processed using salt or a salt solution and sodium nitrite.)

When first cut, beef is a dark, purplish-red color. Vacuum-packaged beef will have this same dark color. After cutting and exposure to the air, the surface becomes bright red due to a reaction with oxygen in the air. This is why the outside layer of ground beef is often red while the middle is darker. The middle will also brighten after it is exposed to the air. With extended exposure to air, beef will eventually take on a brown color.

*Marbling is the term for the small flecks of fat that are interspersed with the lean (muscle). It contributes to juiciness and flavor.

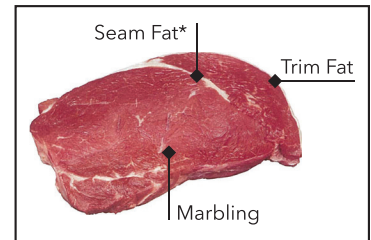
*Seam fat is the fat between sections of lean beef.

MARBLING

The small flecks of fat throughout the lean are called marbling. Marbling improves the beef's flavor, tenderness and juiciness. It also supplies a few additional calories - although marbling is not as big a factor as trim fat in supplying fat and calories.

TRIM FAT

The thin layer of fat surrounding many beef cuts is called trim fat. Most cuts currently available in the supermarket have little or no trim fat. Look for one eighth of an inch or less on steaks and roasts. Cooking before removing the fat has little effect on total fat and calories. However, be sure to trim all visible fat before eating.



STORAGE

Before buying beef, consider how you plan to store it.

REFRIGERATING

Most beef is prepackaged and should be stored wrapped as purchased. When purchasing beef, look for packages that are cold and tightly wrapped without tears or punctures. It can be stored at a temperature of 35° to 40° F for one to four days after purchase. Meat compartments in many refrigerators maintain ideal temperatures.

FREEZING

Freezing Fresh Beef

1. Freeze beef as soon as possible after purchase while fresh and in top condition.
2. Select proper freezer wrapping materials, such as
 - ✦ specially coated freezer paper
 - ✦ aluminum foil
 - ✦ heavy-duty, food-safe, plastic freezer bags

The wrap must seal out air and lock in moisture. If air penetrates the package, moisture is drawn from the surface of the beef causing a whitish surface layer known as "freezer burn." This affects the palatability of the beef when cooked, but not the wholesomeness.

You can freeze beef in its original packaging up to two weeks. For longer storage, wrap in heavy-duty aluminum foil or place in plastic freezer bags, removing as much air as possible.

3. Prepare beef for freezing before wrapping. Think ahead to your weeknight meals and re-package into right-size portions for you and your family.
4. Wrap tightly, pressing out as much air as possible.
5. Label properly. Indicate name of cut, approximate number of servings and/or weight, and date of freezing.
6. Freeze immediately at 0°F or lower. Do not stack unfrozen packages or freeze too many packages at one time. This slows down the freezing, which may lower quality. Maintain freezer temperature at 0°F or lower. Use a thermometer to check freezer temperature.
7. Use chart below for storage recommendations.

Freezing Cooked Beef

Cooked beef can be frozen by following steps 4-7 at left. Be sure to chill the beef in the refrigerator for approximately two hours before freezing.

Freezing Cured, Smoked or Ready-To-Serve Beef Products:

These products do not keep their high quality in the freezer as long as fresh beef. This is because salt in the products speeds the development of rancidity which results in objectionable flavors and odors. For best quality, limit freezer storage time of products such as corned beef and deli meats.

DEFROSTING:

For best quality, defrost beef in the refrigerator, never at room temperature. Place frozen package on a plate or tray to catch any juices and place in the refrigerator according to chart.

Beef can be refrozen as long as it was defrosted properly and is used within the freezer storage guidelines below.

DEFROSTING GUIDELINES

Beef Cut	Package Thickness	Approximate Refrigerator Time (at 35-40°F)
Steaks, Ground Beef*	½ to ¾ inch	12 hours
Beef for Stew, Kabobs or Stir-Fry	1 to 1½ inches	24 hours
Small Roast	Varies	3 to 5 hours per pound
Thin Pot Roast	Varies	3 to 5 hours per pound
Large Roast	Varies	4 to 7 hours per pound
Thick Pot Roast	Varies	4 to 7 hours per pound

* According to USDA, Ground Beef can be defrosted in the microwave, but it must be cooked within the same day.



STORAGE TIMETABLE

Type of Beef		Refrigerator (at 35-40°F)	Freezer (at 0°F)
Fresh Beef	Roast, Steaks, Beef for Stew, Kabobs, or Stir-Fry	3 to 4 days	6 to 12 months
	Ground Beef	2 to 3 days	6 to 12 months
		1 to 2 days	3 to 4 months
Fresh Veal	Roasts, Chops, Cutlets	1 to 2 days	6 to 9 months
	Ground Veal	1 to 2 days	3 to 4 months
Cured and/or Smoked and Ready-To-Serve Beef Products	Corned Beef (ready-to-cook)	1 week	2 weeks
	Frankfurters, Deli Meats	3 to 5 days	1 to 2 months
	Luncheon Meat	3 to 5 days	1 to 2 months
	Sausage, smoked	1 week	Not Recommended
	Sausage, dry and semi-dry, (unsliced)	2 to 3 weeks	Not Recommended
Leftover Cooked Beef	All	3 to 4 days	2 to 3 months

COOKERY METHOD AND TIME

When deciding on a cut of beef to buy, consider the cooking method you plan to use. Moist heat methods, like braising and stewing, are best used with less expensive, less tender cuts, such as the chuck and the round. Dry heat methods, like broiling, are best with tender cuts from the loin and rib.

You can make any beef cut tender and taste great if you use the right cooking method. Not all beef cuts should be cooked the same way. Many supermarkets are helping their customers by including cooking information right on the package. To find out how to cook beef to get the most tender and best-tasting results, go to BeefItsWhatsForDinner.com. Knowing a little about how muscles in the beef animal affect the tenderness of different beef cuts will help get you started.

The beef animal is made up of two types of muscles: suspension and locomotion. Suspension muscles are not used greatly in movement and have less connective tissue than locomotion muscles. (Connective tissue supports and reinforces the fibers in the muscles.) Locomotion muscles are used in movement and have more connective tissue.

Generally, the most tender beef is from muscles which are not used greatly in movement and which have smaller amounts of connective tissue. Therefore, beef from suspension muscles is frequently more tender than beef from locomotion muscles. Early in the marketing chain, the beef carcass is divided into eight primals (wholesale cuts). The rib and loin primals are made up of suspension muscles (tender) and are found along the middle of the animal's back. The locomotion muscles are found in the remaining primals which are usually less tender (e.g. chuck, flank, round, brisket).



photo from beefitswhatsfordinner.com

KEEPING BEEF SAFE

Most cases of food-borne illness that are reported in the U.S. every year can be traced to poor handling, storage or preparation at home or in food service establishments.

The key is to control conditions that give bacteria opportunities to get into food, grow and/or survive during the food preparation process.

STEAKS AND ROASTS

Bacteria are part of the environment and may exist wherever food is present. Not all of these bacteria are harmful. If a cut of beef contains any harmful bacteria, they will exist on the surface. Cooking steaks and roasts to medium rare (145°F) doneness will destroy surface bacteria.

GROUND BEEF

When raw beef or poultry is ground, harmful bacteria that might exist on the surface are mixed throughout the meat. Therefore, it is important to thoroughly cook both the inside and outside of ground beef.

The food industry, from farm to fork, follows strict rules to help ensure safe and wholesome food. Procedures and safeguards are implemented as needed. The safe handling label on raw beef and poultry provides basic guidelines for keeping food safe.

SAFE HANDLING TIPS

Follow this checklist to help keep food safe.

- ✦ Plan to make beef the last purchase before returning home.
- ✦ Wash hands with hot soapy water before preparing food and after handling raw beef, poultry or fish.
- ✦ Use hot soapy water to wash surfaces and utensils immediately after preparing beef, fish, poultry, or unwashed fruits and vegetables.
- ✦ Use separate cutting boards, platters, trays and utensils for cooked and raw foods. Do not put cooked food on a platter which held raw food without washing the platter first.
- ✦ Thaw beef, fish and poultry in the refrigerator or microwave oven, not at room temperature.
- ✦ Marinate beef, fish and poultry in the refrigerator. Throw out leftover marinade that came into contact with raw beef.
- ✦ Ground Beef (patties, meatloaves, meatballs) should be cooked to an internal temperature of 160°F (medium doneness). Color is not a reliable indicator of Ground Beef doneness.
- ✦ Due to the natural nitrate content of certain ingredients often used in meatloaf, such as onions, celery and bell peppers, meatloaf may remain pink even when a 160°F internal temperature has been reached.
- ✦ Reheat leftovers to 165°F.

TENDERIZING

You may choose to tenderize less tender cuts of beef before cooking them. They can then be cooked by a dry heat method. Tenderization can happen through marinades, or by pounding or cubing the beef.

MARINADES

Marinades are seasoned liquid mixtures that add flavor and in some cases tenderize. A tenderizing marinade must contain an acidic ingredient or a natural tenderizing enzyme. Acidic ingredients include vinegar, wine, and citrus or tomato juice. Naturally tenderizing enzymes are found in fresh papaya, ginger, pineapple and figs. The food acid or enzyme helps soften or break down the beef fibers and connective tissue and adds flavor. Some marinades also contain a small amount of oil. Marinades penetrate only about ¼ inch into the surface of the beef, so they work best on thinner cuts.

If the marinade has been in contact with uncooked beef, it must be brought to a rolling boil for one minute before adding it to cooked beef. However, it is better to set aside a portion of the marinade mixture to use later as a sauce for basting. Be sure that it hasn't come in contact with raw beef.

POUNDING

Pounding with a heavy object such as a meat mallet tenderizes by breaking down the connective tissue.

CUBING

Cubing is a more thorough process than pounding because it breaks down the fiber structure even more. Beef is "cubed" by a machine. Do not confuse this with grinding or cutting the beef into cubes, as for stew.

COMMERCIAL TENDERIZERS

Tenderizers come in various forms and contain active ingredients called enzymes. The enzymes break down the connective tissue. Naturally occurring enzymes, such as papain from the papaya fruit and bromelain from pineapple, are used in commercial tenderizers. Generally, enzyme tenderizers only tenderize the outer ¼ inch of beef cuts. Be sure to follow package directions when using commercial tenderizers or the beef may become over-tenderized.

TIMETABLE *For cooking in a conventional oven*

The degree of doneness can be easily determined by measuring the internal temperature of a cut of beef. To do so, use an oven proof meat thermometer.

Insert the thermometer into the roast at a slight angle so that the tip of the thermometer is in the thickest portion of the beef, but not resting in fat or against bone. Since the potentially harmful bacteria that might be present are typically on the surface of the beef cut, do not remove and reinsert the thermometer without first washing it in hot soapy water. In general, beef should be cooked to an internal temperature of 145°F (medium rare), 160°F (medium) or

170°F (well done). To avoid overcooking, remember to remove a roast from the oven when the thermometer reads 5° to 10°F below the desired degree of doneness.

As the roast sits before carving, its temperature will rise an additional 5° to 10° F. If you use an instant read thermometer, do not leave it in the roast during cooking. Follow manufacturer instructions.



DRY HEAT

ROASTING

Primal	Retail Cut	Approximate Weight (pounds)	Oven Temperature	Medium Rare (145°F)	Medium (160°F)	Remove roast from oven when temperature reaches
CHUCK RIB	Petite Tender Roast	8 to 12 oz	425°F	20 to 25 min	25 to 30 min	135°F to 150 °F
	Ribeye Roast, Boneless (small end)	3 to 4	350°F	1½ to 1¾ hours	1¾ to 2 hours	135°F to 145°F
		4 to 6	350°F	1¾ to 2 hours	2 to 2½ hours	135°F to 145°F
		6 to 8	350°F	2 to 2¼ hours	2½ to 2¾ hours	135°F to 145°F
	Ribeye Roast, Boneless (large end)	3 to 4	350°F	1½ to 2 hours	2 to 2¼ hours	135°F to 145°F
		4 to 6	350°F	2 to 2¼ hours	2¼ to 2½ hours	135°F to 145°F
		6 to 8	350°F	2¼ to 2½ hours	2¾ to 3 hours	135°F to 145°F
	Rib Roast, Bone-In (chine bone removed)	4 to 6 (2ribs)	350°F	1¾ to 2¼ hours	2¼ to 2¾ hours	135°F to 145°F
		6 to 8 (2 to 4 ribs)	350°F	2¼ to 2½ hours	2½ to 3 hours	135°F to 145°F
LOIN	Tenderloin Roast (well trimmed)	8 to 10 (4 to 5 ribs)	350°F	2½ to 3 hours	3 to 3½ hours	135°F to 145°F
		2 to 3 (center-cut)	425°F	35 to 40 minutes	45 to 50 minutes	135°F to 145°F
SIRLOIN	Tri-Tip Roast	4 to 5 (whole)	425°F	45 to 55 minutes	55 to 65 minutes	135°F to 145°F
ROUND	Sirloin Tip Roast	1½ to 2	425°F	30 to 40 minutes	40 to 50 minutes	135°F to 150°F
	Sirloin Tip Roast	3 to 4	325°F	1¾ to 2 hours	2 to 2¼ hours	140°F to 150°F
		4 to 6	325°F	2 to 2¼ hours	2¼ to 2¾ hours	135°F to 150°F
		6 to 8	325°F	2¼ to 2¾ hours	2¾ to 3¼ hours	135°F to 150°F
	Sirloin Tip Center Roast	2 to 2½	325°F	1¼ to 1½ hours	—	to 135°F
	Rump Roast	3 to 4	325°F	1¼ to 1¾ hours	—	to 135°F
	Bottom Round Roast	3 to 4	325°F	1¼ to 1¾ hours	—	to 135°F
OTHER	Eye of Round Roast	2 to 3	325°F	1¼ to 1½ hours	—	to 135°F
	Meatloaf (10" x 4")	2	350°F	—	1¼ hours	160°F

MOIST HEAT

BRAISING

Primal	Retail Cut	Approximate Thickness (inches)	Approximate Weight (pounds)	Approximate Total Cooking Time (hours)
CHUCK	Blade, Arm, Shoulder Roasts	—	2¼ to 4	2 to 3
	Short Ribs	2 x 2 x 4	—	1¾ to 2½
ROUND	Bottom Round Steak, Boneless	¾ to 1	—	1½ to 1¾

STEWING

Retail Cut	Approximate Thickness (inches)	Approximate Total Cooking Time (Covered Over Low Heat)
Stew Meat (Boneless Round or Chuck)	1½ to 2	1½ to 2 hours

¹ Based on beef removed directly from refrigerator.

² Tent loosely with aluminum foil halfway through roasting time.

³ Marinate.

DRY HEAT

BROILING				Total Cooking Time ¹	
Primal	Retail Cut	Approximate Thickness (inches)	Distance From Heat (inches)	Medium Rare (145°F)	Medium (160°F)
CHUCK	Shoulder Steak, Boneless ³	¾	2 to 3	10 minutes	13 minutes
		1	3 to 4	16 minutes	21 minutes
RIB	Ribeye Steak	¾	2 to 3	8 minutes	10 minutes
		1	3 to 4	14 minutes	18 minutes
ROUND	Top Round Steak ³ (marinate)	1	2 to 3	17 minutes	18 minutes
		1½	3 to 4	27 minutes	29 minutes
LOIN	Top Sirloin Steak, Boneless	¾	2 to 3	9 minutes	12 minutes
		1	3 to 4	16 minutes	21 minutes
	Porterhouse/T-Bone Steak	¾	2 to 3	10 minutes	13 minutes
		1	3 to 4	15 minutes	20 minutes
	Tenderloin Steak	1	2 to 3	13 minutes	16 minutes
		1	3 to 4	13 minutes	17 minutes
FLANK	Strip Steak, Boneless	1	3 to 4	13 minutes	17 minutes
		1½	3 to 4	19 minutes	23 minutes
FLANK	Flank Steak ³	1½ to 2 pounds	2 to 3	13 minutes	18 minutes
OTHER	Ground Beef Patties	½	2 to 3	—	12 to 13 minutes

DRY HEAT

PAN-BROIL/SKILLET COOKING				Approximate Total Cooking Time ¹	
Primal	Retail Cut	Approximate Thickness (inches)	Range Temperature	Medium Rare (145°F)	Medium (160°F)
RIB	Ribeye Steak, Boneless	¾	Medium	8 minutes	11 minutes
	Top Round Steak ³	¾	Medium	12 minutes	15 minutes
LOIN	Strip Steak, Boneless	¾	Medium	8 minutes	11 minutes
	Tenderloin Steak	¾	Medium	7 minutes	10 minutes
SIRLOIN	Top Sirloin Steak, Boneless	¾	Medium	12 minutes	15 minutes
OTHER	Ground Beef Patties	½	Medium	10 minutes	12 minutes

DRY HEAT

GRILLING

		Approximate Total Cooking Time ¹ Charcoal Grill	Approximate Total Cooking Time ¹ Gas Grill
Primal	Retail Cut	Approximate Thickness (inches)	Medium Rare to Medium
CHUCK	Shoulder Steak, Boneless ³	¾	8 to 12 minutes
		1	12 to 17 minutes
	Flat Iron Steak	8 oz	10 to 14 minutes
RIB	Ribeye Steak, Boneless	¾	7 to 10 minutes
		1	10 to 14 minutes
LOIN	Porterhouse/T-Bone Steak	¾	8 to 11 minutes
		1	11 to 16 minutes
	Strip Steak, Boneless	¾	7 to 10 minutes
		1	11 to 14 minutes
SIRLOIN	Tenderloin Steak	1	10 to 14 minutes
	Top Sirloin Steak, Boneless	¾	7 to 11 minutes
		1	11 to 15 minutes
	ROUND	Top Round Steak ³	¾
1			12 to 14 minutes
FLANK	Flank Steak ³	1½ to 2 pounds	11 to 16 minutes
OTHER	Ground Beef Patties	½	8 to 10 minutes

CARVING

Proper carving makes beef more tender. You need a good sharp knife, a good cutting board and some knowledge of the structure of the beef to be carved.

Beef is made up of bundles of long muscle fibers held together with connective tissue. Fibers would be difficult or impossible to chew if they weren't made softer and shorter. Proper cooking softens the fibers and connective tissues. Proper carving shortens the fibers.

The direction in which the muscle fibers run is called the grain. The principle of beef carving is to cut at right angles to the grain. This is a simple principle, but actual carving is not as simple. Some roasts are made up of several muscles, and the fibers in each of the different muscles may run in slightly different directions. This makes finding the grain more difficult. The illustration to the right shows the grain running the length of the beef and the correct method of slicing.

CARVING A RIB ROAST

Turn roast on its side and place on carving board. (If necessary, remove a thin slice to stabilize roast.) Insert fork from the side, below the top rib. Carve across the "face" of the roast toward the rib bone.

Cut along the rib bone with tip of knife to release slice of beef. To serve, slide knife under beef slice; steadying from above with the fork and lifting slice onto plate.

photo from beefitswhatsfordinner.com

CUT ACROSS THE GRAIN

Steps

Follow these four easy steps for carving:

1. Remove a roast from the oven and let it sit in a warm place before carving so that it will be easier to carve and more juicy. Roasts should stand about 15 to 20 minutes before carving.
2. Determine which way the muscle fibers run in the beef. This is the grain.
3. Anchor the beef firmly with a two pronged carving fork.
4. Carve roasts across the grain. Carve diagonally across the grain for flank steaks and other thin cuts.

Contrary to most carving rules, some tender steaks are carved with the grain. Steaks from the short loin and sirloin do not need to be cut across the grain because the beef fibers are tender and already short. (Roasts from these primals, however, should be cut across the grain.)



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