

All for the Beef

Explore Meat Cookery

Student Sourcebook

Career and Technology
Studies FOD2100
Basic Meat Cookery



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A range of meat products

Meat is a favourite food. It can be one of the most nutritious foods you can buy. You get more value for your money by selecting and cooking meat carefully.

Beef comes from cattle over one year old. It has a firm texture. The raw meat is usually a deep, bright red with creamy, white fat.

Canadian beef today is leaner than it was 20 years ago. Beef contributes three times more iron than lighter coloured meats to the diet, as well as essential B-vitamins and minerals.

Veal comes from calves, **five to seven months** of age, that are fed a milk or milk-grain diet. The meat has little fat, connective tissue or marbling and is very light in color. It is very lean with a mild flavour and has a high water content. Raw veal has a delicate pink color.



Lamb comes from young sheep usually six months to one year old. It has a delicate flavour and is usually quite tender. Raw lamb is a pink colour with white fat.



Meat from older sheep is called mutton. It has a stronger flavour and is not as tender as lamb.

Pork is the meat from hogs or domestic swine. Most pork today comes from young animals between four to six months, producing a leaner, more tender meat. Fresh raw pork is light pink with a small amount of marbling and white fat.

Canadian pork has half the fat compared to 10 years ago. All trimmed cuts of fresh pork, except ribs, are classified as “lean” or “extra lean.” Lean meats, like pork, are an important source of high-quality protein, iron, zinc and B-vitamins.

About 70 percent of pork in the marketplace today, such as bacon and ham, is **cured** or processed while the remainder is termed “**fresh**.” Nitrite, salt, sugar, spices and flavouring are the main ingredients used to cure meat.



Cured meat has a pink colour and a unique flavour. Salt, sugar and nitrites help prevent bacteria growth. Nitrite levels are lower than in the past. Canadian bacon, or back bacon, is an example of a lean smoked meat, which is more like ham than side bacon.



What types of meats are part of your daily or weekly diet? Which meats are part of your favourite meals or dishes?



What comparisons can you make between beef, veal, lamb and pork, based on your consumption of these different meats?

Canadian consumers want to be sure the food they eat is safe and wholesome. Extensive meat inspection programs, along with residue testing, are in place to ensure the safety of meat and meat products. Imported products must also meet these safety standards.

An inspection stamp indicates that the **wholesale** cut of meat has been inspected by meat inspectors with the Canadian Food Inspection Agency.

The word "wholesale" refers to the cuts that stores and restaurants buy. Wholesale cuts are then further cut into smaller pieces called **retail** cuts.

Canada has a rigorous meat inspection system. Under the Canadian Food Inspection Agency's inspection program, veterinarians and trained meat inspectors examine every animal and every side of beef, before and after processing.



They compare the beef to a strict set of standards to ensure that it is healthy and wholesome. The inspector checks for animals with diseases and signs of recent drug injections. These inspection procedures ensure that consumers end up with wholesome foods.

If the animal or carcass is suspected of being sub-standard, it is held for further testing. If it is confirmed that the animal is sub-standard, it is used for inedible beef byproducts or is condemned.

Once beef has been inspected and deemed safe, it receives a federal or provincial inspection stamp. The packer then has the choice of contracting with the Canadian Beef Grading Agency to have a certified grader grade their carcass. A carcass grade and yield will determine the initial value and appropriate use of the meat in the food industry.

What are some examples of **beef byproducts**?

Edible beef byproducts are products that can be consumed. The majority of edible beef byproducts contain gelatin. **Gelatin** is made from cartilage, tendons and bones and can be found in products like:

- Hard cheese
- Jello
- Canned meats
- Ice cream
- Gummi bears
- Marshmallows
- Mayonnaise
- Gum
- Yogurt

Variety meats are edible organs and glands of a beef animal, and can include heart, tongue, liver, kidney, tripe (stomach walls), and testicles (Rocky Mountain or Prairie Oysters). Variety meats are edible byproducts.

Inedible beef byproducts are made from the hide, fat, bones and entrails. Products from the hide can include leather boots, luggage and shoes.



Products made from fat include:



- Deodorants
- Fabric softeners
- Plastics
- Shaving cream
- Detergent
- Floor wax
- Shampoo
- Candles
- Crayons

Byproducts made from the bones include toothpaste and bone china. Byproducts made from entrails include violin strings.

Additionally, beef byproducts can be made from leftover meat portions, including pet foods.

The medical world also relies on the byproducts from cattle to produce a number of medications and treatments. Prior to the 1980s, people with diabetes relied totally on insulin supplies extracted from beef and pork pancreases.

Byproducts from cattle also assist in the treatment of anemia, allergies, parathyroid deficiencies, respiratory diseases, jaundice, rheumatoid arthritis and leukemia.

Market choices

Consumers choose food products based on a number of factors, including nutritional benefits, ease of preparation and price. A 2016 *Canadian Consumer Retail Meat Survey* uncovered information about why Canadian consumers make the choices they do when purchasing fresh meat. This study found that consumers look for cuts of meat that are good for every day meals, appealing to the whole family, versatile and easy to prepare.

This study also found that consumers have a high level of trust and confidence in the Canadian meat industry, including trust in farmers and ranchers, products that are healthy and safe, and regulation and inspection.

Consumers believe Canadian meat is safe to eat, of high quality, exactly what they think they are buying and produced in an environmentally responsible manner.

Leger: The Research Intelligence Group (2016). *Canadian Consumer Retail Meat Study Final Report*. Alberta: Alberta Livestock and Meat Agency Ltd. http://www.alberta.ca/360.com/admin/upload/publi_pdf/SOEN20161102.pdf



What factors influence the choices you or your family makes about meat products?



What do you know about the beef production industry? What do you think you need to know?



Preparing Meat Cuts

Beef carcasses are comprised of four main parts:

1. Meat or muscle tissue
2. Bone
3. Connective tissue
4. Fat

The **yield** of a carcass is directly related to the quantity of lean meats that are usable. The yield is determined by measuring the exterior fat thickness and the length and width of the rib-eye muscle.

Each carcass is sliced between the 12th and 13th rib to drop the front quarter down. A trained grader then checks and measures the fat covering. Why is the slice made between the 12th and 13th rib? Research has shown a direct link between the amount of fat and the amount of lean, usable meat at this place and the rest of the carcass.

To indicate how much usable meat is available, the yield is assessed and identified. This is done by the **Canadian Beef Grading Agency**.

The **grade** of the meat is based on factors that affect eating quality. Grading is based on several characteristics, including the animal's age, the grain of the meat, the colour, texture and cover of the fat and the amount of marbling.

Marbling refers to the visible fat streaks within the lean meat. The more marbling there is, the more juicy and flavourful the meat.

Marbling is a major factor in the present beef grading system. It not only determines the quality grade of beef, but more importantly to the consumer, it affects its flavour and juiciness.

The **quality grade** measures the characteristics that affect the quality of the meat. When a carcass qualifies for Canada Prime or any of the Canada A grades, a prediction of carcass lean yield is also made. This is called the **yield grade**.



Canada A

Canada Prime, AAA, AA, and A are all grades that indicate the highest quality of beef. This grade is stamped in red ink on the carcass. The more As in the grade, the more marbling fat there is in the meat. The characteristics of the Canada A grade include:

- A youthful animal
- Grain is fine and muscle is firm
- Fat is white and firm
- Lean is bright red



98.3% of youthful Alberta beef is graded Canada A or higher.



Canada B

Meat that is graded with **Canada B** makes up 1.8% of all Alberta beef. This grade is stamped in blue ink on the carcass. These grades are still safe to eat because they have the inspection stamp. They are not graded Canada A because there is not enough fat or it is not white enough, or the meat lacks the desired muscling or colour.

B1 has no marbling and less than 2mm of exterior fat.

B2 has fat that is yellow and soft.

B3 has medium to poor muscling

B4 has a dark meat colour.



Canada D and E

Canada D and **E** is stamped in brown ink on the carcass. These grades are found on carcasses that are used primarily for ground beef or processed meats, like sausages or lunch meats. The carcasses are generally marketed as ungraded product.

Canada D beef comes mainly from mature cows. Less than 15% of Canada's graded beef is Canada D. Canada E comes mainly from bulls. Less than 1% of Canada's graded beef is Canada E.



The yield grades are an estimation of the percentage of the carcass that is red meat. A ruler, developed by the Agriculture and Agri-Food Canada Lacombe Research Station, is used to measure the fat depth and ribeye length and width. These measures of fat and lean are then used to predict an overall carcass lean yield.

Yield Grade	Estimated Yield (%)
Canada 1 (Y1)	59 or more
Canada 2 (Y2)	54 to 58
Canada 3 (Y3)	53 or less

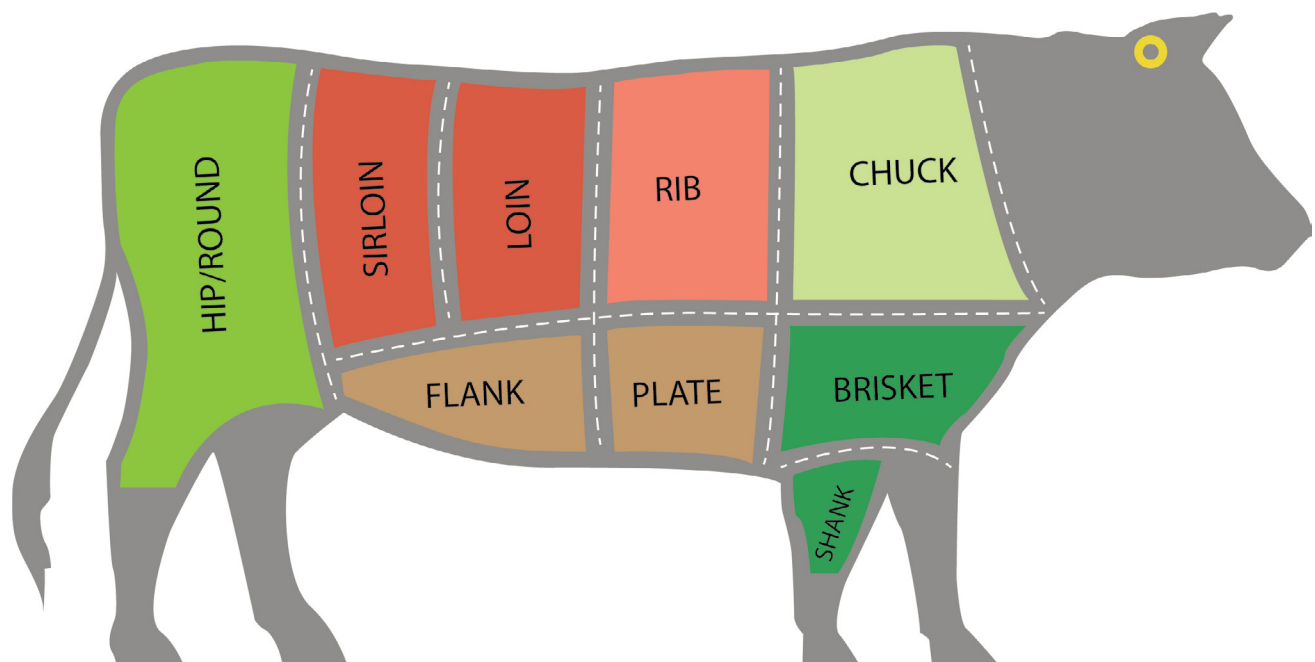


Cuts and Cooking

There are many factors that affect the tenderness of beef and therefore, the eating quality. Different cooking methods are used to enhance tenderness and improve eating quality.

Beef muscles vary in tenderness depending on where the cut comes from on the carcass. The less the muscles are used, the more tender the meat will be. With more use, the more connective tissue is formed around the muscle, making the meat tougher.

Image used and adapted with the permission of Canada Beef <http://canadabeef.ca>



It is important to use the correct preparation, cooking methods and temperatures for different cuts of meat. Each cut of beef can be prepared to produce tender results, using dry heat cooking, moist heat cooking and the use of tenderizers.

Wholesale Cut	Best Cooking Method
Rib, Loin, Sirloin	Dry heat cooking (e.g. Grilling)
Hip, Flank	Modified dry heat cooking (e.g. Marinating) or moist heat cooking
Chuck, Shank, Brisket, Plate	Moist heat cooking (e.g. Simmering)

Connective Tissue

A piece of meat can be separated by its muscle fibres. Around the muscle fibres are **connective tissue**.

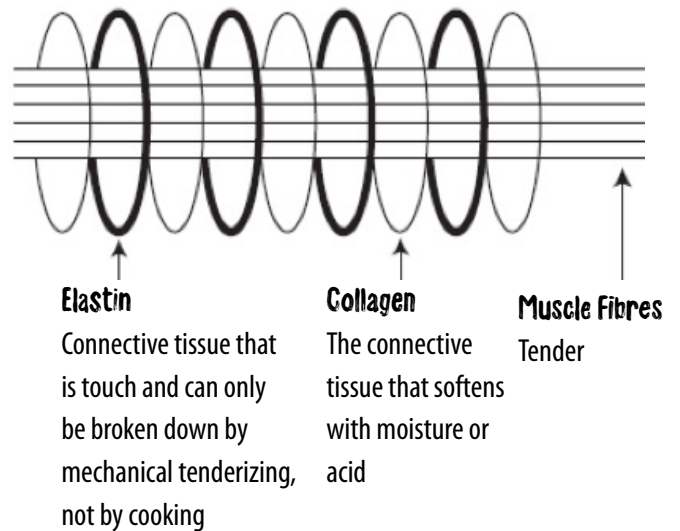
The muscle fibres look like a handful of dry spaghetti with several elastic bands interwoven and holding it all together. These bands are called the **connective tissue**.

There are two main types of connective tissue:

- **Collagen** is a long and stiff protein found in the connective tissue. It can be broken down by marinating or moist heat cooking.
- **Elastin**, or gristle, is a tough, rubber-like protein. It cannot be broken down by cooking.

However, **mechanical tenderizing** such as cutting, grinding and pounding can tenderize elastin. This mechanical tenderizing is done before cooking the meat.

As animals age, the connective tissue changes and makes the meat tougher. The more connective tissue, the more moisture or tenderizing is needed before or during cooking.



Beef in the Market

Find out more about specific retail cuts of meat by using the **market cards**. Add information on best cooking methods and how to tenderize and serve the cuts as you learn about basic meat cookery.



The Colour of Beef

Fresh beef is bright red because of a naturally occurring blood compound called **oxymyoglobin** that is formed in the presence of oxygen. Clear plastic wrap is used in meat packaging, so the right amount of oxygen is available to keep the bright red colour. If the meat is deprived of oxygen, it will change colour.

That is why raw ground beef may be a bright red on the outside, and darker on the inside. The inside has not been exposed to oxygen like the outside. Thus, darker meat is not always an indication of older meat.

Aging Process

If you were to try beef that hasn't been aged, you would probably find it tough and unpalatable. To reduce toughness, meat processors let meat age. Two main techniques are used.

Many meat processors store wholesale cuts of meat in strong **cryovaced** vacuum bags. This is one way that meat is aged. This technique is referred to as **wet aging** – oxygen is removed from the bag and then the bag is heat sealed to make it airtight.

Other meat processors hang the carcass upside down, usually by the hind shank, before cutting it into primal cuts. This is known as **dry aging**. Aging allows enzymes that are in the meat to begin loosening the connective tissue and relaxing the muscle fibres. The beef gains tenderness quickly and depending on the process is typically dry aged up to 14 or 21 days, while wet aging may continue up to 28 days.

Label it Beef

A government-approved naming system for beef cuts has been designed to make beef shopping and cooking much easier. The appropriate cooking method has been included with the name of the cut. For example, a *Sirloin Tip Marinating Steak* should be marinated. This makes it easy to know how to cook and also how to swap one cut for another. If you can't find a Strip Loin Grilling Steak, then buy a Rib Eye Grilling Steak instead.

Many retailers also provide cooking instructions for all beef cuts. The grade may also be found on the label. If it is not, the meat cutter can be asked about the grade.

If the meat is vacuum packed, it will have a "best before" date – meat should be cooked or frozen before the date expires.

Meat that is not vacuum packed will have a "packaged on" date – whole pieces of meat should be cooked or frozen within two to three days of this date or the purchase date. Ground or small pieces of meat (e.g. strips, cubes) should be cooked or frozen within one day of the "packaged on" date.

Image courtesy of Canada Beef <http://canadabeef.ca>





What market factors affect the types of meat that is available to consumers? List as many as you can.



**How do you think these factors affect price?
How do you think they affect consumer preferences and choices?**



What do you know about the risks of using foods beyond the "best before" date? Why is the "packaged on" date important?

Nutritional choices



Meat products contain nutrients that are essential for health. Lean meats, including beef, help you meet your needs for protein, vitamins, and minerals. *Eating Well*

with Canada's Food Guide states leaner meats are one of the *Meat and Alternatives* choices in a healthy diet. Other healthy choices include grains, vegetables and fruits and milk products.

Beef is a complete protein. This means that the all essential protein building blocks, called **amino acids**, are found in beef.

Beef also provides a healthy source of dietary fats. Fat is an important nutrient for normal body functions and energy. Fat helps our body absorb fat-soluble vitamins such as A, D, E and K. Some fats are essential, because our body cannot make these fats. It is recommended that an adult's diet have 20 to 35 percent of total calories from fat.

Recommended Number of Food Guide Servings per Day

	Children			Teens		Adults			
	2-3	4-8	9-13	14-18 Years					
	Girls and Boys			Female	Male	Female	Male	Female	Male
Vegetables and fruit	4	5	6	7	8	7-8	8-10	7	7
Grain products	3	4	6	6	7	6-7	8	6	7
Milk and alternatives	2	2	3-4	3-4	3-4	2	2	3	3
Meat and alternatives	1	1	1-2	2	3	2	3	2	3

Eating Well with Canada's Food Guide:
Health Canada. www.hc-sc.gc.ca/fn-an/food-guide-aliment/basics-base/quantit-eng.php



What is a serving of the meat and alternatives group according to *Eating Well with Canada's Food Guide*? How many servings of the meat and alternatives group are recommended for you?

Health Check

Health Check™ is a retail food information program by the Heart and Stroke Foundation of Canada designed to help Canadians make healthy food choices. For more information about Health Check, see www.healthcheck.org.



What benefits are provided by a single food product, such as beef, that has a wide range of nutrients? What are the consequences of eliminating a single food product like beef from your diet?

All cuts of beef trimmed of all visible fat (except short ribs) and lean and extra lean ground beef are part of Health Check™.

For meat to display the Health Check™ symbol, it must qualify as lean with no more than 10 percent fat for beef cuts and 17 percent fat for ground beef.

All cuts of beef except short ribs are lean when trimmed of visible fat. To be considered lean, meat must have:

- Less than 10% fat in steaks, roasts, stew meat
- Less than 17% fat in ground beef
- A maximum of 10% fat to be labelled extra lean ground beef
- A maximum of 17% fat to be labelled lean ground beef
- A maximum of 23% fat to be labelled medium ground beef
- 30% fat to be labelled regular ground beef

Beef provides nutrients important to the body. One serving of cooked lean beef provides:

- About half of the protein requirements for a teen
- Enough vitamin B¹² to exceed requirements
- An excellent source of zinc and niacin
- A source of iron, thiamine and riboflavin

The importance of nutrients

Protein helps build and repair body tissues, including muscles and bones, aids in hormone production and healthy nerve function and builds antibodies that fight infection. Contains all eight essential amino acids needed for growth and repair.

Vitamin B¹² aids in red blood cell formation and maintains a healthy nervous system.

Vitamin B⁶ plays a role in protein metabolism and energy production; prevents anemia.

Vitamin D enhances calcium and phosphorus absorption, for strong bones and teeth, and contributes to healthy immune and nervous system function.



Thiamine releases energy from carbohydrate and aids normal growth.

Riboflavin is a factor in the conversion of food into energy and tissue formation.

Pantothenate is a factor in the conversion of food into energy and tissue formation, including bones.

Iron combines with protein to form hemoglobin, a component of red blood cells that transports oxygen, which produces energy for body cells. Contains heme iron, a form of iron that is more easily absorbed than iron found in plant sources.

Niacin aids in normal growth and is a factor in the conversion of food into energy and tissue formation, including bones.

Zinc is a factor in tissue formation, including bones, and converting food into energy.

Phosphorus is a factor in the formation and maintenance of strong bones and healthy teeth.

Selenium factor in the correct functioning of the immune system, due to its antioxidant effect.

Magnesium is a factor in bone and teeth health, conversion of food into energy and tissue formation.



Potassium aids in the correct functioning of nerves and muscles.

Bottom image courtesy of Canada Beef <http://canadabeef.ca>

A Closer Look at Iron

Iron is an essential part of **hemoglobin**, a component of red blood cells. Hemoglobin is responsible for picking up oxygen in the lungs and carrying it through the blood stream to all body cells. This oxygen is used in the cells to release energy from the food eaten.

Iron is also present in muscle and in some respiratory enzymes. These **enzymes** help us burn food and oxygen for energy. Iron is stored in the liver, bone marrow and spleen.

The concept of food synergy

Consider the following excerpt from an article on food synergy from Canada Beef.

One emerging and exciting area of nutrition is that of “food synergy”. Leslie Beck, a Toronto-based Registered Dietitian and regular contributor to the Globe and Mail, recently wrote an excellent piece about this important concept.

In her article, Ms. Beck writes that food synergy is “the idea that the naturally occurring compounds in a whole food work together to create greater health benefits than can be achieved by any of its individual components...” In other words, eating certain whole foods together may be more beneficial than eating them separately....

One example of food synergy where meat is concerned is iron absorption. In food, iron exists in two forms: heme and non-heme. **Heme iron** is found only in meat, fish and poultry. All other iron sources (from beans, tofu, eggs, veggies, grains, etc.) are of the **non-heme** type.

Heme iron is better absorbed by the body than iron from plant sources; in isolation, non-heme iron is not well absorbed. But that is not the full story. In a classic example of food synergy, combining a heme iron food with a non-heme iron food significantly increases the amount of non-heme iron absorbed. In beef circles, we call this the “meat factor.”

The “meat factor” means that adding some ground beef to your bean chili allows you to absorb more iron from the beans than if you ate a vegetarian version of the dish. Without the influence of meat factor in their diets, vegetarians need almost two times more iron in their diets than meat eaters.

Since iron is a critical nutrient, particularly at certain key life stages, this effect is not without significance. **That is the power of food synergy!**



Some interesting facts about iron and the “meat factor”

- Iron is an essential mineral found in every cell of your body.
- Not all dietary iron is created equal. There are two types of iron in food: heme iron and non-heme iron. Meat, poultry and fish contain heme iron while other sources (beans, tofu, eggs, veggies, grains, etc.) contain non-heme iron. Heme iron is more easily absorbed than non-heme iron.
- The “Meat Factor” helps your body absorb more non-heme iron. For example, when you eat meat and veggies together, you absorb more iron from the vegetables than if you eat the vegetables alone.
- If you don’t eat meat, fish or poultry you need almost twice as much iron as someone who does.
- Iron deficiency in infancy and during pregnancy can cause lifelong developmental delays to the growing child.
- Young children, teenage girls and women of child bearing age are at highest risk of not consuming enough iron.

Used with permission from Canada Beef: Barlow, Karine (2018). Food Synergy – More Reason to Celebrate Whole Foods. thinkbeef.ca website <http://thinkbeef.ca/wp-content/uploads/2018/03/Food-Synergyf.pdf>

Infographic below courtesy of Canada Beef <http://canadabeef.ca>

BEEF BENEFITS

beef FACTS that will surprise you

Packed with nutrients like iron, zinc, protein and B vitamins, beef is one powerful protein!

Calorie for calorie, beef is a delicious way to meet your family's nutrition needs. And since it pairs up perfectly with traditional sides like vegetables and whole grains, beef makes it easy to feed your family a healthy, balanced diet, in line with Canada's Food Guide.

Beef comes out
ON TOP



Compared to chicken breast, beef has:

200% more Iron **600% more Vitamin B₁₂** **700% more Zinc**

THE FACTS ON FAT:

About half the fat in beef is monounsaturated, the same fat found in olive oil!

Per 75 grams cooked beef: 184 calories, 26 g protein, 7.6 g fat (3.9 g monounsaturated), 2.5 mg iron (20% DV), 6.5 mg zinc (70% DV), 1.83 µg vitamin B₁₂ (90% DV)
Per 75 grams cooked chicken breast: 0.78 mg iron, 0.75 mg zinc, 0.26 µg vitamin B₁₂
Per ¼ cup almonds: 208 calories, 7.6 g protein
Source of nutrient values: Health Canada, Canadian Nutrient File, 2015. Food codes: Beef 6172, Chicken 842, Almonds 2534

Beef's BIG on protein

One serving of **beef** (75 g at 184 calories) has the **same amount of protein** as about 3.5 servings of **almonds** (104 almonds at 728 calories).



A serving of beef provides **184 calories**. In a typical 2000 calorie diet, that's only 9% of your daily calorie "budget".

Beef is very high in protein, a nutrient that is essential at every stage of life.

Did you know? Protein:

- helps build and repair body tissues
- helps build antibodies
- helps build strong muscles

Eating Well with Canada's Food Guide recommends eating a variety of Meat and Alternatives, including lean meat



Find out more about nutrition and beef in the full version of the *Worried about nutrition?* infographic on the Alberta Beef website at www.albertabeef.org.

Find other articles that deal with nutritional implications of meat in the diet from **Canada Beef** on the **Think Beef** website at <http://thinkbeef.ca/the-thinkbeef-position/>. Look for articles about nutrients, including protein and fat.



How do you think you can address food synergy in meal planning?



Compare two different beef cuts with one other meat or food product by creating a **nutritional profile**. Locate food labels for these products and use the labels to compare protein, fats, vitamins and minerals.

Production factors

Many people in the meat industry contribute to putting beef on your plate at dinnertime. From the breeders to the meat cutters in your local grocery store, everyone plays an important part to ensure a safe and delicious food.

Alberta has the most cattle in Canada with approximately 1.5 million head. This is 41 percent of the Canadian total. Canada's beef industry operates in a free market environment. The amount of beef available and the price are determined by the market. Each industry sector operates independently, and they account for their own profits and/or losses.

Farmers, ranchers or producers raise the animal from birth until it weighs approximately 160 to 295 kg. The producer makes the decisions on the type of breed (genetics) being raised for the market. They take special care raising the cattle, making sure they are ready for the market. The calves may be sold at this time or kept for backgrounding. They are fed hay or grass until they weigh about 340 kg.



The **feedlot operator** buys the animal from the producer and decides on the food ration to be used during the last part of the growing period, which is 60 to 200 days. This is called the **finishing process**. Many feedlots in Alberta feed barley to cattle. They also decide when to market the animal for optimum profit. About 75 percent of the cattle raised for the market are sold to the packer-processor before the age of 20 to 22 months and at an average weight of 800 kg to 900 kg.



Meat inspectors from the Canadian Food Inspection Agency examine every animal and every side of beef in federally inspected plants, before and after processing. Inspectors check for disease or anything unusual in the carcass. This is done to ensure the safety of meat and meat products. Beef is stamped with an inspection stamp when it passes.



A **packer-processor** or **meat cutter** converts the products into wholesale cuts. Some beef is sold as **swinging beef** –whole side, fronts or hindquarters. A packer-processor may cut the meat further into retail cuts. The wholesale cuts are typically stored and shipped in cryovaced bags. Once the meat is processed into retail cuts, it is typically put in vacuum-packed bags.



The **Canadian Beef Grading Agency** grades the beef and determines the yield. This influences the initial value and appropriate use of the meat in the food industry.



The **processor-purveyor** buys the product and further processes or adds value to the product before selling it either to a distributor or directly to the food service operator. One example could be a pre-marinated steak.

Distributors/meat cutters at local stores can cut and wrap meat according to the demands of their consumers.



Beef grading images courtesy of Canada Beef <http://canadabeef.ca>

Careers in the Beef Cattle Industry

There are many career opportunities in the beef production sector. Some of these careers are in the areas of livestock health, nutrition, genetics, animal handling, operations, marketing and sales.

Choosing a career in the beef industry is actually a lot more than just working with or raising cows and cattle. It's working with people in everything from researching genetics to engineering and business management to range and pasture consulting.

The beef industry cannot function with just farmers and ranchers selling their cows to market. Other people work in various jobs to help producers make the most out of raising cattle, while ensuring the health and welfare of the animals they depend on.



Find industry fast facts on the Canadian Beef website at <https://canadabeef.ca/canadian-beef-industry-fast-facts/>.

Visit the **BeefCareers.ca** website at <https://beefcareers.ca/careers-in-the-cattle-sector/> to find detailed information on careers in the beef cattle industry, including those in the areas of production, nutrition, health, research, industry support, processing, equipment, transportation and trades.



View short video clips of individuals working in specific careers and find information on education and training requirements for the jobs that interest you.



Find the **Code of Practice for the Care and Handling of Beef Cattle** for standards of animal care at www.nfacc.ca/pdfs/codes/beef_code_of_practice.pdf.



From the time the animal is born, it takes approximately two years for beef to reach the consumer's plate. Create a **mind map**, **timeline** or **t-chart** that identifies and includes as many careers that you can think of that are involved in this process.

Production Trends and Issues

Most consumers have distinct food preferences, likes and dislikes. The retail availability of food products is influenced by consumer choices and trends in purchasing. Some of these trends include food safety, organic and local food preferences and food production practices.

Animal Welfare

Consumer concerns include questions about animal welfare. Beef producers support responsible animal care and handling throughout the production process. They work closely with Alberta Farm Animal Care (AFAC) and other organizations to create policies that exceed animal care standards.

Cattle producers in Alberta follow the **Code of Practice for the Care and Handling of Beef Cattle**. This code sets out standards for humane care, treatment, handling, housing and transportation of cattle.

The Canadian Food Inspection Agency (CFIA) has rigorous programs that detect potentially emerging animal diseases. The Canadian Livestock Tracking System allows for quick identification of any affected animals.

The Question of Hormones

Many consumers also have questions about the use of hormones and antibiotics. Hormones are a natural part of beef. Hormone implants are used to increase growth and reduce the impact on the environment and the resources required to produce high-quality beef.

Hormone implants may be placed in calves' ears to help produce leaner and faster growing beef. This brings the cost of production down by 10 to 15 percent.

Implantation in beef livestock is not a health hazard for humans. Men and women produce estrogen in much greater quantities than that contained in a serving of estrogen-implanted beef.

Many common foods have higher amounts of hormones than beef produced with the use of hormone implants.

Worried about hormones in cattle?



You don't need to be

Hormone implants are small, slow release pellets placed under the skin in an animal's ear to enhance production of natural hormones. Using hormone implants directs growth towards muscle and away from fat, which boosts growth rate and means less feed is needed for the animal to gain weight.¹

All plants and animals have hormones naturally in their systems.

Your body produces hormones no matter what you eat.²



The result is fewer resources are used to produce beef, with smaller impacts on the environment and your grocery bill.

Many common foods have higher amounts of hormones than beef produced with the use of hormone implants^{3|4|5}

Food/supplement	Estrogen *	Servings of beef~ (75 g)
 75 g beef without hormone implants	1.1 ng	0.65
 75 g beef with hormone implants	1.9 ng	1
 75 g chicken	2.1 ng	1.1
 75 g pork	2.5 ng	1.3

The amount of estrogen from 1 serving of cabbage



the same amount of estrogen from **OVER 1000 servings** of beef produced using hormone implants.



Food	Amount of Food	Amount of Estrogen (nanogram)*
Beef without hormone implants	75 g	1.1
Beef with hormone implants	75 g	1.9
Milk	355 mL	51
Cabbage	75 g	1065.8
Soybean oil	15 mL	28,370

* Note: A **nanogram** is one billionth of a gram, which can be compared to one blade of grass in an entire football field.

Antibiotics

When cattle get sick, they may need antibiotics. Cattle producers follow strict processes, including mandatory withdrawal times and residue testing to ensure that beef is antibiotic-free.

All drugs used for livestock medications and vaccinations must undergo thorough testing by Health Canada's Veterinary Drug Directorate before any substance can be licensed for use. Any of these drugs that might remain in meat are called residue. High standards ensure that no residues or miniscule residue levels remain in the animal when it is processed. Consequently, medications to animals are not a health problem for meat.

Additionally, all carcasses are subject to random residue testing for antibiotics, pesticides, hormones and industrial pollutants.



@ Explore information and weblinks on animal care and food safety on **Alberta Beef's** website at www.albertabeef.org/page/why-alberta-beef.

Learn more about hormone use in beef production by watching *Myth: Hormone Use in Beef Production is a Health Concern* on the **Alberta Beef** website at www.albertabeef.org/page/worried-about-hormones-in-cattle. Find additional sources of information on hormones and growth promotants on this webpage.

@ Download and explore the information in the full version of the *Worried about hormones in cattle?* infographic at www.albertabeef.org/uploads/AlbertaBeefHormonesHighRespdf-578.pdf.

Watch a series of videos on antibiotic use and resistance in cattle and other animals on **Alberta Beef's** website at www.albertabeef.org/page/worried-about-antibiotic-use-and-resistance-in-cattle. Find additional sources of information on antibiotic use on this webpage.

@ Download and explore the information in the full version of the *Worried about antibiotic use and resistance in cattle?* infographic at www.albertabeef.org/uploads/2015AMRupdatesmpdf-453.pdf.

Food Safety

Canada's Hazard Analysis and Critical Control Point (HACCP) food safety system prevents foodborne illness, the most important priority of the Canadian beef industry. Implemented by meat processors, this program ensures beef meets the quality and safety requirements for consumers by preventing biological, chemical or physical contamination of beef throughout the processing chain.

Canadian processing plants have adapted HACCP systems. To ensure Canada's high standards are met, during the meat inspection process trained inspectors with the Canadian Food Inspection Agency (CFIA) carefully examine carcasses for evidence of recent disease or health treatment with antibiotics.

E. Coli

The digestive systems of all animals, including humans, are home to billions of essential bacteria. **Escherichia coli** or **E. coli** are one family of naturally-occurring bacteria in our digestive tracts. Most strains of **E. coli** do not cause illness in healthy humans. Some strains of **E. coli**, however, cause cramps and diarrhea. The **O157:H7** strain produces a toxin that can cause severe illness. It can be found in cattle, other farm animals and wildlife, including deer. **E. coli** bacteria can be spread through contact with:

- Infected people
- Infected animals
- Contaminated surfaces, foods or liquids

You can be exposed to **E. coli** by eating raw or undercooked beef, especially ground beef, unpasteurized milk products, such as raw milk and cheese, and contaminated raw fruits and vegetables, such as leafy greens or sprouts. You can also be exposed by:

- Drinking untreated water, unpasteurized juices and raw milk
- Mishandling or undercooking food contaminated with **E. coli**
- Coming into contact with the feces of infected animals or people

Animals and people can be carriers of **E. coli**. This means they can be infected with the bacteria and can spread it to others without showing signs of illness.



Food Safety at Home

Health Canada estimates that every year, more than 4 million Canadians get food poisoning, also known as foodborne illness or food-related illness. Symptoms usually include nausea, vomiting, diarrhea, stomach pain and fever.

All perishable foods, including meat, can contain bacteria. Food poisoning is caused by food that is contaminated. Knowing how to properly cook, clean, chill and separate foods while handling and preparing them can help prevent food poisoning.

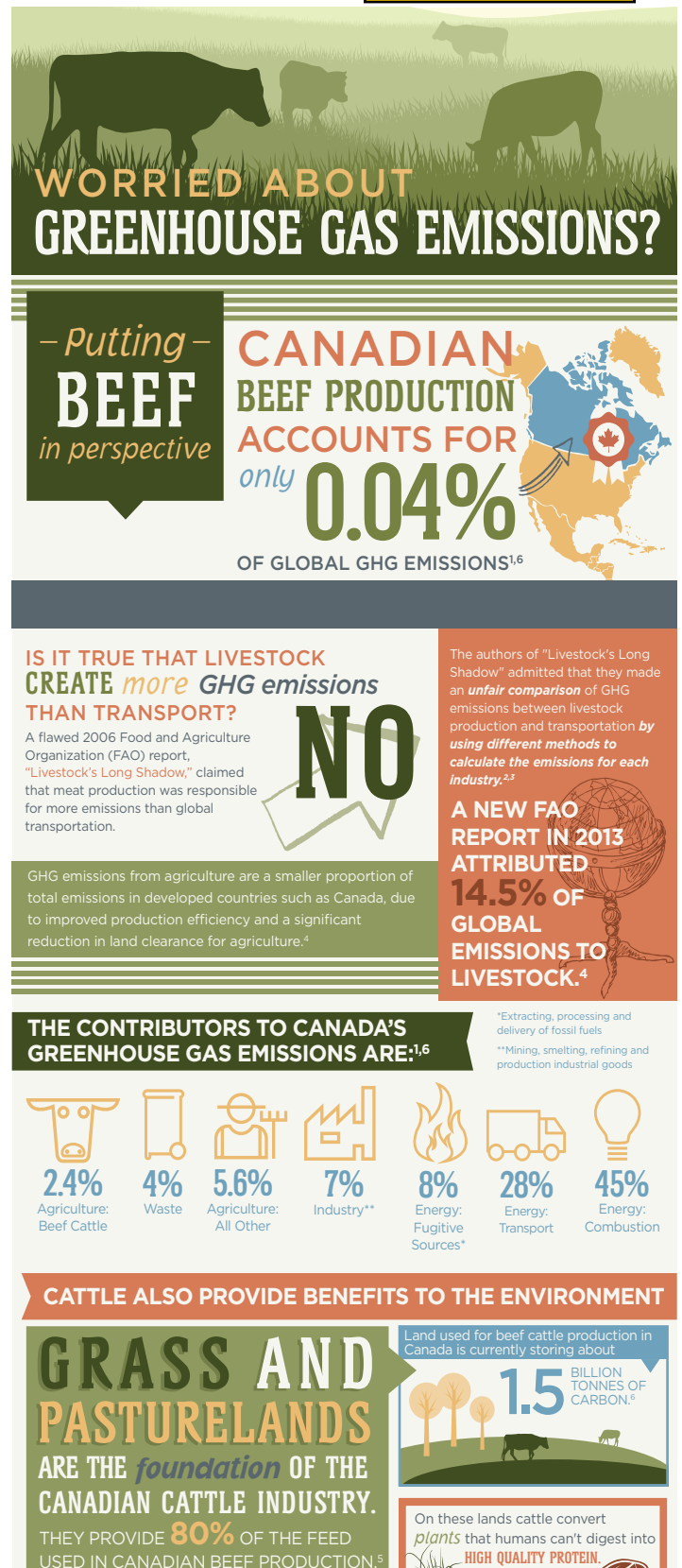
Environmental Practices

The beef production industry has a strong commitment to protection and sustainability of the environment. The beef industry uses practices for forage, grazing and beef production that can benefit the environment including maintaining plant and wildlife habitats, reducing soil erosion and protecting watersheds.

Every living organism produces greenhouse gases (GHG), but cattle produce more than some other livestock because rumen bacteria produce methane as they digest feed. Additional greenhouse gases come from manure and fossil fuel use. However, beef production in Canada accounts for only .04% of global greenhouse gas emissions.

Pastureland removes greenhouse gases from the air and stores them in the soil. Removing cattle from these lands would put the land at risk for conversion to other land uses that could release more GHGs. Cultivating land can release up to 59% of carbon previously stored in the soil. Grasslands and pastures also store carbon, protect marginal lands from tillage and erosion, provide habitat for wildlife and promote biodiversity.

UPDATE??





Alberta Beef provides information and infographics on beef production at www.albertabeef.org/page/beef-production-chain, as well as on the **All for the Beef** website at <http://allforthebeef.ca/>.

The **Canadian Beef** website has a thorough overview of the beef production industry at <https://canadabeef.ca/canadian-beef-advantage/#top>. Note that this overview focuses on the advantages of Canadian beef for U.S. consumption. It also provides information in *Fact Sheets* about the Canadian beef industry at <https://canadabeef.ca/fact-sheets/>.

The **Think Beef** website provides position papers on issues related to beef production and consumption at <http://thinkbeef.ca/the-thinkbeef-position/>.

Health Canada provides a number of resources about food safety. Start on the *Food Safety and You* webpage at www.canada.ca/en/health-canada/services/general-food-safety-tips/food-safety-you.html.

Find detailed information on *E. coli* on the **Government of Canada's** website at www.canada.ca/en/public-health/services/diseases/e-coli.html.

Download and explore the information in the full version of the *Worried about greenhouse gas emissions?* infographic at www.albertabeef.org/uploads/609.pdf.



Watch the *What is the Environmental Impact of the Canadian Beef Industry?* video at www.youtube.com/watch?v=JDSOZBmdudg&feature=youtu.be.



Select one consumer concern or issue from the following list.

- Animal care and welfare
- Use of hormones
- Use of antibiotics
- Animal health, including bovine spongiform encephalopathy (BSE)
- Food safety, including *Escherichia coli* (*E. coli*)
- Organic production practices
- Environmental practices

Explain why this concern or issue interests you.

Identify one or two focus questions and find and list sources that you will use to research **fast facts** on this issue or concern. Use your fast facts to create a **briefing note** or **infographic**.

Use a **T-Chart** to collect your fast facts and sources.

Safe handling practices for meat

Most bacteria that cause foodborne illnesses cannot be seen, smelled or tasted. One of the most common causes of illness is food left at room temperature. The **danger zone** is between 4°C and 60°C (40°F to 140°F).

Bacteria grow rapidly when the temperature is between 4°C and 60°C and they have the moisture and food they need to grow. Room temperature is in this range. Some bacteria can double as quickly as every 15 minutes. With proper storage, the safety, nutritional value and quality of meat can be preserved.

Fresh Meat

Fresh meat should be stored no longer than one to three days in the fridge, on the bottom shelf or in the meat compartment to ensure the meat juices do not drip onto other foods.

Fresh ground meat should be stored for only one day. It should be left in its original container or removed and properly sealed.



Frozen Meat

Meat purchased frozen should be stored in the freezer (-18°C/0°F) in its original wrapping. Fresh meat should be removed from its original packaging and wrapped into moisture vapor-proof freezer bags. Individual servings should be separated with a double layer of wrapping material.

Previously thawed meat should never be refrozen. Freezing does not kill bacteria. When meat is thawed, bacterial growth starts again. If meat is frozen and thawed again, bacterial growth starts at a higher level. There may be enough bacteria to cause food poisoning. "Previously frozen" meat must be cooked for these safety reasons.



Canned Meat

Most canned meats can be stored in a cool, dry storage place such as a pantry. Large canned hams over 1 kg are perishable because they have not been completely sterilized. They should be stored in the fridge to prevent spoilage.



Cured Ready-to-Eat Meats

Cold cuts, ham, bacon and wieners should be tightly wrapped to prevent drying and used within four days.



Leftover Meat

Leftover meats should be stored in an airtight container in the coldest part of the fridge and used within three to four days.



Shelf Life

Refrigerated beef has a limited shelf life before it spoils. Several variables strongly influence the length of shelf life, and each variable must be correctly managed to maximize shelf life. Freezing extends shelf life.



Bottom two images courtesy of Canada Beef <http://canadabeef.ca>

Type of Meat	Refrigerator	Freezer
Ground beef	1 day	2-3 months
Stewing beef, Short ribs, Stir-fry strips, Kabobs	2 days	3-6 months
Steaks	3 days	6-9 months
Roasts	3 days	9-12 months
Vacuum packaged (thawed meat)	2 days	6-9 months
Cooked meats	3-4 days	2-3 months

You cannot tell if food is safe by smelling or looking at it. **If in doubt, the meat should be thrown out.**

- Always freeze fast in the freezer
- Defrost slowly in the refrigerator or with cold running water
- Defrost quickly using the microwave oven
- Do not thaw on the counter

Ground meat deserves special attention when we buy, store or cook it. Since bacteria love surfaces, bacteria have plenty of chances to get into the meat.

If you think about a steak, the surfaces are only the top, bottom and sides. When a steak is cooked rare, it has to be seared on all sides to destroy the bacteria. Ground meat is like taking a steak and grinding it up. The surface bacteria are mixed in and more surfaces are made that the bacteria can live on. It's important to cook ground meat to 71°C (160°F) so the bacteria are dead.



Temperature Rules for Safe Doneness (Canadian Industry Standards)

Type of Meat	Temperature
Ground beef/Pork	160° F (71° C)
Ground chicken/Turkey	175° F (80° C)
Beef, lamb and veal roast and steaks	145° F (63° C) Medium-rare
	160° F (71° C) Medium
	170° F (77° C) Well
Pork chops/roasts/fresh cured ham	160° F (71° C) Medium
Ham, ready-to-eat, fully cooked	Cold or 140° F (60° C)
Whole turkey (stuffed) and chicken (stuffed or not)	180° F (82° C)
Stuffing	165° F (74° C)
Whole turkey (without stuffing)	170° F (77° C)
Chicken/turkey pieces	170° F (77° C)
Rolled stuffed beef roasts or steaks (e.g. London Broil)	160° F (71° C)
Minute Steak (or meat labelled delicatized/diced/tenderized or cubed steak. Not fast-fry steak)	160° F (71° C)
Egg dishes, casseroles	160° F (71° C)
Battered meat/seafood – Do not undercook. Cook following package directions.	
Fresh meats marked "seasoned" on label	160° F (71° C)
Leftovers, reheated	165° F (74° C)

Food safety involves **four basic steps** to eliminate harmful bacteria and greatly reduce the risk of foodborne illness.

1. **Clean** - wash hands and surfaces often
2. **Chill** - refrigerate or freeze foods promptly
3. **Separate** - keep raw meat/poultry/seafood and their juices separate from one another and other foods
4. **Cook** - cook foods to proper temperatures



The four basic steps involve other safe and sanitary kitchen practices. Select a **recipe card**. Use the **chef safety skill cards** to identify at least two examples of safety step that you would apply when preparing, cooking and/or cleaning up after using the recipe.

Clean	Chill
Separate	Cook



Food safety involves handling, storing, cooking and reheating practices. Why do you think practices for thawing and freezing meats are a food safety concern?



Find out more about food safety by exploring the links on the *Food Safety* webpage on the **Government of Canada's** website at www.canada.ca/en/health-canada/services/general-food-safety-tips.html.

Make sure you check out the links *Food Safety and You*, *Safe Internal Cooking Temperatures*, *Safe Food Storage* and *Cooking Safety*.



Watch *Foodborne Illness: Protecting Yourself* on the **Government of Canada's** website at www.canada.ca/en/public-health/services/food-safety/videos/something-you-episode-4-protecting-yourself.html for a demonstration of safe food handling and cooking practices.



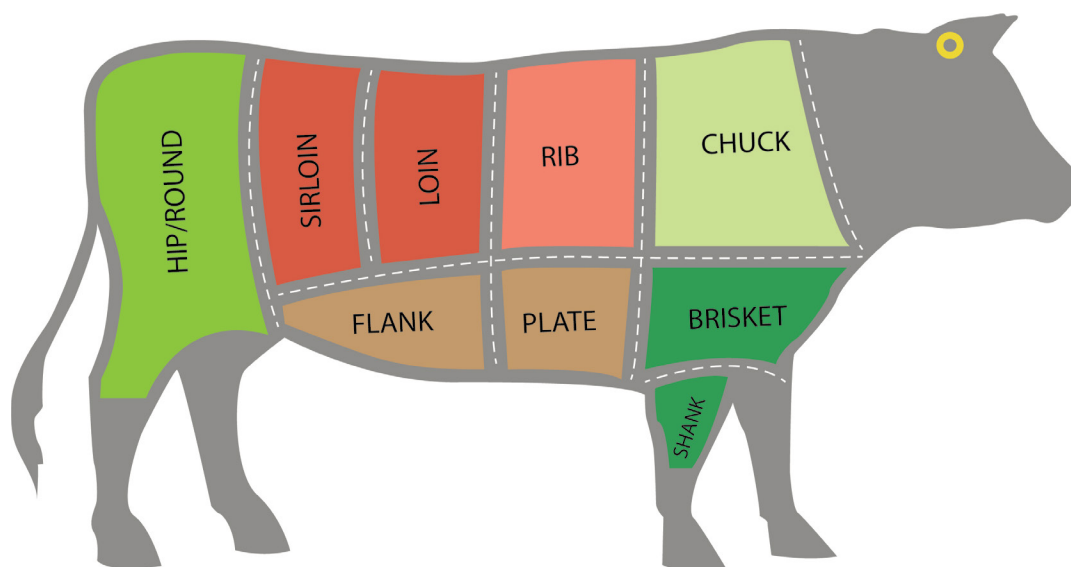
Culinary Practice Recipes

The culinary practice recipes provide a sampling of dry heat and moist heat cooking approaches, as well as tenderizing methods.

Dry heat cooking methods refer to processes where no additional moisture is added to the cooking cycle. They are most commonly used for the more tender and marbled cuts of beef, like striploin, tenderloin, sirloin and rib.

Moist heat cooking methods involve the addition of moisture, usually water, to the cooking process. This has a tenderizing effect and moistens the beef. Moist heat is usually applied to cuts from the round. A combination of dry and moist methods can also be used, especially on the medium-tender cuts of the chuck, flank, plate, brisket and shank.

The image below shows appropriate cooking methods for the various beef wholesale cuts.



Dry Heat



Moist Heat



Dry/Moist Heat



Image used and adapted with the permission of Canada Beef <http://canadabeef.ca>



Dry and Moist Heat Cooking Methods

- **Grilling** is a dry heat method that uses high heat to sear the outsides of a cut so that moisture is maintained on the inside. It is most often associated with steaks and smaller cuts like kebobs. It maintains the juices and allows cooking to a desired level of doneness.
- **Roasting** is a dry heat method that uses the oven. Heat surrounds the cut and slowly increases the internal temperature until the desired doneness is reached. Larger cuts are generally roasted to get a high cooked yield and even doneness throughout.
- **Sautéing** is similar to **pan frying**. It uses a small amount of hot oil in a pan or wok to quickly cook the beef and maintain moisture and tenderness. The advantage with sautéing is that flavour is easily enhanced when cooked with other ingredients. It is a dry heat method.
- **Stewing** is a moist heat method in which small pieces of beef are browned and immersed in a liquid, such as a stock, often with vegetables added. The covered pot is simmered slowly until the beef is tender. Strong flavours are developed with stewed beef dishes.
- **Braising** is similar to stewing. The beef cuts are browned, vegetables added, and a liquid is added to cover one-third of the meat. A lid is placed on the pot and the dish is cooked slowly in an oven or on stove top. The combination of steam and pressure created in the pot breaks down the connective tissues in the beef.
- **Pot roasting** is a moist heat method usually used for larger, less tender cuts. This method involves browning the beef, adding stock/wine to cover one-third of the meat, and covering it. The pot roast is placed in a low-temperature oven.

Cuts for Dry Heat Cooking

Rib

- Bottom and Top Blade Simmering Steaks
- Cross Rib Pot Roast
- Rib Eye Premium Oven Roasts
- Rib Eye Grilling Steaks
- Prime Rib Premium Oven Roasts
- Rib Eye Grilling Steak

Loin

- Tenderloin Grilling Steaks
- Tenderloin Premium Oven Roasts
- Wing, T-bone or Porterhouse Grilling Steaks
- Strip Loin Grilling Steak
- Premium Oven Roast
- Top Sirloin Grilling Steaks
- Top Sirloin Premium Oven Roasts

Hip

- Sirloin Tip Oven Roast
- Sirloin Tip Marinating Steak
- Inside Round Oven Roast
- Inside Round Marinating Steak
- Eye of Round Oven Roast
- Eye of Round Marinating Steak
- Outside Round Oven Roast
- Outside Round Marinating Steak

Cuts for Moist Heat Cooking

Chuck

- Bottom and Top Blade Simmering Steaks
- Cross Rib Pot Roast

Rib

- Simmering Short Ribs
- Flank Marinating Steak
- Brisket Point

Doneness by Colour

- A medium rare steak is seared with a 50% red centre
- A medium steak has 25% pink showing
- A medium well steak has a slight hint of pink
- A well done steak is brown throughout

Doneness by Touch

- Let one hand hang limp. With the index finger of the other hand, push gently into the soft triangle of flesh between the thumb and index finger of the limp hand. It will feel soft and spongy and offer very little resistance. That is how **rare** steak feels.
- Extend your hand palm facing up with the fingers spread. Press the same spot with the index finger of your other hand. The flesh will be slightly resistant and firmer but not hard. That is how a **medium** steak feels.
- Make a fist and press the same spot again. It will snap back quickly, feel very firm and will not have much give. That is how a **well done** steak feels.

Determining Doneness

Temperature is the best method for determining doneness. A digital food thermometer is the best way to take the internal temperature of cooked meat and should be the only method used to determine doneness of ground beef and roasts.

Touch and colour are also sometimes used to determine the doneness of steaks. These colour guidelines are also used sometimes to check doneness of roasts.

Doneness	Internal temperature	Roasting time
Medium rare	63° C / 145° F	18 to 20 min per 500g or pound
Medium	71° C / 160° F	22 to 25 min per 500g or pound
Well done	77° C / 170° F	30 min per 500g or pound



Maximizing Tenderness

Tenderness is a key factor in the **palatability** of beef. There are several ways to enhance the tenderness of beef before and during cooking.

Mechanical tenderization breaks down connective tissue that causes tough beef. Some common examples are:

- **Pounding** the meat with a meat mallet helps soften the elastin, which cannot be softened with moisture.
- **Cutting against the grain** shortens muscle fibres into shorter fibres that are easier to chew. The grain is the direction of the long muscle fibres. It also cuts through the connective tissue making it easier for you to chew the meat. Cutting against the grain is used in slicing roasts and steaks for a stir-fry.
- **Scoring** the meat is the same as cutting against the grain except you don't cut all the way through the meat. Little slits are made on the surface of the meat. This cuts through some of the connective tissue and prevents the meat edges from curling. Scoring can be used on simmering steaks.



- **Grinding** meat is done with a special machine. This completely breaks up the connective tissue making a simmering cut tender. The most common ground meat is ground beef.
- **Cubing** meat into small pieces means cutting through connective tissue and shortening muscle fibres. This helps to tenderize the meat.

Chemical tenderization is a process in which the beef is covered in a **marinade** that contains natural tenderizers. The purpose of these tenderizers is to break down the connective tissue.

The tenderizer or marinade works where it touches the meat. It is best to pierce or score the meat all over on both sides with a fork to allow the liquid to better penetrate the muscle fibre.

- Fresh fruits have natural enzymes that act as tenderizers. Papain is a natural extract found in papaya. Other fruits that have enzymes include pineapple and kiwi.
- Acid-based ingredients such as wine, vinegars, tomato sauce, lime, lemon or other citrus juice are tenderizers.
- Alkaline ingredients like salt and soy sauce are tenderizers.

These types of active ingredients, combined with oils, herbs and seasonings, can be used effectively to tenderize beef cuts.

Commercial tenderizers have proteolytic enzymes that can break down proteins in the meat. The meat should be in this tenderizer for 30 minutes. Anything longer than 30 minutes will make the meat mushy.

The marinade must be in contact with the meat for at least six to eight hours in the fridge, but 12 to 24 hours is best for steaks or roasts. Kabobs or meat sliced into stir fry sized pieces can be marinated for three to six hours.



Choosing Cuts to Marinate

Cuts that are well suited for marination include those with a coarse grain such as flank, skirt steak or bottom sirloin butt. Clean silverskin and score meat to allow the marinade to penetrate and make certain the marinated cut is towel dried before cooking – this will allow adequate searing. If you use a marinade in a sauce or on a cooked product, ensure you boil the marinade first.

Beef Cuts	Marinating Times
Grilling steaks and premium oven roasts (prime rib, top sirloin, rib)	30 minutes to 2 hours
Oven roasts and pot roasts, marinating and simmering steaks (round, sirloin tip, cross rib, blade)	12 to 24 hours Larger roasts may take up to 48 hours
Marinating strips and cubes	30 minutes to 1 hour

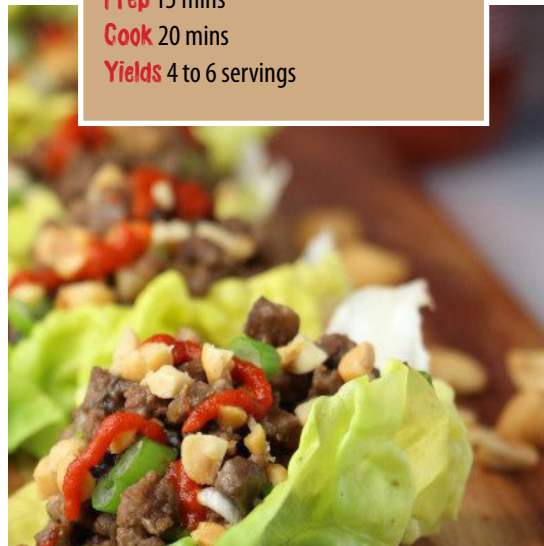


Culinary Practice Recipe

Prep 15 mins

Cook 20 mins

Yields 4 to 6 servings



Beef and Mushroom Thai Lettuce Cups

Prepare Ingredients

1 lb (500 g) ground beef

1½ cups finely chopped cremini mushrooms

½ cup finely chopped onion

¼ cup hoisin sauce

1 tbsp soy sauce

1 tbsp rice wine vinegar

5 cloves garlic diced
2 tsp minced fresh ginger root
1 tsp sriracha sauce (or as much as you like)
3 green onions sliced
2 tsp sesame oil
Boston, Iceberg or Bibb lettuce leaves, washed and dried
¼ cup peanuts, chopped (optional)

Cook

Cook ground beef, mushrooms and onion and mushrooms in large non-stick **skillet** over medium-high heat, breaking up beef with back of spoon, until cooked through and much of the liquid has evaporated. Drain if desired.

Meanwhile, combine hoisin sauce, soy sauce, rice vinegar, garlic, gingerroot and sriracha sauce. Pour over cooked meat mixture and heat through.

Remove from heat and stir in green onion and sesame oil. Serve spooned into lettuce leaves and top with peanuts (if using) and additional sriracha sauce.

Healthy meat cookery involves an understanding of how **proteins** and **fats** react to heat.

When meat is heated, the bonds holding protein molecules break and the molecule unwinds. Heat also shrinks the muscle fibres and presses water out of them. The protein molecules then recombine, called **coagulating**. This process of breaking, unwinding, and coagulating is called **denaturing**.

Fat is important to meat texture. It starts to melt at about 54°C to 60°C and lubricates the muscle fibres just as they are getting tougher and drier under the heat. Fat does not evaporate like water.

Fat is the source of much of the flavour in meat. It absorbs and stores many of the aromatic compounds in the animal's food. As the animal ages, the flavor compounds build up and get stronger.



Watch a video that demonstrates the cooking techniques for this recipe at <https://canadabeef.ca/recipe/beef-mushroom-thai-lettuce-cups/#cooked-video-1b>.



Culinary Practice Recipe

Beef and Mushroom Thai Lettuce Cups



What happened to the ground beef as it was fried in the skillet? How can you identify the fat?



What is the difference in **yield** between raw ground beef and cooked ground beef? How do you account for this in dishes that you make with ground beef?



For speedy prep, mince garlic, ginger, mushrooms and onion in a food processor. To make it a stand-alone meal (minus the lettuce cups), stir in some frozen mixed veggies, cook through and serve with steamed rice.

Nutrition Facts

per serving

Amount	
Calories	295
Protein	27 g
Fat	17 g
Carbohydrate	8 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/beef-mushroom-thai-lettuce-cups/>



Culinary Practice Recipe

Prep 15 mins

Cook 10 mins

Yields 2 to 3 servings



Warm Orange Beef Salad

Prepare Ingredients

7 mL (1½ tsp) canola oil

250 g (8 oz) beef top sirloin grilling steak

125 mL (½ cup) sliced mushrooms

50 mL (¼ cup) each of julienned carrot, thinly sliced sweet red or yellow pepper and red onion

1 L (4 cups) baby lettuce

Dried chili pepper flakes (optional)

Sauce

2 mL (½ tsp) grated orange rind

25 mL (2 tbsp) orange juice

15 mL (1 tbsp) each of sodium reduced soy sauce and rice vinegar

7 mL (1½ tsp) each of minced ginger root and liquid honey

5 mL (1 tsp) cornstarch

1 clove garlic minced

2 mL (½ tsp) each of sesame oil and Asian chili sauce

Cook

Slice beef into thin strips. Whisk together orange rind, orange juice, soy sauce, vinegar, ginger root, honey, cornstarch, garlic, sesame oil and chili sauce in small bowl for the sauce and set aside.

Heat canola oil in large **skillet** or **wok** over high heat. Stir-fry beef for 3 to 4 minutes or until brown; transfer to a bowl. Add mushrooms, carrot, peppers, onion and 10 mL (2 tsp) water to pan and bring to boil; reduce heat, cover and cook for 2 minutes or until tender-crisp.

Grilling steaks can be from either the rib or loin wholesale cuts. Top sirloin steaks are from the loin and are tender cuts of meat. They are often **marinated** just for flavour.

Sautéing is considered a form of dry heat cooking. **Dry heat cooking** requires no lid or liquid for cooking. It involves applying heat directly to the meat. Dry heat cooking is often used for meats like grilling steaks or premium oven roasts, which means fewer connective tissue rings to be tenderized.

Beef strips are sautéed in a hot, lightly oiled non-stick skillet using medium heat for about 1 minute per side, or until they are browned. This type of quick cook maintains the moisture and tenderness in the beef.

This recipe also uses **mechanical tenderizing**, by cutting the beef steak across the grain. The grain is the way the muscle fibres in the meat are arranged. Muscle fibres run parallel to each other. **Cutting across the grain** means slicing perpendicular to these parallel fibres, which makes these fibres shorter and easier to chew.



Watch a video that demonstrates the **fast fry** and **stir-fry** cooking techniques at <https://canadabeef.ca/fast-fry-stir-fry-know-how/>.



Culinary Practice Recipe

Warm Orange Beef Salad

Cook continued

Return beef and any juices to pan. Stir in reserved sauce mixture and return to boil; cook, stirring for 1 to 2 minutes or until thickened. Sprinkle with chili pepper flakes (if using). Spoon over individual servings of baby lettuce.



Why are more tender cuts of meat typically cooked with dry heat cooking methods?



What are some other examples of dry heat cooking that could be used with grilling steaks?



Experience Asian flavours at home with little effort and time. Top sirloin is a lean cut of beef. This dish provides a good source of iron (20% DV) and excellent source of zinc (76% DV).

A wok is a two-handled, round- or flat-bottomed cooking pan, but you can easily stir-fry in a large, flat-bottomed heavy skillet. In fact, many home stoves simply can't accommodate a wok anyway – the burners aren't large enough. If you use a cast iron skillet, make sure it's well-seasoned.

Nutrition Facts

per serving

Amount

Calories	208
Protein	22 g
Fat	7 g
Carbohydrate	14 g
Sodium	324 mg

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/warm-orange-beef-salad/>



Culinary Practice Recipe

Prep 10 mins
Cook 40 mins
Yields 3 servings



Beef and Pesto Roulade with Greens

Prepare Ingredients

375 g (3/4 lb)
beef inside round
marinating steak, 1
inch (2.5 cm) thick,
butterflied

Salt and pepper
1½ slices bread, crusts
removed
45 mL (3 tbsp)
prepared basil pesto

125 mL (½ cup) fresh parsley

Olive oil

Assorted salad greens dressed with favourite
vinaigrette

Grated Parmesan cheese, optional

Cook

Open butterflied steak like book on large piece of plastic wrap. With **meat mallet**, pound to even 5 mm (¼ inch) thickness. Season with salt and pepper to taste. Set aside.

Tear bread into **food processor**. Add pesto and parsley; process to form paste. Spread paste on steak, leaving 1 cm (½ inch) border around edge.

Starting with long side, roll up like jelly roll. Tie in several places with butcher's twine or secure with skewers. Rub with olive oil; season with salt and pepper to taste.

Place on **rimmed baking sheet**. Cook in 150° C (300° F) oven for 30 to 40 minutes or until a digital rapid-read thermometer inserted into the centre of roll reads 57° C (135° F).

Remove to cutting board; tent with foil and let stand for 15 minutes. Cut into 5 mm (¼ inch) thick slices and serve on dressed greens. Sprinkle with parmesan if desired.



Marinating steaks are usually from the hip or flank wholesale cuts. An inside round steak is from the hip and is very lean and moderately tender. This cut needs some form of **tenderizing**, either with marinades or mechanical techniques.

Mechanical tenderizing involves making meat more tender by breaking the **elastin**, the tough connective tissue known as **gristle**. **Pounding** the meat with a meat mallet is a mechanical tenderizing method that helps soften the elastin.

The culinary practices used in this recipe also involve cutting and wrapping the meat to prepare it for cooking. To **butterfly** steak, start at side with knife parallel to cutting board; cut steak in half almost but not all the way through.

A roulade can be prepared ahead by wrapping it tightly in plastic wrap and refrigerating for up to 24 hours before cooking. The roulade can be served cold.

This recipe uses roasting. **Roasting** is a form of dry heat cooking. Less tender cuts and smaller roasts can be roasted at lower temperatures, usually for a longer time.



Watch a video that demonstrates different oven roasting tips and recipes at <https://canadabeef.ca/oven-roast-know-how/>.



Culinary Practice Recipe

Beef and Pesto Roulade with Greens



What food safety steps are used when the roulade is prepared in advance? Why are these steps used?



If you were making this recipe for six people, how would you adjust the ingredients? How would you adjust the cooking time?



To make this dish easier to prepare, you can have the butcher butterfly the beef round steak and purchase prepared pesto. It provides a good source of iron (23% DV) and an excellent source of zinc (62% DV).

Use these steps to determine **doneness**:

- Insert the thermometer into the thickest part of the beef, away from fat and bone.
- Leave oven-proof thermometers in place as the meat cooks.
- Remove the meat from the oven when the **internal heat** registers the temperature of desired doneness.

Nutrition Facts

per serving

Amount	
Calories	219
Protein	27 g
Fat	9 g
Carbohydrate	7 g
Sodium	262 mg



Culinary Practice Recipe

Prep 10 mins
Cook 10 mins
Yields 4 servings



Grilled Beef Steak Sandwich with Melted Onions

Prepare Ingredients

3 tbsp (45 mL) olive oil
2 tbsp (30 mL) red wine vinegar

4 cloves garlic, minced
½ tsp (2 mL) salt and hot pepper flakes

1 lb (500 g) beef inside round or sirloin tip marinating steak/medallions

1 sweet onion (e.g. Vidalia), sliced
1 whole wheat or regular baguette, quartered and halved lengthwise
½ bunch arugula, trimmed

Cook

Combine 2 tbsp (30 mL) oil, vinegar, garlic, salt and hot pepper flakes in sealable **freezer bag**. Set aside 2 tbsp (30 mL) of marinade. Using fork, pierce meat all over; add to marinade in bag. Refrigerate for 8 to 12 hours.

Remove steak from bag and pat dry with paper towel. Discard used marinade. **Grill** steak over medium-high heat, about 6 to 8 minutes, turning at least twice, for medium-rare doneness 145°F (63°C). Let steak rest on carving board for 10 minutes.

Meanwhile, pan-fry onion in remaining oil over medium heat in non-stick **skillet** for 10 minutes or until softened and golden. Toss with reserved marinade.

Slice steak thinly on the diagonal. Drape slices of steak on each baguette bottom piece. Top each with warm onions and arugula.



Beef steak refers to a cut that has a shape like a hand and are from ¼ to 2 inches thick. Steaks range in tenderness, so they require different cooking methods. All Canadian steaks are sorted into **three basic cooking categories** - grilling, marinating and simmering - so you know how to cook them. **Medallions** are steaks cut to be single portioned. They are thick cut so there's less risk of overcooking.

One type of **mechanical tenderizing** involves **piercing** the meat. This should be done on both sides and the meat can be refrigerated for between 4 and 24 hours before a **marinade** is used. Piercing makes the cut more tender. Marinating can often be used with grilling meats.

Grilling is a form of dry heat cooking. It involves dry heat being applied to the surface of the food. The heat for cooking comes from below the meat. Food is placed on a metal grill over medium hot coals. To prevent the meat from sticking to the grill, brush the grill with oil. This is the best method for grilling steaks, hamburgers, and pre-marinated cuts from the hip and flank. Grilling can also be done in the oven.



Watch a video that demonstrates grilling tips and recipes at <https://canadabeef.ca/grilling-steak-know-how/>.



Culinary Practice Recipe

Grilled Beef Steak Sandwich with Melted Onions

When grilling, **doneness** is judged with a combination of time and temperature.

Steak Thickness	Total Grilling Time (minutes)		
	Medium-Rare 145°F (63°C)	Medium 160°F (71°C)	Well-Done 170°F (77°C)
1 to 2 cm (1/2 to 3/4 inch)	6-8	8-10	10-12
2.5 cm (1 inch)	10-12	12-14	14-18
4 cm (1-1/2 inches)	18-20	20-28	30-36
5 cm (2 inches)	22-28	28-36	36-44



How will you determine doneness in this recipe?



How could you adjust the ingredients in this recipe to maximize the yield of the beef cut used? Consider whether you can add or substitute any ingredients.



Seasoning steaks before grilling will not draw out enough moisture to make the steak dry out. Seasoning prior to grilling enhances the flavour better than if you season the steaks after grilling.

This lean beef sandwich recipe is an excellent source of zinc and iron. Serve the sandwich open-faced if desired.

Nutrition Facts

per serving

Amount

Calories 445

Protein 32 g

Fat 14 g

Carbohydrate 49 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/grilled-beef-steak-sandwich-with-melted-onions/>



Culinary Practice Recipe

Prep 5 mins
Cook 15 mins
Yields 4 servings



Zippy Western Beef Steak

Prepare Ingredients

1 lb (500 g) beef fast-fry steak

1/8 tsp (1 mL) salt and pepper

1 jar (285 mL) chili sauce

1 onion, sliced

1 sweet green pepper, seeded and cut into strips

1 tbsp (15 mL) prepared horseradish (optional)

1 tsp (5 mL) dry mustard

Cook

Season steaks to your liking and brown on both sides in large lightly oiled non-stick **skillet** over medium-high heat.

Meanwhile, combine chili sauce, onion, green pepper, horseradish (if using) and mustard; pour over meat.

Cover and bring to boil. Reduce heat to low and simmer for 10 to 15 minutes. Season to taste. Serve with boiled new potatoes and mixed veggies.



Fast-fry steaks can also be called **minute steaks**. A fast-fry steak can be from strip loin, rib eye, sirloin, round or flank cuts. They are thin cut so they can be cooked quickly. It can be **mechanically tenderized** by **pounding** the meat before pan frying it, or by combining pan frying with a moist heat cooking method.

These fast-fry steaks are simmering steaks, as they have more of that connective tissue that can make a cut of meat tougher.

This recipe uses **simmering** to finish cooking and tenderizing the meat.

Simmering is a type of moist heat cooking method. **Moist heat cooking** uses moisture and a lid. This forms steam during cooking. The steam helps dissolve the collagen connective tissue, which makes the meat more tender.

Simmering is a **slow cooking** method, with the meat cooked in a liquid. This slow cooking method dissolves the collagen in the simmering cut, helping to create gravy. A low temperature of 84°C to 95°C (185°F to 205°F) means that bubbles will be small and slowly rise to the surface.



Watch a video that demonstrates slow cooking with simmering steaks at <https://canadabeef.ca/simmering-steak-know-how/>.



Find information on mechanically tenderized beef cuts from **Canada Beef** in *Understanding Mechanically Tenderized Beef* at <https://canadabeef.ca/wp-content/uploads/2017/12/3411-CBEEF-FACT-SHEET-mechanically-tenderized-p4f.pdf>.



Culinary Practice Recipe

Zippy Western Beef Steak



Why do you think a slow cooking method is used for simmering the fast fry steaks in this recipe?



How is temperature adjusted between the fast fry and the slow cooking methods in this recipe? Why are these temperatures different?



If you don't have Cajun spice, you can substitute with 0.5 mL (1/8 tsp) paprika, dried oregano, garlic powder and thyme.

This recipe is a quick version of a slow-simmer recipe. For a true slow-simmer meal, you can use Beef Blade or Cross Rib Simmering Steak, adding ½ cup (125 mL) water to the pan and simmering, covered, for at least 1¼ hours on the stove top or in a 325°F (160°C) oven.

This dish provides a good source of iron (23% DV) and excellent source of zinc (68% DV). It contains 49% DV of sodium.

Nutrition Facts

per serving

Amount

Calories	257
Protein	28 g
Fat	5 g
Carbohydrate	21 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/zippy-western-beef-steak/>



Culinary Practice Recipe

Prep 20 mins

Cook 25 mins

Yields 4-6 servings

Italian Beef Meatball Soup

Prepare Ingredients

$\frac{3}{4}$ lb (375 g) extra-lean/lean ground beef
sirloin or lean/extra-lean ground beef

$\frac{1}{2}$ cup (125 mL) fresh whole wheat bread crumbs

3 tbsp (45 mL) Italian flavoured tomato paste

$\frac{1}{4}$ cup (50 mL) chopped fresh parsley

- $\frac{1}{4}$ cup (50 mL) finely grated carrot
- $\frac{1}{4}$ cup (50 mL) finely chopped green onions
- $\frac{1}{2}$ tsp (2 mL) crushed, dried Italian seasoning
- 1 tsp (5 mL) olive oil
- 1 cup (250 mL) chopped onion
- 2 cloves garlic, minced
- $\frac{1}{2}$ tsp (2 mL) crushed, dried Italian seasoning
- 1 container (900 mL) sodium-reduced chicken broth
- $\frac{1}{3}$ cup (75 mL) dried orzo or alphabet pasta
- 1 cup (250 mL) frozen peas
- 1 cup (250 mL) sliced grape tomatoes

Cook

Combine beef, bread crumbs, tomato paste, 1 tbsp (15 mL) water, parsley, carrot, onions and Italian seasoning in medium bowl. Shape level tablespoonfuls (15 mL) of the mixture into meatballs (about 32). Set aside.

Heat oil in a large **saucepan** over medium heat. Add onion, garlic and Italian seasoning. Cook 5 minutes, stirring occasionally. Add broth to pan; bring to a boil.



Ground beef is one of the most flexible cuts of beef. Ground beef is 100% beef with no additives, fillers or colours. As beef is exposed to oxygen, it naturally develops a red hue – so the meat at the surface of a package is bright red. The meat at the centre will turn red too once it is opened up to the air.

Most ground beef comes from the chuck wholesale cut. Since this is a well-used muscle, the chuck contains a high amount of connective tissue and can be tough. It is, however, one of the most flavorful cuts of beef. Ground beef can also come from sirloin or round cuts.

Grinding is a **mechanical tenderizing** method, done with a special machine to make ground beef. This completely breaks up the connective tissue and makes a simmering cut tender.

Ground beef can be **pan-fried** for meat sauces and casseroles or shaped into burgers, meatballs and more. Meatballs can be cooked with either moist or dry heat cooking methods. This recipe cooks the meatballs by **simmering** them in a broth. Meatballs can also be **oven roasted**.



Culinary Practice Recipe

Italian Beef Meatball Soup

Cook continued

Add pasta and meatballs and return to a simmer. Simmer, covered, over low heat 15 to 20 minutes, until digital instant read thermometer inserted into several meatballs reads 160°F (71°C).

Add peas and tomatoes to soup. Reheat to serving temperature.

Ladle into shallow soup bowls; sprinkle with parsley, Parmesan and pepper.



How could you adapt the ingredients in this recipe to make your own version of this soup?



Why do you think a temperature check for doneness in this recipe is very important? Why should the meat thermometer be inserted into several meatballs?



If you use plain tomato paste, you can increase the Italian seasoning to 1 tsp (5 mL) in the beef meatballs. The meatballs in this recipe may look slightly pink inside even when thoroughly cooked because of the tomato paste.

Meatballs can be made ahead: Cover and refrigerate raw meatballs for up to 1 day. Or wrap well and freeze in sealed container for up to 1 month. Increase cooking time by 10 minutes if cooking from frozen.

Cooked meatballs can be frozen for up to 3 months, wrapped well and stored in sealed container.

Nutrition Facts

per serving

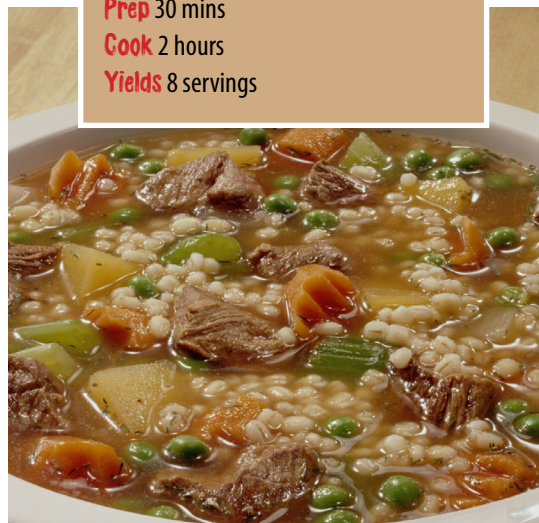
Amount	
Calories	181
Protein	16 g
Fat	6 g
Carbohydrate	18 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/italian-beef-meatball-soup/>



Culinary Practice Recipe

Prep 30 mins
Cook 2 hours
Yields 8 servings



Beef and Barley Soup

Prepare Ingredients

1 tbsp (15 mL)
vegetable oil
1 lb (500 g) beef
stewing cubes,
trimmed
6 cup (1.5 L)
vegetables, cut in
small pieces (i.e.
onions, carrots, celery,
rutabaga and/or
potatoes)

¼ cup (50 mL) pot or pearl barley
1 can (10 oz/284 mL) beef broth
¼ tsp (1 mL) dried thyme
¼ tsp (1 mL) dillweed
¼ tsp (1 mL) pepper
1 bay leaf

Cook

Heat oil in **Dutch oven** over medium-high heat; brown beef cubes. Stir in vegetables, barley, broth, thyme, dillweed, pepper and bay leaf.

Add 4 cups (1 L) water; bring to boil. Reduce heat to simmer; cover and cook for about 2 hours or until beef and barley are tender.

Discard bay leaf before serving.



Stewing beef is less-tender but flavourful cuts of beef that are cooked using slow moist heat.

Stewing beef can be **slow-simmered** on the stove top, in the oven or in a slow cooker.

This recipe uses the stewing beef in a soup, but it can be used to make a stew with many combinations of vegetables and seasonings.

Braising is a technique used with both large cuts of meat and smaller cubes of beef like stewing cubes. Braising refers to any dish where the main ingredient is quickly browned and then slowly cooked in liquid at a low temperature.

1. Cut meat from bone, into cubes if necessary. Coat beef with a mixture of flour, salt and pepper; shake off excess. In lightly oiled Dutch oven or stockpot, brown meat in batches.
2. Add onions and other seasoning, as desired. Add enough liquid, such as broth or tomato juice, to just cover beef.
3. Cover and simmer in 325°F (160°C) oven or on stove top for at least 1 hour or until fork-tender. Add chunks of vegetables and cook for 30 minutes longer or until vegetables are tender.



Watch a video that demonstrates how to braise stewing beef at <https://canadabeef.ca/stewing-beef-know-how/>.



Culinary Practice Recipe

Beef and Barley Soup



What ingredient substitutions do you think you could make in this recipe?



How are beef stewing cubes an example of a mechanically-tenderized meat?



You can use beef simmering steak instead of stewing cubes in this recipe. Trim the steak and cut into 1-inch (2.5 cm) cubes.

This dish provides a good source of iron (13% DV) and an excellent source of zinc (39% DV).

Nutrition Facts

per serving

Amount

Calories	173
Protein	15 g
Fat	6 g
Carbohydrate	15 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/beef-and-barley-soup/>



Culinary Practice Recipe

Prep 30 mins
Cook 25 mins
Yields 2 servings

Beef Involtini with Asparagus



Prepare Ingredients

2 fast-fry (Rouladen-style) steaks (approx. 300 g)

1/2 bunch asparagus spears (about 6 stalks)

1/2 sweet red pepper, cut into strips (about 6 strips)

1 tsp butter

Salt and pepper

2 tsp grainy or Dijon mustard
2 tbsp peppered goat cheese
2 tbsp toasted pine nuts or coarsely chopped pecans (optional)

Cook

Cook asparagus and pepper strips in a **skillet** with just a bit of water, covering to steam for about 4 minutes. Drain and return to heat to dry pan. Add butter and cook with butter bubbling to coat the vegetables, seasoning all over with salt and pepper to taste. Set aside.

Tenderize each steak by either piercing all over numerous times on both sides with a fork or by pounding on just one side with a **meat mallet** or **heavy frypan**.

Season top side of each steak with salt and pepper. Spread each with mustard and cheese. Add 3 asparagus spears and pepper strips to each and sprinkle each with nuts if desired. Roll up like jelly roll and tie with each with 2 to 3 pieces of butcher twine. Season each bundle (involtini) all over with salt and pepper.



Rouladin steaks can come from different cuts of beef, including the round or sirloin tip cuts. The meat is cut into large, thin slices.

Pan searing is a dry heat cooking method. It is used in this recipe to quickly sear the involtini bundles before covering and finishing them. Pan searing is also frequently used with different grilling cuts.

1. Start with about a pound (500 g) 1-inch thick beef steak, e.g. bottom sirloin flap (a.k.a bavette) rib eye, top sirloin, strip loin. Pat dry; season lightly with salt and pepper and a simple seasoning.
2. Use a **cast iron** or **shallow heavy stainless pan**. Add vegetable oil; heat over high heat until shimmering but not smoking. Set kitchen fan to high.
3. Add steak. Cook until done to preference and steak releases easily from pan.
4. Flip with tongs; cook until the steak releases easily from pan. Remove from pan; let rest.



Watch a video that demonstrates this involtini recipe at <https://canadabeef.ca/recipe/beef-involtini-asparagus/#cooked-video-lb>.

Watch a video and find additional tips on pan searing at <https://canadabeef.ca/pansearing-steak-know-how/>.



Culinary Practice Recipe

Beef Involtini with Asparagus

Cook continued

Pan sear in well-oiled hot cast iron or nonstick pan until browned all over. Reduce heat to medium and continue to cook, covered, turning each often until cooked to about 140°F inside for medium-rare when tested with a digital instant read thermometer. Let stand for 5 minutes before serving.



Why do you think the meat is rested after searing and cooking it?



Why do you think a temperature check for doneness in this recipe is very important? Why should the meat thermometer be inserted into several meatballs?



This is a super way to take advantage of budget priced less tender steaks that you can be proud to serve to company. We used Inside Round for our tests but Sirloin Tip and other Round Steak would work as well. Our steaks were sliced about ¼-inch thick when purchased. You could substitute 1 tbsp shredded aged Cheddar or crumbled blue cheese per steak instead of the goat cheese if you wish. To serve 4, simply double the recipe.

Nutrition Facts

per serving

Amount

Calories 181

Protein 16 g

Fat 6 g

Carbohydrate 18 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/beef-involtini-asparagus/>



Culinary Practice Recipe

Prep 5 mins
Cook 15 mins
Yields 4 servings



Speedy Beef Sloppy Joes

Prepare Ingredients

2 cups (500 mL)
frozen Big Batch Beef
1 can (7.5 fl oz/213 mL)
pizza sauce
1½ cups (375 mL) frozen mixed
vegetables
2 tsp (10 mL)
Worcestershire sauce
4 hamburger buns
or **speedy baked potatoes**

Cook

Combine frozen **Big Batch Beef**, pizza sauce, frozen vegetables, Worcestershire sauce and 1/4 cup (50 mL) water in large heavy saucepan.

Cover and simmer cook over medium heat, stirring occasionally, until hot, about 10 to 15 minutes. Use to top 4 toasted hamburger buns or baked potatoes.

Big Batch Beef

Cook 4 lb (2 kg) lean or extra lean ground beef in **Dutch oven** over medium-high heat for 10 minutes, breaking into small chunks with back of spoon, until browned. Drain, and return to pot.

Add 4 each onion and cloves garlic, minced, simmer for 15 minutes until vegetables are softened. Spread in a single layer on several foil or parchment paper-lined baking trays; freeze until meat is just firm, about 1 hour. Loosen into chunks; scoop meal-sized portions into freezer bags. Freeze for up to 3 months.



Safe meat handling and storage

is important to consider when cooking, freezing and storing beef properly. Ground beef can be bought in value-priced bulk packs and precooked and frozen for quick meals.

- Refrigerate ground beef within 1 to 2 hours of purchase.
- Refrigerate at 40°F (4°C) or lower, on bottom shelf to avoid dripping onto other foods.
- Thaw in the fridge, allowing 12 to 15 hours per pound or thaw in the microwave, cooking immediately after thawing.
- Wash your hands with soap and water before and after handling raw meat.
- Use separate dishes and utensils for raw meat, cooked meat and other foods. Use clean utensils and plates when switching between cooked or raw ground beef.



Find more storage and cooking tips for quick beef meals from **Canada Beef** in *Top 5 Beef Tips to Help You Save Time and Money* at <https://canadabeef.ca/makeitbeef/top-5-beef-tips-to-help-you-save-money-and-time/>.



Watch a video that demonstrates how to skillet fry ground beef at <https://canadabeef.ca/ground-beef-know-how/>.



Culinary Practice Recipe

Speedy Beef Sloppy Joes

Speedy Baked Potatoes

Pierce 4 large scrubbed potatoes all over with a fork. Microwave-bake for 7 to 8 minutes on high power; removed from microwave, wrap potatoes in foil and let stand 5 minutes to complete cooking.



How should you apply the four basic safety practices for handling meat in this recipe?



How could you use Big Batch Beef in other recipes?



Use the food processor to mince the onions and garlic in a snap. Pulse quartered onions and peeled garlic cloves a few times to mince.

Big Batch Beef can easily be adjusted in recipes for one to many servings! For a single serving in this recipe, just divide ingredients by four: 1/2 cup Big Batch Beef, 1/4 can of the pizza sauce, 1/3 cup frozen veggies, 1/2 tsp Worcestershire and a tablespoon of water.

Nutrition Facts

per serving

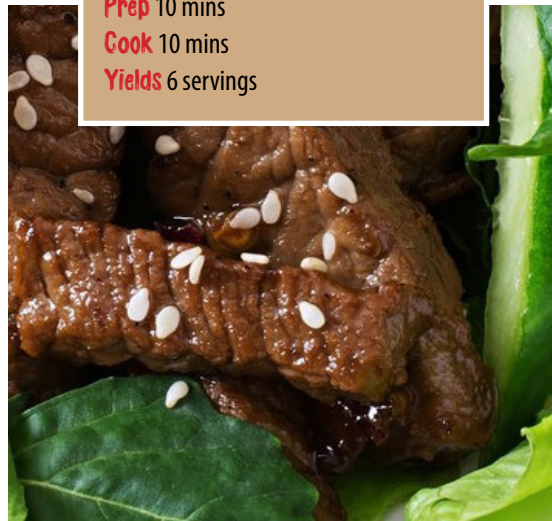
Amount	
Calories	382
Protein	26 g
Fat	12 g
Carbohydrate	41 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/speedy-beef-sloppy-joes/>



Culinary Practice Recipe

Prep 10 mins
Cook 10 mins
Yields 6 servings



Beefy Bundles

Prepare Ingredients

¼ cup (50 mL) soy sauce
¼ cup (50 mL) orange juice
2 tsp (10 mL) sesame oil
2 cloves garlic, minced
1 tbsp (15 mL) minced fresh ginger root
2 green onions, thinly sliced

1 tbsp (15 mL) sesame seeds, toasted
2 tbsp (30 mL) cornstarch
1 lb (500 g) beef sirloin tip marinating steak, 1-inch (2.5 cm) thick, cut into thin strips
1 tbsp (15 mL) vegetable oil (approx)
32 leaf or Boston lettuce leaves

Cook

Combine soy sauce, juice, sesame oil, garlic, ginger root, onions and sesame seeds. Set aside 1/4 cup (50 mL) to use for dipping. Stir cornstarch into remaining mixture; pour into bowl. Add beef strips; marinate for 10 minutes.

Heat vegetable oil in large non-stick skillet over high heat. Drain beef, discarding marinade. Stir-fry beef, in 2 batches, until browned, about 3 minutes, adding more oil, if necessary.

Serve on platter with lettuce leaves. To eat, tuck 2 beef strips into a lettuce leaf and roll up. Serve with reserved dipping sauce.



Watch a video that shows how to marinate a steak at <https://canadabeef.ca/marinating-steak-know-how/>.



Marinades can range from simple wet marinades to cooked marinades.

Tenderness is a key factor in the palatability of beef. There are several ways to enhance beef tenderness. **Chemical tenderization** is a process in which the beef is covered in a **marinade** containing natural tenderizers that break down the connective tissue. Examples of natural products that break down connective tissue are:

- **Papain** – a natural extract found in papaya or **fresh fruits** with natural enzymes like papaya, pineapple or kiwi
- **Acid-based ingredients** – items such as vinegars, tomato sauce or juice, lemon, lime or other citrus juices
- **Alkaline ingredients** – items like soy sauce and other active ingredients

Marinating is a slower method than using enzymes. The marinade must be in contact with the meat for at least six to eight hours in the fridge, but ideally 12 to 24 hours is best for steaks or roasts. Kabobs or meat sliced into stir fry sized pieces can be marinated for three to six hours.

For both of these chemical methods, the tenderizer or marinade works where it touches the meat. It is best to pierce or score the meat all over on both sides with a fork, beforehand. This allows the liquid to better penetrate the muscle fibre.



Culinary Practice Recipe

Beefy Bundles



What is the tenderizer used in this recipe? What type of tenderizer is it?



Commercial tenderizers have proteolytic enzymes that are able to break down proteins in the meat. Usually the meat should be in such a tenderizer for 30 minutes. What do you think happens to the meat if it is in a tenderizer for longer than 30 minutes?



Cuts that are well suited for marination include those with a coarse grain such as flank, skirt steak or bottom sirloin butt. Clean silverskin and score meat to allow the marinade to penetrate and make certain the marinated cut is towel dried before cooking – this will allow adequate searing. If you use a marinade in a sauce or on a cooked product, ensure you boil the marinade first.

This Korean style beef recipe is inspired by bulgogi, a Korean grilled beef dish. It provides a good source of iron (21% DV) and excellent source of zinc (49% DV), with 15% DV sodium.

Nutrition Facts

per serving

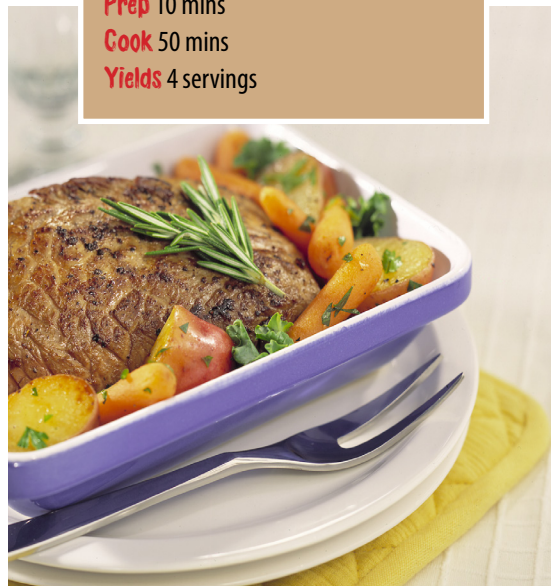
Amount	
Calories	145
Protein	18 g
Fat	6 g
Carbohydrate	5 g

Recipe courtesy of Canada Beef <https://canadabeef.ca/recipe/beefy-bundles/>



Culinary Practice Recipe

Prep 10 mins
Cook 50 mins
Yields 4 servings



Rush Hour Roast Beef Dinner

Prepare Ingredients

1 lb (500 g) beef quick roast (eye of round, inside round or sirloin tip)

1 tsp (15 mL) onion roasted garlic soup mix
 4 cup (1 L) root vegetables (parsnip, sweet potato or onion), cut into 1/2-inch (1 cm) chunks

Salt and pepper

Cook

Rub roast all over with soup mix. Insert meat thermometer lengthwise into centre of roast so that shaft is not visible. Place into shallow ovenproof pan, on bed of root vegetables that have been coated lightly with cooking spray and seasoned.

Cook uncovered, in 350°F (180°C) oven for 50 to 60 minutes until thermometer reads at least 155°F (68°C) for medium.

Remove roast to cutting board; tent with foil for 5 minutes to allow temperature to rise 5°F (3°C). Cut into thin slices across the grain and serve with the roasted vegetables.



Roasts are sorted into three basic cooking categories: oven roast, pot roast and rotisserie roast.

Oven roasts are cooked to the preferred doneness and carved into thin slices and served with pan gravy. Cuts include top sirloin, tenderloin, strip loin, prime rib and rib eye as well as sirloin tip, inside/outside/eye of round and rump.

Pot roasts are a stew-style roast beef. You can make ahead or simmer using the slow cooker or oven. Cuts include blade cuts, cross rib, shoulder and brisket boneless.

Rotisserie roasts can be cooked with or without a rotisserie. Cuts include top sirloin, inside/outside round, cross rib and prime rib.

Butchers recommend you buy enough beef for generous servings or to allow for leftovers:

- Buy 6 to 8 oz (175 to 250g) raw beef per person (boneless roast)
- Buy 12 oz (375g) raw beef per person (bone-in roast)



Watch a video that demonstrates different oven roasting tips and recipes at <https://canadabeef.ca/oven-roast-know-how/>.

Watch a video that demonstrates a pot roasting recipe at <https://canadabeef.ca/pot-roast-know-how/>.



Culinary Practice Recipe

Rush Hour Roast Beef Dinner

Doneness	Internal temperature	Roasting time
Medium rare	63° C / 145° F	18 to 20 min per 500g or pound
Medium	71° C / 160° F	22 to 25 min per 500g or pound
Well done	77° C / 170° F	30 min per 500g or pound

The shape of the roast and the type of cut are major factors that determine cooking time (as well as the accuracy of your oven) – these factors make it impossible to develop accurate minutes per pound estimates.

The best way to know your roast is done the way you like it is to use a meat thermometer.



How are temperatures used to determine the degree of “doneness” in a roast?



Find a pot roast recipe. How do the cooking methods compare?



Mini beef quick roasts are beef roasts cut to weigh 1 lb (500 g) or less. This small lean beef roast can be just the right size for smaller families. It is seasoned with a quick rub and cooked to medium doneness at most. To serve, carve across the grain into thin slices, like a flank steak. Be sure to allow the beef to rest before carving. It provides a good source of Iron (16% RDI) and an excellent source of zinc (42% RDI).

Nutrition Facts

per serving

Amount

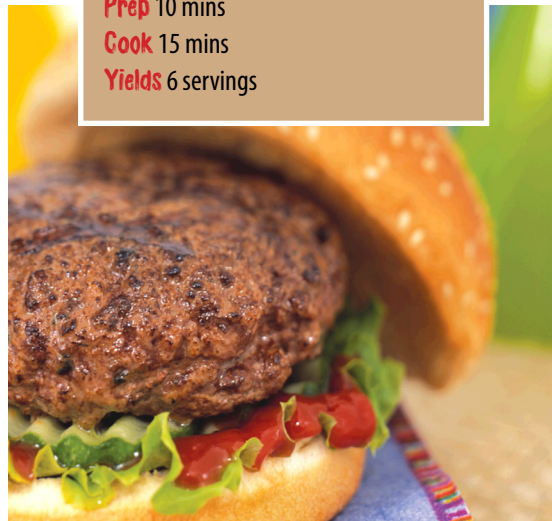
Calories	245
Protein	24 g
Fat	6 g
Carbohydrate	24 g

Recipe and image courtesy of Canada Beef <https://canadabeef.ca/recipe/rush-hour-roast-beef-dinner/>



Culinary Practice Recipe

Prep 10 mins
Cook 15 mins
Yields 6 servings



Best Ever Lean Beef Burgers

Prepare Ingredients

1 lb (500 g) extra lean
or lean ground beef

1 egg, lightly beaten

¼ cup (50 mL) each
finely chopped onion
and mushrooms

½ cup (125 mL) dry
bread crumbs

¼ cup (50 mL)

Worcestershire sauce

and evaporated milk

1 clove garlic, minced

Pepper, to taste

Cook

Lightly combine all ingredients.

Gently form into six or seven 3/4-inch (2 cm) thick patties.
Cover and chill for 1 hour or up to 1 day.

Cook patties over medium heat on lightly greased grill
for 6 to 7 minutes per side until a digital instant read
thermometer inserted sideways into centre of each patty
reads at least 160°F (71°C).



Burgers are a popular meal choice
during outdoor **barbeque** season,
but they can also be cooked in a

skillet or **grilled with a broiler** in the oven.
Barbeques and skillet grilling are "bottom
heat" methods. Grilling with a broiler is a "top
heat" cooking method. The heat for cooking
comes from above the meat. This is done
in an oven directly on the top rack which
is placed 12cm (5 inches) below the top
element. Food is placed on the grilling pan to
cook. Water is put in the bottom pan to catch
the fat drippings, so there is less mess. The
meat must be flipped to cook the other side.
A broiler does not have a temperature gauge.
You control the heat source by where you
place the rack in your oven. A thicker piece
of meat is placed further away from the top
element to make sure the middle cooks.

Ground beef colour is variable and not a
good indicator of freshness. For example,
ground beef will be dark purple until it meets
oxygen. That's why ground beef in the centre
of a pack won't match its cherry-red surface
colour.

The ground beef may also remain pink even
when fully cooked. The reliable way to know
your burgers are cooked is to check the
internal temperature with a digital instant
read thermometer. Ground beef burgers are
done when the thermometer reads 160°F
(71°C).



Watch a video and tips for cooking burgers at <https://canadabeef.ca/burgers-know-how/>.



Culinary Practice Recipe

Best Ever Lean Beef Burgers



How much ground beef would you purchase if you were making burgers for 4 people? For 8 people?



What purchasing options do you have for ground beef? Which cut would you choose for this recipe? Why?



This lean burger uses chopped mushrooms and evaporated milk for extra juiciness, and Worcestershire sauce is a very simple seasoning. Use a moderate heat for grilling to avoid scorching. This dish provides a good source of iron (19% DV) and excellent source of zinc (48% DV).

Use a gentle touch when shaping ground beef patties. Over-handling will result in a firm compact texture after cooking.

Keep formed patties in the refrigerator for 15 minutes before cooking and they will hold together better.

Burgers puff up as they cook and become a bit baseball like unless you make a thumbprint indent into the center of the patty before cooking. It comes down to physics – the burger crusts up at the edges first as it cooks, the center of the burger is expanding as it cooks and has no where to go but up.

Nutrition Facts

per serving

Amount	
Calories	183
Protein	20 g
Fat	7 g
Carbohydrate	9 g
Sodium	250 mg

Recipe evaluation

Evaluate the recipe by filling in the information in the top two rows of the chart. Check the descriptors that apply. Then, answer the questions that follow.

Nutrient Values

Check the nutrients that you think are in this dish.	Select the meat ingredient. Use the product card or www.eatracker.ca to fill in the nutrient table.	
Fat	Serving Size	
Saturated	Fat	g
Sodium	Saturated	g
Carbohydrates	+ Trans	g
Fibre	Cholesterol	mg
Sugar	Sodium	mg
Proteins	Carbohydrates	g
Sodium	Fibre	g
Calcium	Sugars	g
Vitamin A	Protein	g
Vitamin D		
Iron		

The Recipe

Meat Cut and Quantity

Shopping Ingredients

Bone-in	225 g (1/2 lb) is needed per person for steaks or meat
Boneless	120 g (1/4 lb) is needed per person for ground beef, boneless roasts, stews or steaks

Palatability and Sensory Profile

Spicy	Sour	Crispy	Good flavour
Savoury	Bitter	Crunchy	Well-seasoned
Sweet/sour	Sweet	Greasy	Salty
Other	Salty	Creamy	Scorched
	Mild	Silky	Hot
	Strong	Lumpy	Cold
	Other	Smooth	Warm
		Sticky	Other
		Other	

Cooking and Tenderizing Profile

Broiling Deep fat frying Frying Grilling Oven roasting Pan broiling Pan frying Sautéing Searing Skillet cooking Stir frying Other	Pounding Cutting against the grain Scoring or piercing Grinding Cubing Tenderizing or marinating with acidic ingredients Tenderizing or marinating with enzymes Commercial tenderizer Other	What method did you use to determine when the meat was fully cooked? How did you know?
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Wholesale Cut	Amount of Connective Tissue	Best Cooking Method
Rib, Loin, Sirloin	Little	Dry heat cooking (e.g., grilling)
Hip, Flank	Some	Modified dry heat cooking (e.g., marinating) or moist heat cooking
Chuck, Shank, Brisket, Plate	Most	Moist heat cooking (e.g., simmering)

Analyzing the Recipe

What would you change if you cooked this recipe again?

How would you use this recipe at home?

What equipment and tools were used to make this recipe?

Identify the safe food and sanitary kitchen practices you observed with this recipe. Explain why these practices are important.

Safe and Sanitary Practices

Hands are washed prior to cooking

Hands are washed after sneezing, touching face or hair

Hands are washed after handling meat

Hair is tied back and apron is on

Utensils are cleaned after being dropped or used

Cooking equipment is used correctly and safely

Cooking utensils used for meat are washed properly before being used elsewhere

Cutting boards and knives are washed with soap and sanitized with diluted bleach water

A separate cutting board is used to cut, pound, score and prepare meat

Pot handle is turned to the middle of the stove

Potholders, not towels, are used to handle hot equipment

Cuts are made away from self

Meat has been defrosted in fridge, not on counter

Raw meat is kept away from ready-to-eat foods

Meat is cooked to the correct temperature

Marinade totally covers meat

Cooked meat is stored immediately in fridge, covered for a maximum of 3 days

Other

Presentation dish planning

the recipe	ingredients & equipment	observations
A moist-heat method, such as a stew, swiss steak, rouladen, curry, beef bourguignon		
A dry-heat method, such as meatballs, hamburgers, kabobs		
A marinated method, such as kabobs		
A mechanical tenderized method, such as a hamburger, swiss steak		
An ethnic or other preparation, such as kabobs, rouladen, spaghetti and meat sauce, tacos		

Presentation dish evaluation

The dish (describe or illustrate)

Nutrition Facts

per serving

Amount

Calories

Protein g

Fat g

Carbohydrate g

Sodium mg

Ingredients

Culinary skills

Meat Cut	Cooking Methods	Tenderizing Methods	Equipment and Tools

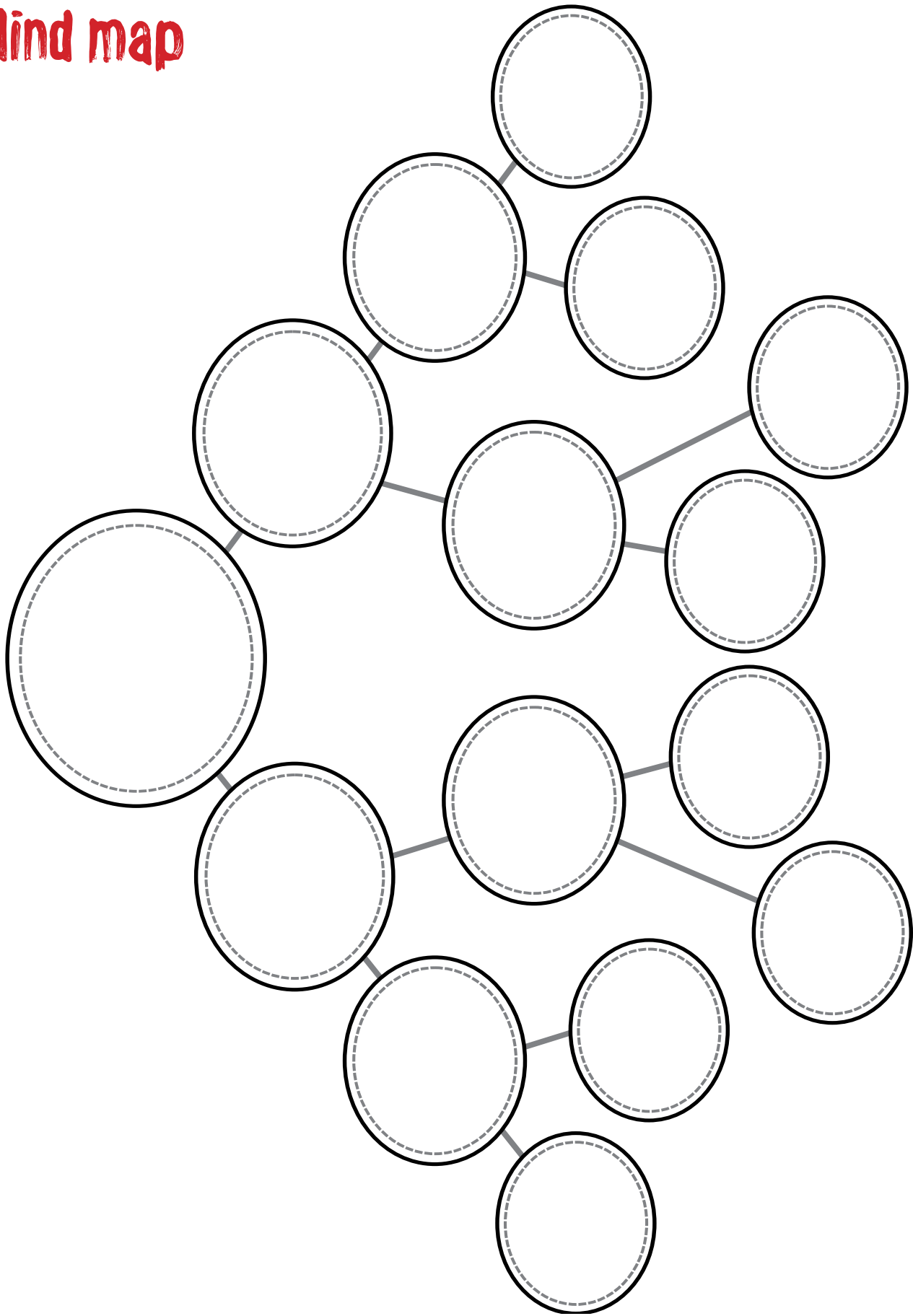
Presentation skills

Type of dish	Appearance	Palatability	Time and Servings

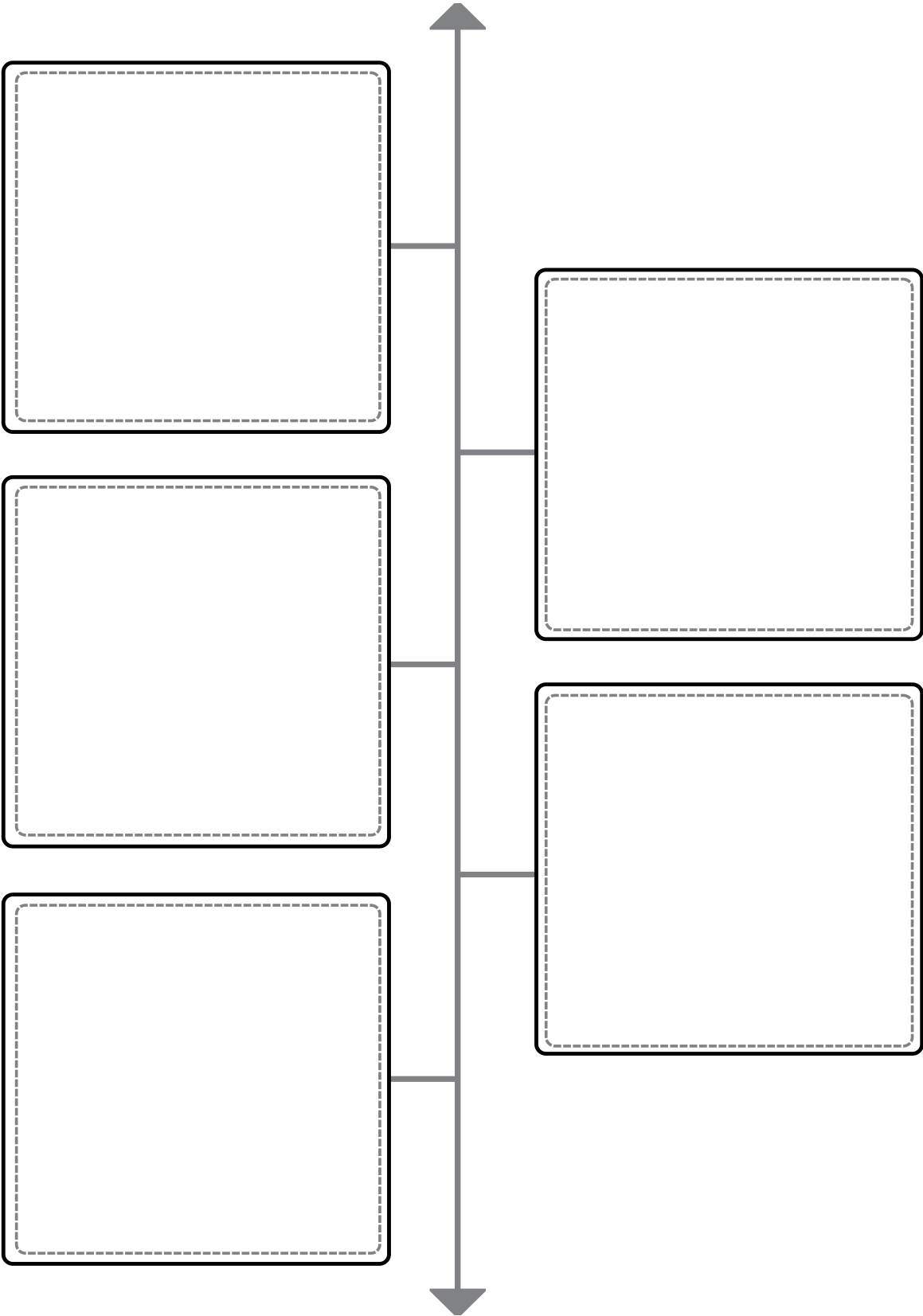
Comparison chart

Products	Protein	Fat	Cholesterol	Iron

Mind map



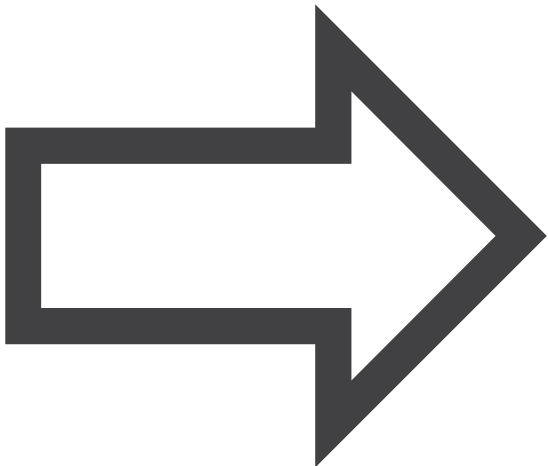
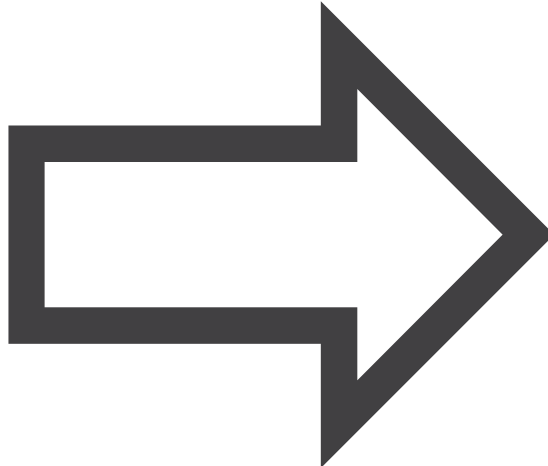
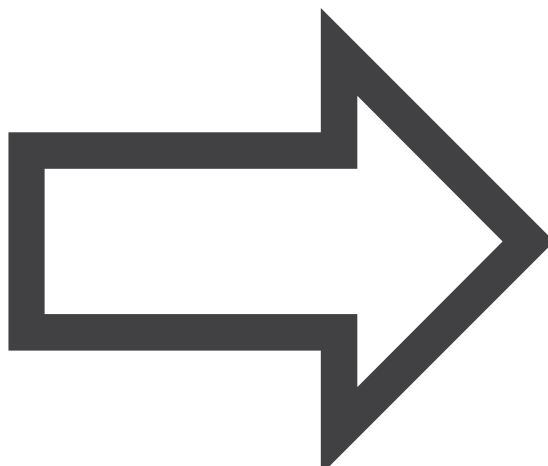
Timeline



T-chart

If/when-then chart

*Cooking and
Tenderizing
Approaches*

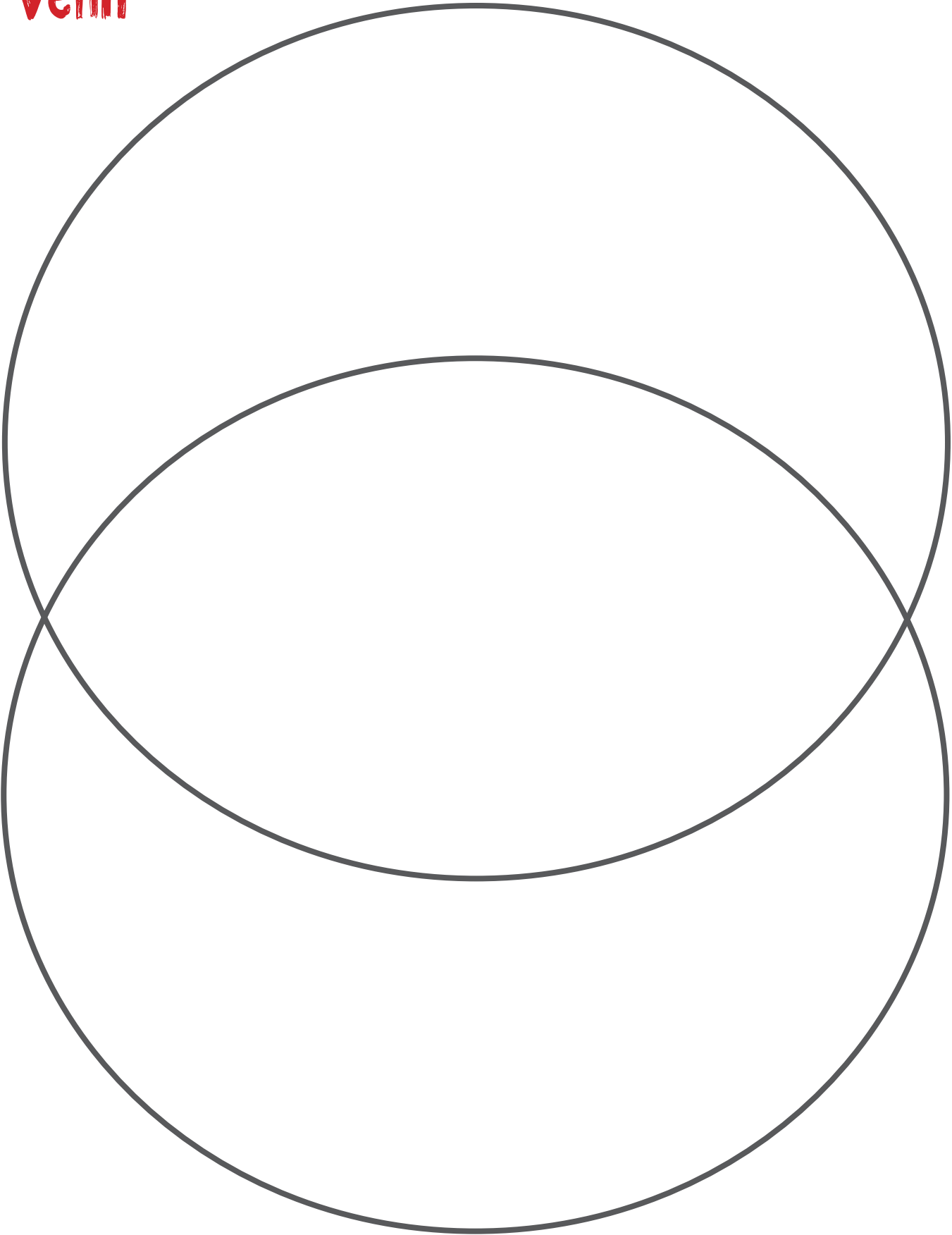
Triple t-chart

Dry heat cooking methods	Moist heat cooking methods	Tenderizing methods

Recipe analysis chart

Recipe Name and Description	
Yield	
Cooking details: <ul style="list-style-type: none">• Temperature• Time• Cooking method• Tenderizing method	
Cooking equipment	
Ingredients	
Directions	
Nutrition facts	

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**find other
All for the Beef
program components
on Alberta Beef's
website at**

www.albertabeef.org/

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