Meat Cutter Licensing – Resource Study Materials

USDA Food Safety **https://www.fsis.usda.gov/food-safety**

Beef From Farm to Table

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat/beef-farm-table

Over the past 100 years, Americans have been eating an average of 56 pounds of beef yearly. About 33 million cattle are inspected yearly by USDA's Food Safety and Inspection Service. In 2012, this translated into more than 54.5 pounds of beef per person. In calls to the USDA Meat and Poultry Hotline, beef is the second food category (behind turkey) callers most ask about. The following information answers many of their questions about the safe handling, preparation, cooking and storage of beef.

What is beef?
The domestication of cattle for food dates to about 6500 B.C. in the Middle East. Cattle were not native to America but brought to the New World on ships by European colonists. Americans weren't big eaters of fresh beef until about 1870, due to the enormous growth of the cattle industry in the West. The introduction of cattle cars and refrigerated cars on the railroad facilitated distribution of the beef.
"Beef" is meat from full-grown cattle about 2 years old. A live steer weighs about 1,000 pounds and yields about 450 pounds of edible meat. There are at least 50 breeds of beef cattle, but fewer than 10 make up most cattle produced. Some major breeds are Angus, Hereford, Charolais and Brahman.
"Baby beef" and "calf" are two interchangeable terms used to describe young cattle weighing about 700 pounds that have been raised mainly on milk and grass. The meat cuts from baby beef are smaller; the meat is light red and contains less fat than beef. The fat may have a yellow tint due to the vitamin A in grass.
"Veal" is meat from a calf which weighs about 150 pounds. Those that are mainly milk-fed usually are less than 3 months old. The difference between "veal" and "calf" is based on the color of their meat, which is determined almost entirely by diet. Veal is pale pink and contains more cholesterol than beef.
NOTE: This information is about whole muscle beef and variety beef. See "Ground Beef and Food Safety" for information about hamburger and ground beef.

How are cattle raised?
All cattle start out eating grass; three-fourths of them are "finished" (grown to maturity) in feedlots where they are fed specially formulated feed based on corn or other grains.

Can hormones and antibiotics be used in cattle raising?
Antibiotics may be given to prevent or treat disease in cattle. A "withdrawal" period is required from the time antibiotics are administered until it is legal to slaughter the animal. This allows antibiotic residues to exit the animal's system. FSIS randomly samples cattle at slaughter and tests for residues. Data from this monitoring plan have shown a very low percentage of residue violations. Not all antibiotics are approved for use in all classes of cattle. However, if there is a demonstrated therapeutic need, a veterinarian may prescribe an antibiotic that is approved in other classes for an animal in a non-approved class. In this case, no detectable residues of this drug may be present in the edible tissues of the animal at slaughter.
Hormones may be used to promote efficient growth. Estradiol, progesterone, and testosterone (three natural hormones), and zeranol and trenbolone acetate (two synthetic hormones) may be used as an implant on the animal's ear. The hormone is time released and is effective for 90 to 120 days. In addition,

melengesterol acetate, which can be used to suppress estrus, or improve weight gain and feed efficiency, is approved for use as a feed additive. Not all combinations of hormones are approved for use in all classes of cattle. Hormones are approved for specific classes of animals and cannot be used in non-approved classes.

How is beef inspected?
Inspection is mandatory; grading is voluntary, and a plant pays to have its meat graded. USDA-graded beef sold at the retail level is Prime, Choice and Select. Lower grades (Standard, Commercial, Utility, Cutter and Canner) are mainly ground or used in processed meat products. Retail stores may use other terms which must be different from USDA grades.
USDA Prime beef (about 2% of graded beef) has more fat marbling, so it is the most tender and flavorful. However, it is higher in fat content. Most of the graded beef sold in supermarkets is USDA Choice or USDA Select. The protein, vitamin and mineral content of beef are similar regardless of the grade.

What is the "USDA Certified Tender" and "USDA Certified Very Tender" program?
In connection with the USDA Beef Carcass Quality Grading Program under the Agricultural Marketing Service (AMS) and grades such as USDA Prime, Choice and Select, this program provides retailers with a new tool to help their customers identify what specific cuts of beef are consistently tender or very tender.
Companies wishing to use this designation must meet the International tenderness standard and be reviewed by AMS' Livestock and Poultry Program prior to final use by the approved program. Once the program has been approved, label claims for "USDA Tender" or "USDA Very Tender" must also be approved by USDA's Food Safety and Inspection Service (FSIS), Office of Policy and Program Development (OPPD), and Labeling and Program Delivery Division (LPDD). For more information, go to www.ams.usda.gov/services/auditing/tender

How is ungraded beef different?
All beef is inspected for wholesomeness. The overall quality of ungraded beef may be higher or lower than most government grades found in retail markets.

What is marbling?
Marbling is white flecks of fat within the meat muscle. The greater amount of marbling in beef, the higher the grade because marbling makes beef more tender, flavorful and juicy.

Retail Cuts of Fresh Beef
There are four basic major (primal) cuts into which beef is separated: chuck, loin, rib and round. It is recommended that packages of fresh beef purchased in the supermarket be labeled with the primal cut as well as the product, such as "chuck roast" or "round steak." This helps consumers know what type of heat is best for cooking the product. Generally, chuck and round are less tender and require moist heat such as braising; loin and rib can be cooked by dry heat methods such as broiling or grilling.
Unfortunately, names for various cuts can vary regionally in stores, causing confusion over the choice of cooking method. For example, a boneless top loin steak is variously called: strip steak, Kansas City Steak, N.Y. strip steak, hotel cut strip steak, ambassador steak or club sirloin steak.

Nutrition Labeling
Nutrition claims such as "lean" and "extra lean" are sometimes seen on beef products. Here are their definitions:
"Lean" - 100 grams of beef with less than 10 grams of fat, 4.5 grams or less of saturated fat, and less than 95 milligrams of cholesterol.
"Extra Lean" - 100 grams of beef with less than 5 grams of fat, less than 2 grams of saturated fat, and less than 95 milligrams of cholesterol.

What does "natural" mean?
All fresh meat qualifies as "natural." Products labeled "natural" cannot contain any artificial flavor or flavoring, coloring ingredient, chemical preservative, or any other artificial or synthetic ingredient; and the product and its ingredients are not more than minimally processed (ground, for example). All products claiming to be natural should be accompanied by a brief statement which explains what is meant by the term "natural."
Some companies promote their beef as "natural" because they claim their cattle weren't exposed to antibiotics or hormones and were totally raised on a range instead of being "finished" in a feedlot.

How and why is some beef aged?
Beef is aged to develop additional tenderness and flavor. It is done commercially under controlled temperatures and humidity. Since aging can take from 10 days to 6 weeks, USDA does not recommend aging beef in a home refrigerator.

Why is beef called a "red" meat?
Oxygen is delivered to muscles by the red cells in the blood. One of the proteins in meat, myoglobin, holds the oxygen in the muscle. The amount of myoglobin in animal muscles determines the color of meat. Beef is called a "red" meat because it contains more myoglobin than chicken or fish. Other "red" meats are veal, lamb and pork.

Color of Beef
Beef muscle meat not exposed to oxygen, (in vacuum packaging, for example) is a burgundy or purplish color. After exposure to the air for 15 minutes or so, the myoglobin receives oxygen and the meat turns bright, cherry red.
After beef has been refrigerated about 5 days, it may turn brown due to chemical changes in the myoglobin. Beef that has turned brown during extended storage may be spoiled, have an off-odor and be tacky to the touch.

Iridescent Color of Roast Beef
Sliced cooked beef or lunch meat can have an iridescent color. Meat contains iron, fat and many other compounds. When light hits a slice of meat, it splits into colors like a rainbow. There are also various pigments in meat compounds which can give it an iridescent or greenish cast when exposed to heat and processing. Iridescent beef isn't spoiled necessarily. Spoiled cooked beef would probably also be slimy or sticky and have an off-odor.

Additives
Additives are not allowed on fresh beef. If beef is processed, additives such as MSG, salt or sodium erythorbate must be listed on the label.

Dating of Beef Products
Product dating is not required by Federal regulations. However, many stores and processors may voluntarily date packages of raw beef or processed beef products. If a calendar date is shown, there must be a phrase explaining the meaning of the date.
Use or freeze products with a "Sell-By" date within 3 to 5 days of purchase.
If the manufacturer has determined a "Use-By" date, observe it. This is a quality assurance date after which peak quality begins to lessen but the product may still be used. It's always best to buy a product before its date expires. It's not important if a date expires after freezing beef because all foods stay safe while properly frozen.

What foodborne organisms are associated with beef?
Escherichia coli can colonize in the intestines of animals, which could contaminate muscle meat at slaughter. *E. coli* O157:H7 is a rare strain that produces large quantities of a potent toxin that forms in and causes severe damage to the lining of the intestine. The disease produced by it is called hemorrhagic colitis and is characterized by bloody diarrhea. *E. coli* O157:H7 is easily destroyed by thorough cooking.
Salmonella may be found in the intestinal tracts of livestock, poultry, dogs, cats and other warm-blooded animals. There are about 2,000 *Salmonella* bacterial species. Freezing doesn't kill this microorganism, but it is destroyed by thorough cooking. *Salmonella* must be eaten to cause illness and cannot enter the body through a skin cut. Cross-contamination can occur if raw meat or its juices contact cooked food or foods that will be eaten raw, such as salad.
Staphylococcus aureus can be carried on human hands, nasal passages or throats. Most foodborne illness outbreaks are a result of contamination from food handlers and production of a heat-stable toxin in the food. Sanitary food handling and proper cooking and refrigerating should prevent staphylococcal foodborne illness.
Listeria monocytogenes is destroyed by cooking, but a cooked product can be recontaminated by poor handling practices and poor sanitation. FSIS has a zero tolerance for *Listeria monocytogenes* in cooked and ready-to-eat products such as beef franks or lunchmeat. Observe handling information such as "Keep Refrigerated" and "Use-By" dates on labels.

Rinsing Beef
It isn't necessary to wash raw beef before cooking it. Any bacteria which might be present on the surface would be destroyed by cooking.

How to Handle Beef Safely

- **Raw Beef:** Select beef just before checking out at the register. Put packages of raw beef in disposable plastic bags, if available, to contain any leakage which could cross-contaminate cooked foods or produce. Beef, a perishable product, is kept cold during store distribution to retard the growth of bacteria.

  It is safe to freeze beef in its original packaging or repackage it. However, for long-term freezing, overwrap the porous store plastic with aluminum foil, freezer paper, or freezer-weight plastic wrap or bags to prevent "freezer burn," which appears as grayish-brown leathery spots and is caused by air reaching the surface of food. Cut freezer-burned portions away either before or after cooking the beef. Heavily freezer-burned products may have to be discarded for quality reasons. For best quality, use steaks and roasts within 9 to 12 months.

Safe Defrosting
There are three safe ways to defrost beef: in the refrigerator, in cold water and in the microwave. Never defrost on the counter or in other locations.

- **Refrigerator:** It's best to plan ahead for slow, safe thawing in the refrigerator. Ground beef, stew meat and steaks may defrost within a day. Bone-in parts and whole roasts may take 2 days or longer. Once the raw beef defrosts, it will be safe in the refrigerator for 3 to 5 days before cooking. During this time, if you decide not to use the beef, you can safely refreeze it without cooking it first.
- **Cold Water:** To defrost beef in cold water, do not remove packaging. Be sure the package is airtight or put it into a leakproof bag. Submerge the beef in cold water, changing the water every 30 minutes so that it continues to thaw. Small packages of beef may defrost in an hour or less; a 3- to 4-pound roast may take 2 to 3 hours.
- **Microwave:** When microwave defrosting beef, plan to cook it immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Holding partially-cooked food is not recommended because any bacteria present wouldn't have been destroyed.

Marinating
Marinate beef in the refrigerator up to 5 days. Boil used marinade before brushing on cooked beef. Discard any uncooked leftover marinade.

Partial Cooking
Never brown or partially cook beef to refrigerate and finish cooking later because any bacteria present wouldn't have been destroyed. It is safe to partially pre-cook or microwave beef immediately before transferring it to the hot grill to finish cooking.

Liquid in Package
Many people think the red liquid in packaged fresh beef is blood. However, blood is removed from beef during slaughter and only a small amount remains within the muscle tissue. Since beef is about 3/4 water, this natural moisture combined with protein is the source of the liquid in the package.

Storage Times
Since product dates aren't a guide for safe use of a product, how long can the consumer store the food and still use it at top quality? Follow these tips:

- Purchase the product before the date expires.
- Follow handling recommendations on product.
- Keep beef in its package until using.
- It is safe to freeze beef in its original packaging. If freezing longer than 2 months, overwrap these packages with airtight heavy-duty foil, plastic wrap, or freezer paper or place the package inside a plastic bag.
- For storage times, consult the following chart.

Food Handling & Preparation - Ground Beef and Food Safety

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat-fish

Questions about "ground meat" or "hamburger" have always been in the top five food topics of calls to the U.S. Department of Agriculture's (USDA) Meat and Poultry Hotline. Here are the most frequently asked questions and information about why ground beef requires careful handling.

What's the difference between "hamburger" and "ground beef"?

Beef fat may be added to "hamburger," but not "ground beef." A maximum of 30% fat is allowed in either hamburger or ground beef. Both hamburger and ground beef can have seasonings, but no water, phosphates, extenders or binders added. The labeling of meat food products must comply with the Federal Meat Inspection Act (FMIA) and the meat inspection regulations and labeling policies.

Most states and cities set standards for store-packaged ground beef which, by law, cannot be less than federal standards. If products in retail stores were found to contain more than 30% fat, they would be considered "misbranded" under federal law.

Is ground beef inspected and graded?

All meat transported and sold in interstate commerce must be federally inspected. The USDA Food Safety and Inspection Service (FSIS) carries out USDA's responsibilities under the FMIA. These laws protect consumers by ensuring that meat products are wholesome, unadulterated, and correctly labeled and packaged.

Many states have their own inspection programs that are applicable for meats produced and sold within their borders only. State inspection programs must enforce requirements at least equal to those of federal inspection laws.

Ground beef exported to the U.S. from USDA-approved eligible nations must meet all safety standards applied to foods produced in the United States. They must employ equivalent sanitary measures that provide the same level of protection against food hazards as is achieved domestically.

Grades are assigned as a standard of quality only. It is voluntary for a company to hire a federal grader to certify the quality of its product. Beef grades are USDA Prime, Choice, Select, Standard, Commercial, Utility, Cutter and Canner. They are set by the USDA Agricultural Marketing Service. Most ground beef is not graded.

What kind of bacteria can be in ground beef? Are they dangerous?

Bacteria are everywhere in our environment; virtually any food can harbor bacteria. In foods of animal origin, pathogenic (illness-causing) bacteria, such as *Salmonella*, Shiga-toxin producing *Escherichia coli* (STECs), *Campylobacter jejuni*, *Listeria monocytogenes* and *Staphylococcus aureus*, cause illness. These harmful bacteria cannot be seen or smelled.

If the pathogens are present when meat is ground, then more of the meat surface is exposed to the harmful bacteria. Also, grinding allows any bacteria present on the surface to be mixed throughout the meat. Bacteria multiply rapidly in the "Danger Zone" — temperatures between 40 and 140°F (4.4 and 60°C). To keep bacterial levels low, store ground beef at 40°F (4.4°C) or below and use within 2 days, or freeze. To destroy harmful bacteria, cook ground beef to a safe minimum internal temperature of 160°F (71.1°C).

Other bacteria cause spoilage. Spoilage bacteria generally are not harmful, but they will cause food to deteriorate or lose quality by developing a bad odor or feeling sticky on the outside.

Why is the *E. coli* O157:H7 bacterium of special concern in ground beef?
E. coli O157:H7 is the most well-known STEC, though other STEC strains have also been identified. STECs produce large quantities of a potent toxin that forms in the intestine and causes severe damage to the lining of the intestine. This causes a disease called hemorrhagic colitis, and may also cause hemolytic uremic syndrome, particularly in young children. STECs can colonize in the intestines of animals, which could contaminate muscle meat at slaughter.
E. coli O157:H7 bacteria survive refrigerator and freezer temperatures. Once they get in food, they can multiply very slowly at temperatures as low as 44°F (6.7°C). While the actual infectious dose is unknown, most scientists believe it takes only a small number of this strain of *E. coli* to cause serious illness and even death, especially in children and older adults. The bacteria are killed by thorough cooking, which for ground beef is an internal temperature of 160°F (71.1°C) as measured by a food thermometer.
Illnesses caused by *E. coli* O157:H7 have been linked with the consumption of undercooked ground beef. Other foods, including raw milk, apple cider, dry-cured sausage, fresh produce and undercooked roast beef, also have been implicated.

How is beef treated in a USDA-inspected plant to reduce bacteria?
The following methods have been extensively studied and found effective in reducing bacterial contamination on a beef carcass: organic acid washes, water washes, steam pasteurization, steam vacuuming and other antimicrobials.

Why is ground beef produced in a USDA-inspected plant safer than beef ground in a store or at home?
Hearing about recalls of ground beef products contaminated with *E. coli* O157:H7 or *Salmonella* might cause some consumers to consider grinding beef at home; however, this is not a safer alternative to purchasing ground beef at a retail store. In fact, USDA cautions against grinding beef at home.
In a USDA-inspected plant, trimmed beef destined for grinding is tested for the presence of *E. coli*. However, primal cuts, such as steaks and roasts, are usually not tested. When stores or consumers grind these primal cuts, it's possible that pathogens may be present on the raw beef, and neither you nor meat market employees can see, smell or taste dangerous bacteria.
In addition, USDA-inspected plants have Sanitation Standard Operating Procedures that cover policies such as the cleaning of grinding machines and the handling and chilling of ground beef. Consumers and stores might not follow such stringent sanitary procedures.

How do you know if ground beef sold in a store is from a USDA-inspected establishment?
Ground beef produced at a USDA-inspected plant will have a USDA establishment number on the package, written as "EST." (for "establishment") followed by a number. Much of the ground beef sold in stores today are ground in a USDA-inspected plant; sometimes the store will print the establishment number on its packaging. If you don't see an "EST." number, ask the store about its source for ground beef.

Why are there recalls of ground beef?
Live cattle can harbor various bacteria, including STEC and *Salmonella*. In 1994, the USDA declared *E. coli* O157:H7 as an adulterant in ground beef. In 2012, USDA declared six additional most common STECs as adulterants in raw ground beef as well. In 1996, FSIS passed the Final Rule on Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems, which began the requirement for E. coli microbial testing in slaughter plants. If *E. coli* O157:H7 is detected, recalls are initiated by the manufacturer or distributor of the meat, sometimes at the request of FSIS.

What is the safe food handling label on ground beef packages?
A safe food handling label should be on all raw or partially precooked (not ready-to-eat) meat and poultry packages. The label tells the consumer how to safely store, prepare and handle raw meat and poultry products in the home.

What is the Country of Origin Label on ground beef packages?
The Country of Origin Label (COOL) is not a food safety issue. It is a law requiring that package labels of certain foods bear the names of the country or countries where the food came from. FSIS enforces the labeling of ground beef.

Can bacteria spread from one surface to another?
Yes, it is called cross-contamination. Bacteria in raw meat juices can contaminate foods that have been cooked safely or raw foods that won't be cooked, such as salad ingredients. Bacteria also can be present on equipment, hands and even in the air.
To avoid cross-contamination, wash your hands with soap and warm water for at least 20 seconds before and after handling ground beef to make sure you don't spread bacteria. Don't reuse any packaging materials. Use soap and hot water to wash utensils and surfaces that were in contact with the raw meat. Utensils and surfaces can be sanitized with a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water. Don't put cooked hamburgers on the same platter that held the raw patties or use utensils that touched the raw meat unless you wash the platter or utensils first.

What is the best way to thaw ground beef?
The best way to safely thaw ground beef is in the refrigerator. Keeping meat cold while it is defrosting is essential to prevent the growth of bacteria. Cook or refreeze within 1 or 2 days.
To defrost ground beef more rapidly, you can defrost in the microwave oven or in cold water. If using the microwave, cook the ground beef immediately because some areas may begin to cook during the defrosting. To defrost in cold water, put the meat in a watertight plastic bag and submerge. Change the water every 30 minutes. Cook immediately. Do not refreeze raw ground meat thawed in cold water or in the microwave oven unless you cook it first.
Never leave ground beef or any perishable food out at room temperature for more than 2 hours or 1 hour at 90°F (32.2°C) and above.

Is it dangerous to eat raw or undercooked ground beef?
Yes because raw and undercooked meat may contain harmful bacteria. USDA recommends not eating or tasting raw or undercooked ground beef. To be sure all bacteria are destroyed, cook meat loaf, meatballs and hamburgers to a safe minimum internal temperature of 160°F (71.1°C). Use a food thermometer to check that they have reached a safe internal temperature.

Are there people who are more at risk from eating ground beef that is undercooked or mishandled?
The very young, the very old and those with immune systems that have been weakened by cancer, kidney disease and other illnesses are most at risk and vulnerable to illnesses associated with contaminated food. The symptoms of foodborne illness — such as diarrhea or vomiting, which can cause dehydration — can be very serious. Safe food handling practices at home or anywhere food is served is especially important for those in the "at-risk" group.

Why is pre-packaged ground beef red on the outside and sometimes dull, grayish-brown inside?
Oxygen from the air reacts with meat pigments to form a bright red color which is usually seen on the surface of meat purchased in the supermarket. The pigment responsible for the red color in meat is oxymyoglobin, a substance found in all warm-blooded animals. Fresh cut meat is purplish in color. The interior of the meat may be grayish brown due to lack of oxygen; however, if all the meat in the package has turned gray or brown, it may be beginning to spoil.

Why does ground beef release a lot of "juice" while cooking?
In making ground beef, some retail stores grind the meat while it is still frozen. Ice crystals in the frozen meat break down the cell walls, permitting the release of meat juices during cooking. The same thing happens after ground meat is frozen at home.

What causes ground beef patties to shrink while cooking?
All meat will shrink in size and weight during cooking. The amount of shrinkage will depend on its fat and moisture content, the temperature at which the meat is cooked and how long it is cooked. Basically, the higher the cooking temperature, the greater the shrinkage. Cooking ground beef at moderate temperatures will reduce shrinkage and help retain juices and flavor. Overcooking draws out more fat and juices from ground beef, resulting in a dry, less tasty product.

How can consumers handle ground beef safely in their homes?
When meat is ground, more of the meat is exposed to the harmful bacteria. Bacteria multiply rapidly in the "danger zone." Refrigerate or freeze ground beef as soon as possible after purchase. This preserves its freshness and slows the growth of bacteria. It can be refrigerated or frozen in its original packaging if the meat will be used soon.
In every step of food preparation, follow the guidelines of the Food Safe Families Campaign to keep food safe. Check your steps for food safety by following four basic rules — Clean, Separate, Cook and Chill.

CLEAN. Wash hands and surfaces often. Unless you wash your hands, utensils and surfaces the right way, you could spread bacteria to your food, and your family.
Wash your hands with soap and warm water for 20 seconds before and after handling ground beef to make sure you don't spread bacteria. Use soap and hot water to wash utensils and surfaces that were in contact with the raw meat. Utensils and surfaces can be sanitized with a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water.
SEPARATE. Don't cross-contaminate. Even after you've cleaned your hands and surfaces thoroughly, raw ground meat can still spread illness-causing bacteria to ready-to-eat foods — unless you keep them separate.
Bacteria in raw meat juices can contaminate foods that have been cooked safely or raw foods that won't be cooked, such as salad ingredients. Bacteria also can be present on equipment, hands and even in the air. To avoid cross-contamination, keep everything clean. Don't reuse any packaging materials. Don't put cooked hamburgers on the same platter that held the raw patties unless you wash the platter again.
COOK. Cook to the right temperature. Did you know that the bacteria that cause food poisoning multiply quickest in the "danger zone," the temperatures between 40 and 140°F (4.4 and 60°C)?
To destroy harmful bacteria, cook ground beef to a safe minimum internal temperature of 160°F (71.1°C) as measured with a food thermometer.
CHILL. Refrigerate promptly. Illness-causing bacteria can grow in perishable foods within 2 hours unless you refrigerate them.

Mechanically Tenderized Beef

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat/mechanically-tenderized-beef

What is mechanically tenderized beef?

To increase tenderness, some cuts of beef go through a process known as mechanical tenderization. During this process, the steaks are pierced with needles or sharp blades to break up muscle fibers. The tenderization process can take place in the processing establishment before the beef is packaged, at a butcher or grocery store, at a restaurant or in the home.

What is the risk?

The process of mechanically tenderizing beef may pose some health risks. If the outside of the meat contains bacteria, it will be transferred to the inside of the meat during mechanical tenderization, requiring it to be cooked to kill the germs. Therefore, it is important to remember food safety when preparing these products. The best way to ensure it's safe to eat is to thoroughly cook all mechanically tenderized meat to an internal temperature of 145°F with a 3-minute rest time.

Mechanically tenderized products look no different from products that are not mechanically tenderized. The only way to tell if meat has been mechanically tenderized is by checking the label.

Cooking Beef Safely

All raw beef steaks should be cooked to a minimum internal temperature of 145°F as measured with a food thermometer before removing meat from the heat source. For safety and quality, allow meat to rest for at least three minutes after it has been removed from the heat source before slicing or consuming. During this rest time, the internal temperature is either constant or slightly rises to continue destroying pathogens. The only way to know meat is safely cooked is using a food thermometer to ensure the safe internal temperature was reached.

Lamb From Farm to Table

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat/lamb-farm-table

Sheep is the oldest domesticated meat species. Sheep have been raised by humans beginning about 9,000 years ago in the Middle East. In many countries, lamb (a young sheep) is the major source of protein. Many Americans think of lamb as a springtime food, but it can be enjoyed year round. The following information answers many questions callers have asked the USDA Meat and Poultry Hotline about lamb.

What is the difference between lamb and mutton?

Sheep (Ovine) carcasses are classified as lamb, yearling mutton, or mutton depending on their age as evidenced by their muscles and bones. For the purpose of this fact sheet we will be discussing lamb. The flavor of lamb is milder than mutton. Lamb is produced from younger animals, typically less than a year old, and mutton is produced from older animals. Most lambs are brought to market at about 6 to 8 months old. A lamb weighs about 140 pounds and yields approximately 46 to 49 pounds of edible lean retail lamb cuts, semi-boneless.

If the phrase "Spring Lamb" is on a meat label, it means the lamb was slaughtered between March and October. The term comes from olden times when lambs born in harsh winter weather would have little chance to survive until the next year. Today with more protected animal husbandry conditions, enjoying "lamb" is not confined to a particular season of the year.

How are lambs raised?
Lambs are nursed by their mothers and when they are weaned, they gradually begin feeding on pasture or coarsely ground grain. They are fed hay and feed consisting of corn, barley, milo (a type of sorghum), and/or wheat supplemented with vitamins and minerals. Lambs are usually "finished" (grown to maturity) in feedlots where they are fed specially formulated feed. While most lambs are finished on grains, some lambs are raised on pasture and are finished on grass instead of grains. Grass-finished lamb is usually distinguished on the label.

How is lamb inspected?
All lamb found in retail stores is either USDA inspected for wholesomeness or inspected by state systems which have standards equal to the Federal government. Each lamb and its internal organs are inspected for signs of disease. The "Passed and Inspected by USDA" seal insures the lamb is wholesome and free from disease.

What does the grade mean?
Grading for quality is voluntary. A processing plant may request to have its lamb graded for quality based on traits such as tenderness, juiciness and flavor. USDA-graded lamb sold at the retail level is Prime, Choice, and Good. Lower grades (Utility and Cull) are mainly ground or used in processed meat products. Lamb quality grades take into consideration maturity (lamb, yearling mutton, and mutton), conformation, and the palatability-indicating characteristics, such as fat streaking within the flank and firmness of the lean. Most of the graded lamb sold in supermarkets is USDA Choice; 80% of the American lamb supply is USDA Prime or USDA Choice. The protein, vitamin, and mineral content of lamb are similar in all grades.

Can hormones and antibiotics be used in lamb raising?
Yes. Hormones and antibiotics approved by the U.S. Food and Drug Administration (FDA) are permitted to be used in lambs slaughtered for meat. Antibiotics may be given to prevent or treat disease in lambs and hormones may be given to promote efficient growth. A recommended withholding period is required from the time antibiotics are administered until it is legal to slaughter the animal. This is so drug residues can exit the animal's system. FSIS samples lamb carcasses at slaughter and tests for residues. FSIS laboratory results above the tolerance limit set by FDA is considered a residue violation and are investigated by FDA or the State.

What does "natural" mean?
All fresh meat qualifies as "natural." Products labeled "natural" cannot contain any artificial flavor or flavoring, coloring ingredient, chemical preservative, or any other artificial or synthetic ingredient; and the product and its ingredients are not more than minimally processed (ground, for example). All products claiming to be natural should be accompanied by a brief statement which explains what is meant by the term "natural."

Rinsing Lamb
There is no need to rinse raw lamb before cooking because this creates a cross-contamination hazard and is not necessary. Any bacteria which might be present would be destroyed by cooking.

Goat From Farm to Table

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat/goat-farm-table

With the growing popularity of Caribbean and Indian cuisine in America, goat meat is finding its way into many more recipes. Goats are under mandatory USDA inspection. Read on for more information about this red meat.

Background on Goat

Goat is thought to have been one of the earliest domesticated animals. Cave art 10,000 to 20,000 years ago indicates that goats were common and important then. At the present time, goats provide the principle source of animal protein in many North African and Middle Eastern nations. Goat is also important in the Caribbean, in Southeast Asia, and developing tropical countries. Three-fourths of all the goats in the world are located in the developing regions of the world.

Are goats inspected?

Yes. Goats are covered under the U.S. Federal Meat Inspection Act of 1906 and thus must be slaughtered under Federal or State inspection. Any carcasses slaughtered for sale must be inspected. Following are the number of goats federally inspected in various years.

Is goat meat graded?

No. There are no quality or yield grades for goat meat.

Can hormones and antibiotics be used when raising goats?

No. Hormones are not approved for growth promotion in goats.
Antibiotics may be given to prevent or treat diseases in goats.
A "withdrawal" period is required from the time most antibiotics are administered until it is legal to slaughter the animal. This is so residues have enough time to exit the animal's system.
Goat meat is tested for antibiotics, sulfonamides, and pesticide residues if problems are suspected. Imported goat meat is sampled at ports of entry for residues that may result from the use of animal drugs, pesticides, or environmental contaminants. Data from residue monitoring rarely show residue violations.

Is goat classified as "red" meat?

Yes, goat is considered red meat.

Safe Handling of Goat Meat

Handle goat the same as any other type of meat. At the grocery store, make your selection of goat meat from the refrigerator case just before checking out at the register. Put packages of raw meat in disposable plastic bags (if available) to contain any leakage, which could cross-contaminate cooked foods or raw produce. Take packaged meat home immediately and refrigerate it at 40 °F or below; use within 3 to 5 days (1 or 2 days for ground goat meat), or freeze (0 °F or below) for up to a year. However, if kept frozen continuously, it will be safe indefinitely.
Before and after handling any raw meat or poultry, always wash hands in warm, soapy water for 20 seconds.

Cleanliness Helps Prevent Foodborne Illness

https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/cleanliness-helps-prevent

Cleanliness is a major factor in preventing foodborne illness. Even with food safety inspection and monitoring at Federal, State, and local government facilities, the consumer's role is to make sure food is handled safely after it is purchased. Everything that touches food should be clean. Listed below are steps we can take to help prevent foodborne illness by safely handling food in the home:

1. Wash hands with warm, soapy water for 20 seconds:
    - before and after handling food
    - after using the bathroom
    - after changing a diaper
    - after handling pets
    - after tending to a sick person
    - after blowing your nose, coughing or sneezing
    - after handling uncooked eggs, raw meat, poultry or fish and their juices

2. If your hands have any kind of skin abrasion or infection, always use clean disposable gloves. Wash hands (gloved or not) with warm, soapy water.

3. Thoroughly wash with hot, soapy water all surfaces that come in contact with raw meat, poultry, fish, and eggs before moving on to the next step in food preparation. Consider using paper towels to clean kitchen surfaces. If you use dishcloths, wash them often in the hot cycle of your washing machine. Clean other surfaces, such as faucets and countertops, with hot, soapy water.

4. To keep cutting boards clean, wash them in hot, soapy water after each use; then rinse and air or pat dry with clean paper towels. Cutting boards can be sanitized with a solution of 1 tablespoon of unscented, liquid chlorine bleach per gallon of water. Flood the surface with the bleach solution and allow it to stand for several minutes; then rinse and air or pat dry with clean paper towels.

5. Don't use the same platter and utensils that held the raw product to serve the cooked product. Any bacteria present in the raw meat or juices can contaminate the safely cooked product. Serve cooked products on clean plates, using clean utensils and clean hands.

6. When using a food thermometer, it is important to wash the probe after each use with hot, soapy water before reinserting it into food.

7. Keep pets, household cleaners, and other chemicals away from food and surfaces used for food.

8. When picnicking or cooking outdoors, take plenty of clean utensils. Pack clean, dry, wet and soapy cloths for cleaning surfaces and hands.

Because bacteria are everywhere, cleanliness is a major factor in preventing foodborne illness. By keeping everything clean that comes in contact with food, consumers can be assured they are helping to do their part to ***Be Food Safe***.

Meat - signs of spoilage

https://ask.usda.gov/s/article/What-are-the-signs-of-food-spoilage

What are the signs of food spoilage?

Foods that deteriorate and develop unpleasant odors, tastes, and textures are spoiled. Spoilage bacteria can cause fruits and vegetables to get mushy or slimy, or meat to develop a bad odor. Most people would not choose to eat spoiled food. However, if they did, they probably would not get sick.

https://ask.usda.gov/s/article/What-are-spoilage-bacteria

What are spoilage bacteria?

Spoilage bacteria are microorganisms too small to be seen without a microscope that cause food to deteriorate and develop unpleasant odors, tastes, and textures. These one-celled microorganisms can cause fruits and vegetables to get mushy or slimy, or meat to develop a bad odor. For more food safety information, you can call the USDA's Meat and Poultry Hotline toll-free 1-888-674-6854 between 10:00 am and 6:00 pm EST or e-mail: mphotline@usda.gov

https://ask.usda.gov/s/article/Do-spoilage-bacteria-make-people-sick

Do spoilage bacteria make people sick?

Most people would not choose to eat spoiled food. However, if they did, they probably would not get sick. Spoilage bacteria can cause fruits and vegetables to get mushy or slimy, or meat to develop a bad odor, but they do not generally make you sick. Pathogenic bacteria cause illness. They grow rapidly in the Danger Zone-the temperatures between 40 °F (4.4 °C) and 140 °F (60 °C) and do not generally affect the taste, smell, or appearance of food. Food that is left too long at unsafe temperatures could be dangerous to eat but smell and look just fine.

https://ask.usda.gov/s/article/Does-a-change-in-color-indicate-spoilage

Does a change in color indicate spoilage?

Change in color alone does not mean the product is spoiled. Color changes are normal for fresh product. With spoilage there can be a change in color -- often a fading or darkening. In addition to the color change, the meat or poultry will have an off odor, be sticky or tacky to the touch, or it may be slimy. If meat has developed these characteristics, it should not be used.

https://ask.usda.gov/s/article/Why-is-some-meat-bright-red-and-other-meat-very-dark-in-color

Why are some meat bright red and other meat very dark in color?

When meat is fresh and protected from contact with air (such as in vacuum sealed packages), it has the purple-red color that comes from myoglobin, one of the two key pigments responsible for the color of meat. When exposed to air, myoglobin forms the pigment, oxymyoglobin, which gives meat a pleasingly cherry-red color. The use of a plastic wrap that allows oxygen to pass through it helps ensure that the cut meats will retain this bright red color. However, exposure to store lighting as well as the continued contact of myoglobin and oxymyoglobin with oxygen leads to the formation of metmyoglobin, a pigment that turns meat brownish-red. This color change alone does not mean the product is spoiled.

Washington Beef Commission

https://www.beefitswhatsfordinner.com/resources/infographic-library

DECODING THE LABEL: KNOW YOUR BEEF CHOICES (pdf)

- Grain Finished
- Grass Finished or Grass Fed
- Certified Organic
- Naturally Raised

UNDERSTANDING BEEF QUALITY GRADES (pdf)

- Marbling, also known as intramuscular fat, is the fat intermingled with the beef muscle.
- Marbling is the primary factor in determining the quality grade of a beef carcass.

100% of beef processed in federally inspected packing plants is overseen and inspected by USDA.

BEEF
IT'S WHAT'S FOR DINNER®

DECODING THE LABEL: KNOW YOUR BEEF CHOICES

Like the farmers and ranchers who choose how best to raise their cattle for beef, you have choices when it comes to the beef you buy. **Cattle are raised responsibly and beef is wholesome and nutritious** – but you may see a variety of statements that reflect different production practices on beef packages in your grocery store or on a menu. The U.S. Department of Agriculture (USDA) approves these labels for beef based on specific criteria.

GRAIN-FINISHED

(most beef is raised this way and likely doesn't have a specific label claim)

THIS BEEF COMES FROM CATTLE THAT...

- Spend the majority of their lives eating grass or forage
- Spend 4-6 months at a feedyard eating a balanced diet of grains, local feed ingredients, like potato hulls or sugar beets, and hay or forage
- May or may not be given U.S. Food and Drug Administration (FDA)-approved antibiotics to treat, prevent or control disease and/or growth-promoting hormones

GRASS-FINISHED OR GRASS-FED

THIS BEEF COMES FROM CATTLE THAT...

- Spend their whole lives eating grass or forage
- May also eat grass, forage, hay or silage at a feedyard
- May or may not be given FDA-approved antibiotics to treat, prevent or control disease and/or growth-promoting hormones

USDA ORGANIC

CERTIFIED ORGANIC

THIS BEEF COMES FROM CATTLE THAT...

- Never receive any antibiotics or growth-promoting hormones
- May be either grain- or grass-finished, as long as the USDA's Agriculture Marketing Service (AMS) certifies the feed is 100% organically grown
- May spend time at a feedyard

NATURALLY RAISED

(may be referred to as "never-ever")

THIS BEEF COMES FROM CATTLE THAT...

- Never receive any antibiotics or growth-promoting hormones
- May be either grain- or grass-finished
- May spend time at a feedyard

DID YOU KNOW?

91% of U.S. cattle farms and **80%** of feedyards are family-owned.

Cattle eat grass for most of their lives.

100% of beef processed in federally inspected packing plants is overseen and inspected by the USDA.

All cattle are commonly fed vitamin and mineral supplements to balance their diet.

You will likely come across other beef labels. For example, USDA labels like "beef raised without antibiotics" (cattle have never received antibiotics but may receive growth-promoting hormones) and "beef raised without hormones" (cattle have never received growth-promoting hormones but may receive antibiotics). All USDA labels must be approved through a formal submission and evaluation process. You might also see other claims on labels, including references to cattle breed, where cattle were raised and cattle welfare.

References: U.S. Department of Agriculture 'Choices of Beef Definitions,' October, 2016 and USDA 2012 Ag Census Cattle Industry Highlights, February, 2015

BEEF®
Funded by Beef Farmers and Ranchers
www.BeefItsWhatForDinner.com

USDA BEEF QUALITY GRADING

UNDERSTANDING BEEF QUALITY GRADES

USDA PRIME

Prime beef is produced from young, well-fed cattle. It has the most marbling, is produced in smaller quantities than other grades, and is often sold in hotels and restaurants. Prime roasts and steaks are excellent for roasting, grilling or broiling.

USDA CHOICE

Choice beef is high quality and produced in highest quantity, but has less marbling than Prime. Choice roast and steaks, especially from the rib and loin, will be very tender, juicy and flavorful. They are suited for roasting, grilling or broiling. Less tender cuts are perfect for slow-cooking.

USDA SELECT

Select beef is slightly leaner than Prime and Choice because it has less marbling. It can lack some tenderness, flavor and juiciness as compared to the higher grades. Select grade beef often benefits from slow-cooking or from marination prior to grilling or broiling.

FACTORS IN DETERMINING A QUALITY GRADE:

Distribution of Marbling within Lean Muscle at 12th/13th Rib

Age/Maturity of Carcass

Color, Texture & Firmness of Lean Muscle

WHAT IS MARBLING?

Marbling, also known as intramuscular fat, is the fat intermingled with the beef muscle. Marbling is the primary factor in determining the quality grade of a beef carcass. When determining the amount of marbling, a grader will look at the ribeye where the carcass is cut at the 12th & 13th rib juncture. Marbling helps ensure and is a strong visual predictor of beef tenderness, flavor and juiciness and improves the overall palatability of beef.

NO ROLL

Standard and Commercial grades of beef are frequently sold as ungraded “No Roll” beef. Because No Roll does not carry a grade designation, there is a risk it will not be as tender, flavorful and juicy as products graded Prime, Choice or Select.

BEEF®
Funded by Beef Farmers and Ranchers

FDA Materials on Sanitation Concerns with Commercial Deli Slicers

https://www.fda.gov/food/retail-food-industryregulatory-assistance-training/fda-materials-sanitation-concerns-commercial-deli-slicers

As part of an initiative to improve food safety practices in retail and foodservice establishments, FDA has developed a poster and flyer designed to raise awareness of sanitation concerns with commercial deli slicers commonly used to slice meats, cheeses and produce in food stores, delis, restaurants and other foodservice establishments:

- The poster, targeted to operators of food establishments and their front line food employees, is suitable for posting near deli slicers, and explains the importance of proper slicer maintenance and highlights examples of hard-to-clean problem areas on deli slicers.
  Keep Commercial Deli Slicers Safe
- The flyer, targeted to food safety professionals, offers tips to ensure deli slicers are being properly cleaned and maintained and when slicers should be removed from service until repaired or replaced.
  Commercial Deli Slicer Inspection Tips for Food Safety Professionals

If deli slicers are not properly cleaned and sanitized on a regular basis, food soils and disease-causing microorganisms can accumulate on slicer surfaces and result in food contamination. These machines have a long life in retail and foodservice establishments, and over time they may become difficult or impossible to properly clean and sanitize. Routine professional maintenance of all deli slicers is critical to preventing these machines from becoming a significant food safety hazard.

Outbreaks of foodborne illness resulting in serious illnesses and hospitalizations have been linked to food that has become contaminated during contact with deli slicers. FDA continues to work closely with state and local governments and operators of restaurants, grocery stores and other food establishments to prevent illness from contaminated food. FDA is working with stakeholders to develop enhanced minimum standards for the design and construction of new deli slicers and to ensure that proper cleaning and maintenance instructions are provided with each machine.

FDA encourages consumers to ask store and restaurant management about the procedures they follow to ensure their deli slicers are properly cleaned and maintained.

Commercial Deli Slicer Inspection Tips for Food Safety Professionals

- Mechanical deli slicers commonly used in retail and foodservice establishments to slice meats, cheeses and produce may become difficult or impossible to adequately clean and sanitize after a period of use.
- Recent foodborne illness outbreaks have been associated with the accumulation of food soils and disease-causing microorganisms on areas of commercial deli slicers that are difficult to clean and sanitize.
- These outbreaks have resulted in serious illnesses and hospitalizations.

There are many seams created between the numerous adjoining parts and components of a typical deli slicer. Sealants and gaskets are often used to seal these seams. These seams can become worn, degraded or removed as a result of the heavy use and cleaning regimens to which deli slicers are subjected. As these seals and gaskets become degraded, spaces can be created that can trap debris and moisture, which can lead to areas that may not be adequately cleaned and sanitized under normal cleaning methods.

During routine inspections of retail and foodservice establishments:

- Pay special attention to commercial deli slicers.
- Examine the equipment for degraded, defective or worn parts.
- If there are any signs of cracks, chips, deep scratches or loss of adhesion or if any seam or part is found defective or damaged, have the food establishment remove the slicer from service until repaired or replaced.
- Stress that establishment managers need to contact the slicer manufacturer for repairs and maintenance; all repairs should be performed by the manufacturer's authorized service representatives.
- Check that the retail or foodservice establishments are following the manufacturer's instructions for cleaning and maintenance.

NSF/ANSI Standard 8, *Commercial Powered Food Preparation Equipment*

Most slicers used in food establishments are models that have been certified to the NSF/ANSI (American National Standards Institute) Standard 8, *Commercial Powered Food Preparation Equipment* by an ANSI accredited certification body. However, these certifications are issued for newly manufactured products only, and do not ensure that the slicer will be maintained in a cleanable condition after extended use. Once in the field, slicer seal and gasket life will be affected by a variety of factors such as conditions of use, type and frequency of cleaning protocols, and types of foods being sliced. Since slicers typically remain in use for a number of years, operators and regulators must be diligent in their inspection, evaluation and maintenance of this equipment.

Commercial Deli Slicer Inspection Tips for Food Safety Professionals

If you are inspecting the facility as part of a foodborne illness outbeak investigation:

- If a slicer is suspected as a source of contamination, breaking down slicers (including the disassembly of components attached with fasteners) may be necessary to examine if any seal or seam degradation has occurred that may result in contamination of food.
- If collecting environmental samples, be sure to swab surfaces and niches on the slicer where cross contamination hazards may have been created, such as seals and seams in or near the food contact zones.

Examples of commercial deli slicer components inaccessible under normal cleaning conditions

Figure 1. Food soil accumulation at the ring guard mount.

Figure 2. Food soil accumulation on the inside of the blade guard at the white plastic piece.

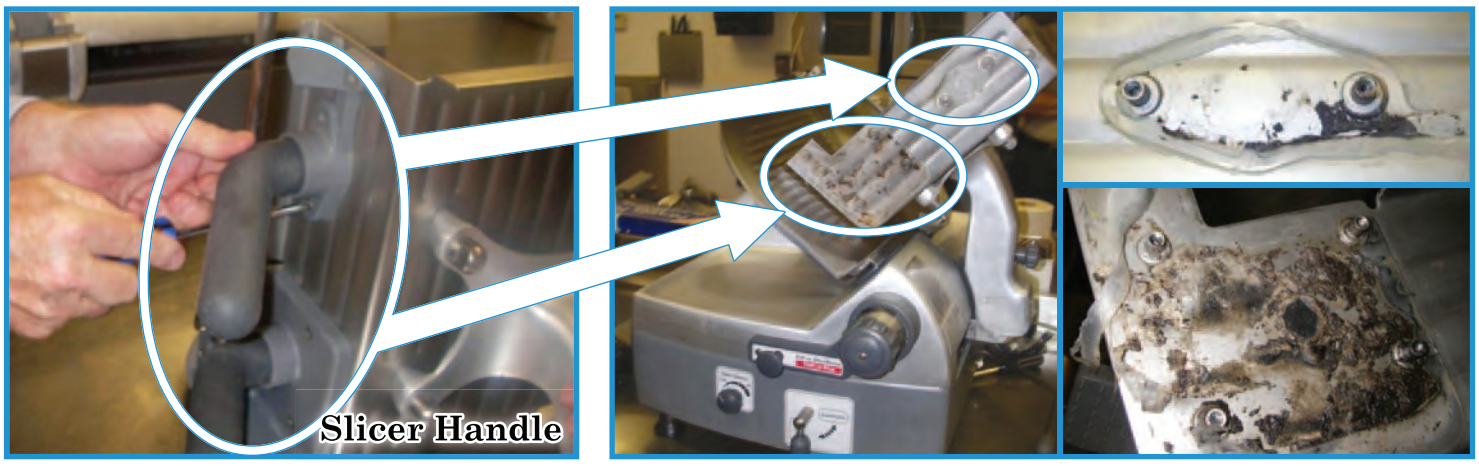


Figure 3. Surfaces under the slicer handle can accumulate food soil and debris and require monitoring to prevent build-up.

For additional copies and more information visit:
www.fda.gov/retailfoodprotection

Keep Commercial Deli Slicers Safe

Did You Know...?

Deli slicers commonly used in retail and foodservice establishments to slice meats, cheeses and produce may become difficult or impossible to properly clean and sanitize after a period of use. Failure to adequately clean and sanitize all surfaces of a deli slicer can contaminate food and cause illnesses or death.

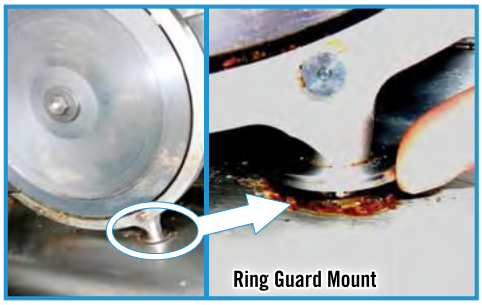
- Recent outbreaks of foodborne illness have been associated with the build-up of food soils and disease-causing microorganisms on areas of deli slicers that are difficult to clean and sanitize.
- Outbreaks of serious illness and hospitalizations have resulted.
- Many seams between the connected parts and components of a typical deli slicer are sealed with sealants and gaskets.

  These seams can become worn, degraded or removed as a result of the heavy use and cleaning process that deli slicers undergo. As these seals and gaskets become degraded, spaces can be created that can trap debris and moisture, which can lead to areas that may not be able to be adequately cleaned and sanitized under normal cleaning conditions.

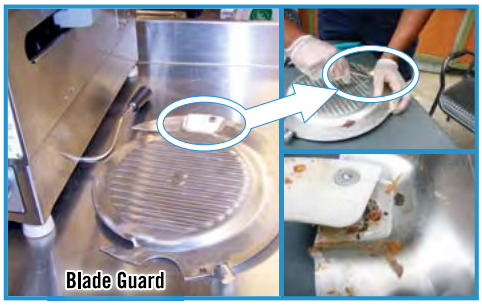
Deli Slicer Problem Areas That Are Hard To Clean

ARROWS POINT TO KEY AREAS OF CONCERN

Carefully monitor these areas for any cracks, broken, missing or unattached parts



Food soil accumulation at the ring guard mount.



Food soil accumulation on the inside of the blade guard at the white plastic piece.

Surfaces under the slicer handle can accumulate food soil and debris and require monitoring to prevent build-up.

What YOU Can Do

CLEAN and SANITIZE deli slicers per manufacturer's instructions at least once every four hours in order to prevent the growth of disease-causing bacteria.

- Keep the instructions posted near the slicer location and follow them closely.
- Simply wiping down a slicer to remove visible debris is not a substitute for thoroughly cleaning and sanitizing the equipment.

Routinely examine the condition of seams, seals and gaskets to confirm integrity of these seals while the slicer is assembled and before breaking down for cleaning and sanitizing.

- Look in hard-to-reach areas for food and liquid accumulations.

If a seal or gasket is broken, missing, unattached, defective or otherwise not performing its function, remove the slicer from service immediately and contact the slicer manufacturer for repair or replacement.

- All repairs should be performed by the manufacturer's authorized service representative or using repair kits available from or provided by the original manufacturer.

Have the slicer professionally serviced according to the manufacturer's recommended schedule.

- Ensure that the servicing includes examination of all seams and the routine replacement of seals and gaskets.
- Proper servicing may require that components be removed and then reattached with the proper reapplication of sealants or gaskets.

For additional copies and more information visit: **www.fda.gov/retailfoodprotection**

Washington State Department of Labor & Industries

Meat Cuter Safety
https://view.officeapps.live.com/op/view.aspx?src=htps%3A%2F%2Fwishatraining.lni.wa.gov%2FTrainin g%2Fpresenta ons%2FMeatCuterSafety.pps&wdOrigin=BROWSELINK

Washington State Department of
Labor & Industries

Meat Cutting Safety Hazards

What they are and how to reduce or eliminate them

March, 2020

Topics Covered

1. Tasks associated with meat cutters
2. Types of equipment used to cut meat
3. Hazards and risk factors in the industry
4. Injury prevention
5. How to implement a safety program
6. Rules and regulations
7. Futher information

Meat Cutters have a Variety of Tasks

Examples of Work Performed:

Cut, trim, grind and slice various types of meat.

Weigh, wrap, label and display cuts of meat.

Receive, inspect, load, store, refrigerate and distribute meats.

Clean and sanitize work area and equipment according to industry standard.

Maintain, sharpen and safely store knives.

image courtesy of Nate Steiner on Flickr, used under Creative Commons License

Hazards in the meat cutting industry

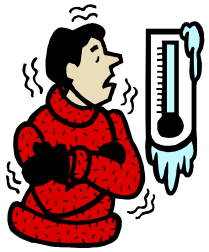
Cuts & amputations - meat processing machinery

Cuts – from knives and box cutters

Slips, trips and falls – slippery, wet or cluttered floors

Back, shoulder elbow & wrist injuries from repetitive motions, awkward postures, constant standing and heavy lifting

Cold temperatures - in some workplaces



Accident Prevention Program (APP)

Every employer must have an accident prevention program to address worksite safety hazards. Major elements of an APP include:

- Management commitment and employee involvement (safety committee or safety meetings)
- Worksite hazard analysis (job hazard analysis)
- Hazard prevention and control
- Safety and health training

Link to APP Rules

Link to small business sample APP

General Injury Prevention Measures

Keep knives and other sharp objects in safe location when not in use.

Always operate powered machinery with guard in place.

Keep floor clean from slip hazards or obstacles that may cause an injury.

Stay focused and limit distractions when operating equipment.

Review and understand the operating instructions for all machines you will be using.

Talk to your supervisor about any safety hazards you notice at your worksite.

Knives and Other Cutting Tools

Boning Knives

Steak Knives

Breaking Knives

Meat Cleavers

Utility Knives/Boxcutters

Scissors

Kebab Slicers

Safe Knife Handling Practices

A sharp knife is a safe knife.

Never grab a falling knife.

Use the right knife for the right job. Always cut away from yourself.

Keep your eyes on the blade.

Always cut on a stable cutting board.

Carry the knife pointed down, or in a scabbard.

Always keep the knife out in the open – don't cover it.

Don't put a knife in a sink full of soapy water - wash it off immediately.

Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is clothing or equipment designed to be worn by worker to protect them from risks of injury or illness while performing their job du

PPE for your job may include:

- Slip-resistant shoes
- Cutting gloves
- Protective clothing – aprons, uniforms
- Hearing protective devices (ear muffs or ear plugs)

Cut-Resistant Gloves

Mesh or chain style gloves are worn to protect the hands from cuts when using knives to cut and debone meat. The lighter weight cut resistant fiber gloves also provide a good measure of protection from knife cuts.

Cut resistant gloves provide cut protection only, not stick or stab protection.

Mesh, chain or fiber gloves should not be worn when using meat cutting band saws and other moving equipment that could snag or catch the gloves and pull them in.

Metal mesh gloves

cut resistant fiber glove

Link to YouTube Glove demo

Glove photos courtesy of DayMark Safety Systems

General machine safety rules

Get training on the safe methods of operating any machine before using.

Read the machine manual if using for the first time.

No loose clothing, long uncontained hair, and jewelry around power-driven equipment.

Regularly inspect and maintain all machinery as needed.

Securely anchor machine to prevent tipping or other movement that could result in injury.

Emergency power shut-off switch must be within reach of the operator's position at each machine.

Follow all lockout/tagout procedures.

General machine safety rules (Cont'd)

The non-current-carrying metal parts of all electrically operated machines must be grounded.

Foot-operated switches for machines must be guarded or arranged to prevent accidental contact by personnel or falling objects.

The manually operated switches controlling the operation of machines must be clearly identified and readily accessible.

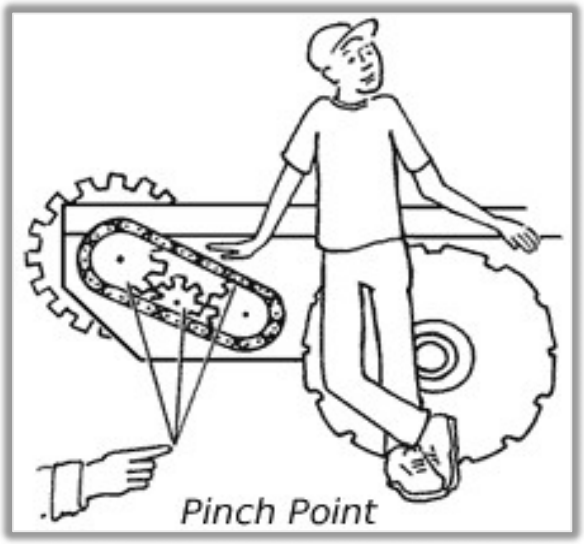
The guards of all machines must be in place before using the machine.

What are the hazards on all powered machines?

Point of operation: Area or point on the machine where the work is actually performed on the meat.

Examples - edge of slicer blade, cutting point of band saw, worm gear in meat grinder, nip point between in-running rollers

Point: A point, other than the point of operation, where there is risk of getting body part caught between moving parts.



DOSH Rules on Machine Guarding

WAC 800 - 806 - 20028

Safeguard employees from the point of operation

You must protect employees from hazards created by the point of operation by using one or more safeguarding methods.

Examples of safeguarding methods include:

- Guards
- Devices
- Safeguarding by distance
- Safeguarding by location

You must protect employees from hazards created by the point of operation by using one or more of these safeguarding methods.

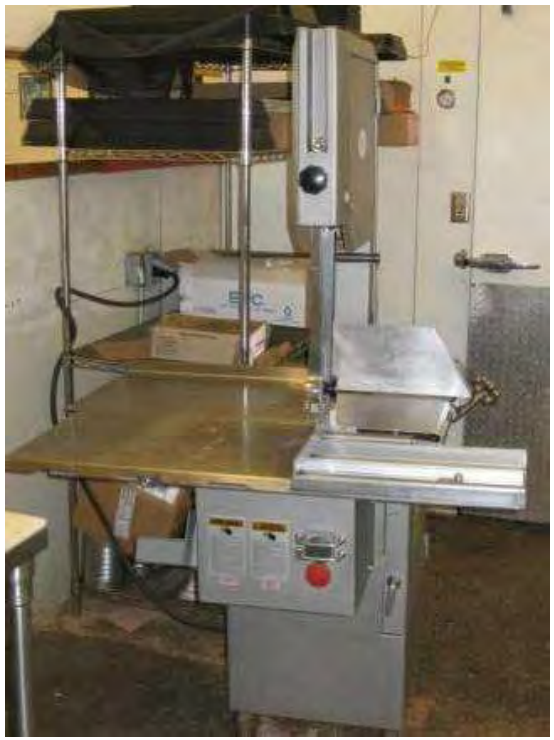
Meat Cutting Equipment

Most Frequently used Equipment in Meat Cutting:

- Meat Cutting Band Saw
- Meat Grinder
- Meat Slicer
- Cuber/Tenderizer (Jaccard machine)
- Cutting Knives

Machine Safety – Band saw

Typically stainless steel with easy to clean features. The blades either have fine teeth with heat treated tips, or have plain or scalloped knife edges.

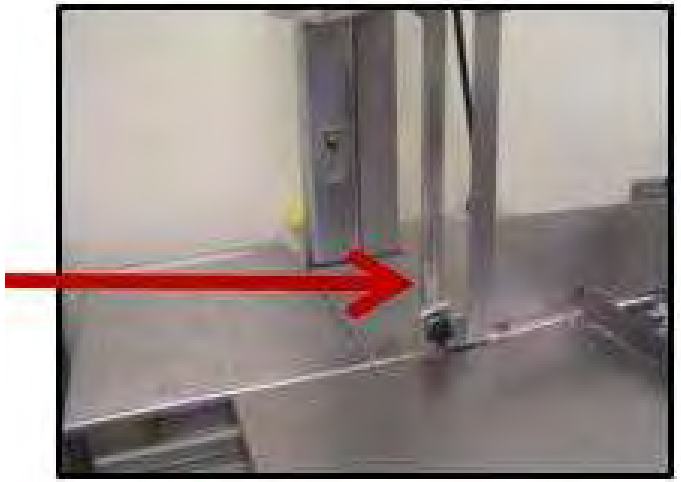


Band saw hazards

The band saw cuts flesh and bone – the meat or yours – quickly and cleanly.

Machine Band Saw Guarding

Guard in place when not in use



Guard improperly adjusted while cutting. Guard must be flush with meat.

Meat push plate

Machine Safety – Meat Grinders

Newer meat grinders are guarded by a feeding tray or similar device and some have interlocks to prevent their operation if guard is removed. Older meat grinders may not be guarded

New meat grinder with fixed guard (tray)

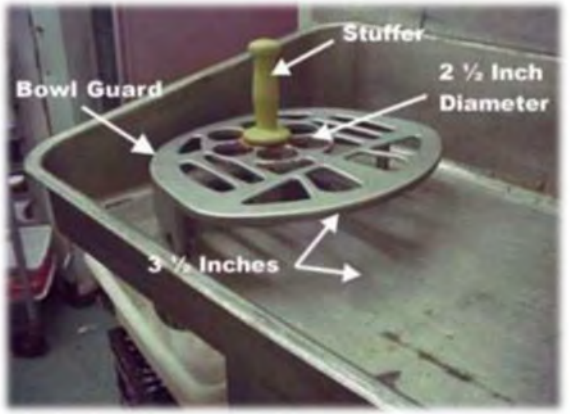
Guard raised

Guard in place

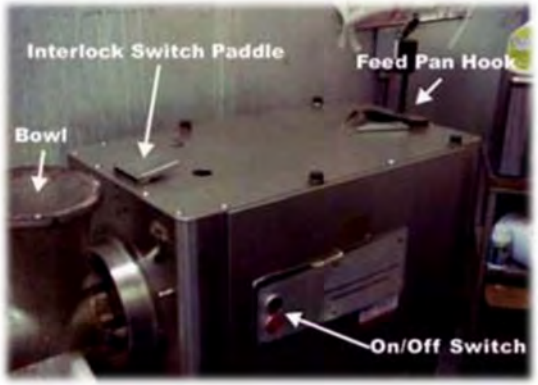
Equipment Hazard Notice – Amputation

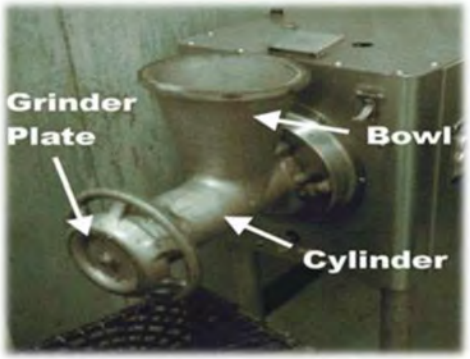
Meat Grinder with feed pan and interlock

Feed pan and bowl guard in place



Feed pan removed

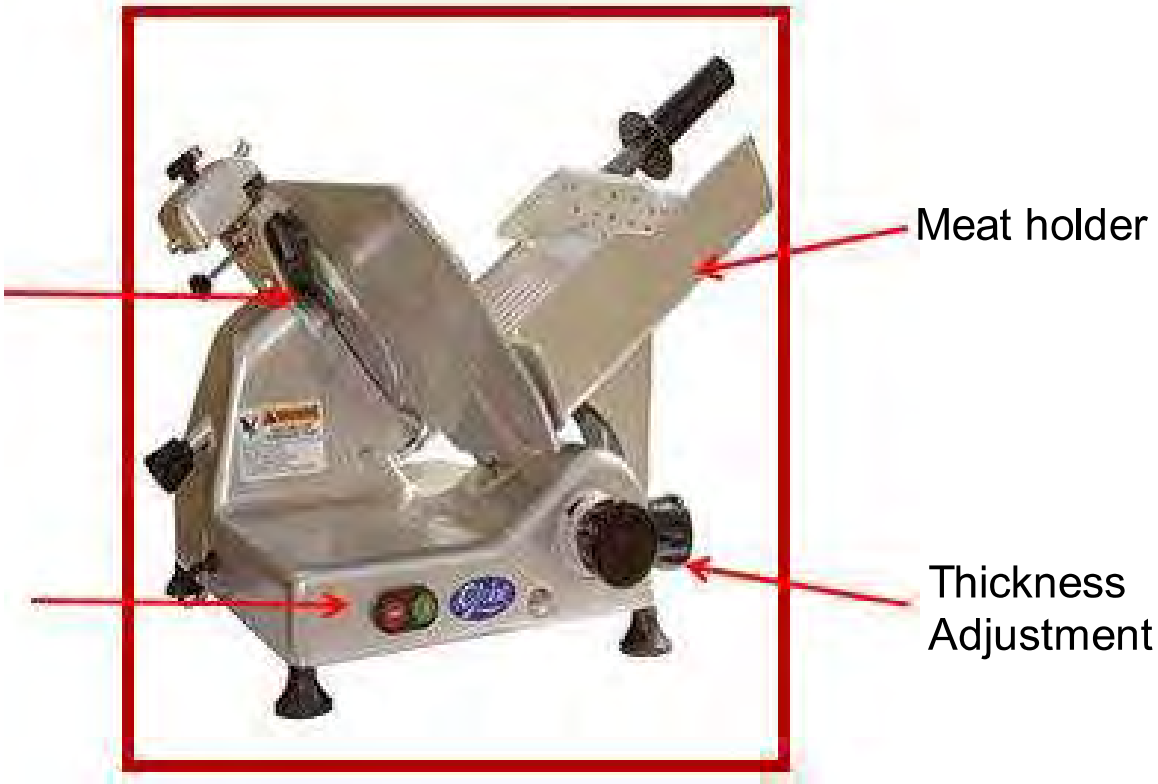




Amputation description – when feed pan was removed from this machine

Machine Safety – Meat Slicer

Meat Slicers are used to slice various cuts of meat.
They involve use of rotary blades and guillotine cutters.



Safe Operation of Meat Slicers

- Always read operations manual before operating any piece of equipment
- Focus; avoid distractions
- Wear cut resistant gloves when operating or cleaning
- Secure the meat properly so it won't slip
- Unplug, turn off and set blade adjustment to zero before cleaning
- Keep work area clean
- Always use the tampers or pushers to push food into place
- Never use hands to feed meat into the slicer
- Never reach across the blade
- Use locking features to keep blade in place if not operating

Meat Slicer in use

Always use the pushing tool!

Examples of other equipment needing guarding

- Hollymatic patty maker (gap in guard)
- Hobart meat grinder (coasted when lid lifted)
- Older Leland meat mixer (no interlock)
- Spiral ham slicer (no guard)

Hollymatic patty maker

Guard opening too wide

Leland meat mixer

Older model with no interlock

(Newer models have interlocks)

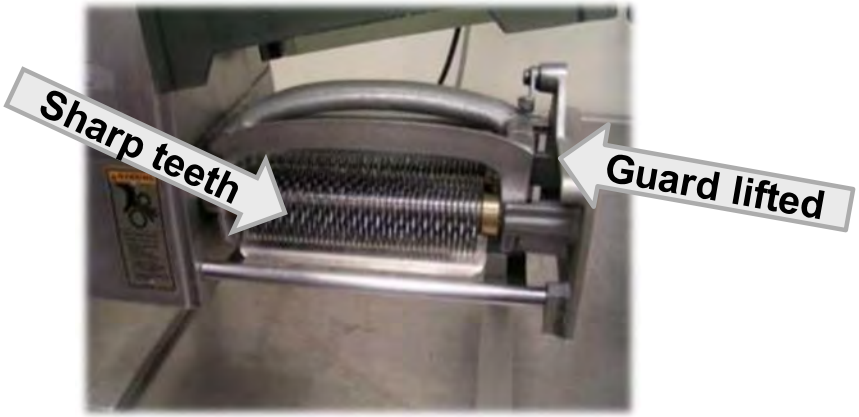
Spiral ham slicer

Unguarded

Guarded

Other machines with point of operation hazards

Wrapper



Tenderizer

Tenderizer/Cuber with guard

Other types of machines used by meatcutters

Automatic Slicer

Tabletop meat cutter/tenderizer

Vacuum Bowl Cutter

If you are not familiar with these machines, be sure to read the manual first.

Frozen Meat Flaker

Cuber/Dicer

Machine Safety – Lockout/Tagout

Before cleaning or repairing…

Disconnect or lockout and tagout the power source to prevent inadvertent start up of moving parts. Don't rely on the interlock system.

Machine Safety – Lockout/Tag-out Rules

Lockout-Tagout (LO/TO) is a safety procedure used to ensure that machines are not unexpectedly energized or started, and no stored energy is released while maintenance or servicing work is being done.

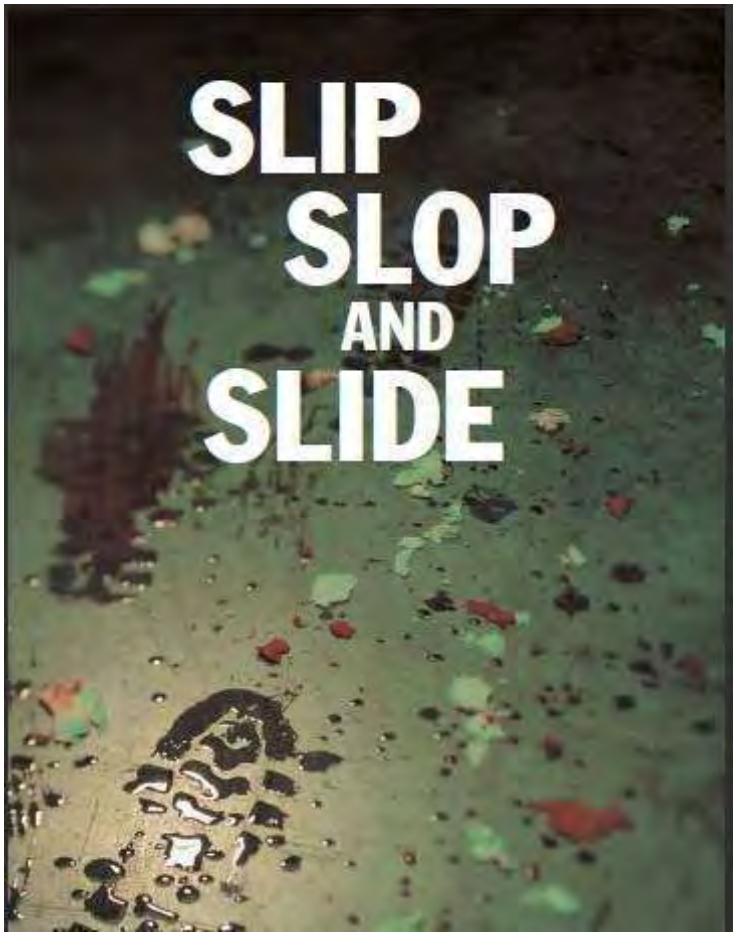
It requires that hazardous power sources be "isolated and rendered inoperative" before any work is started. Each energy isolating device is closed (off) and a lock is applied by the employee working on the machine to prevent the machine from being energized or started.

Link to DOSH LO/TO rules

Slips, Trips and Falls

The main cause of slips and falls in the meat industry are wet, dirty floors and improper shoes.

Keep your floors clean, dry free of debris and wear slip resistant shoes.

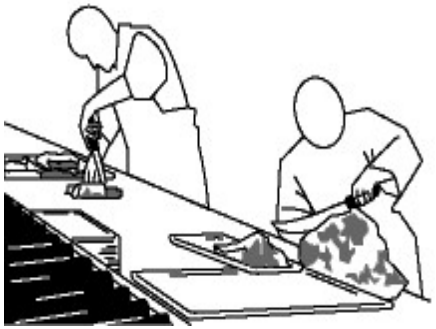


Ergonomic risk factors in meat cutting

Awkward body positions and forceful movements in cutting meat.

Lifting heavy boxes or equipment.

Highly repetitive movements in cutting wrapping, sealing and labeling meat.



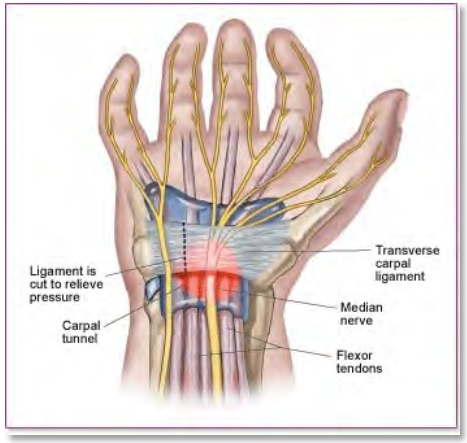
The risk of injury depends on:

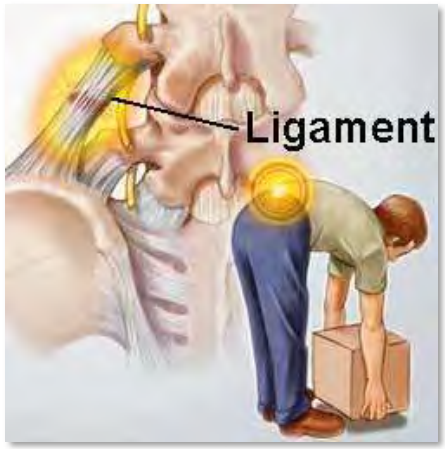
Duration of exposure – how long

Frequency of exposure – how often

Intensity of exposure – how much

Plus any combinations of these three





Awkward Posture Examples

Kneeling

Squatting

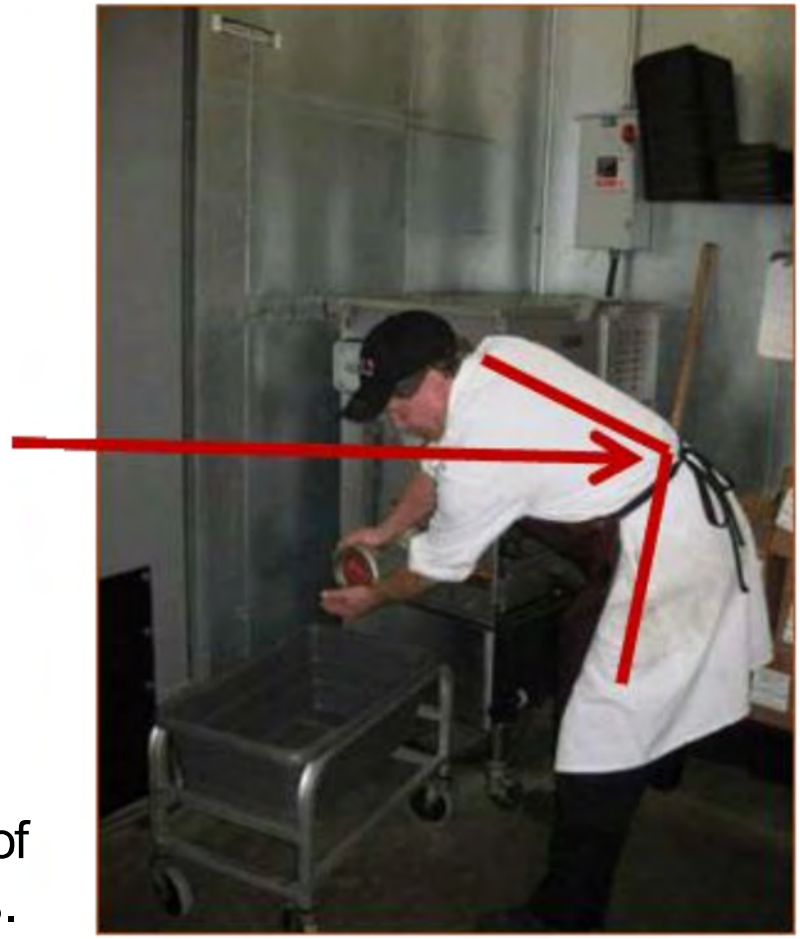
Neck bending > 30º

Back bending > 30º

Wrist bending

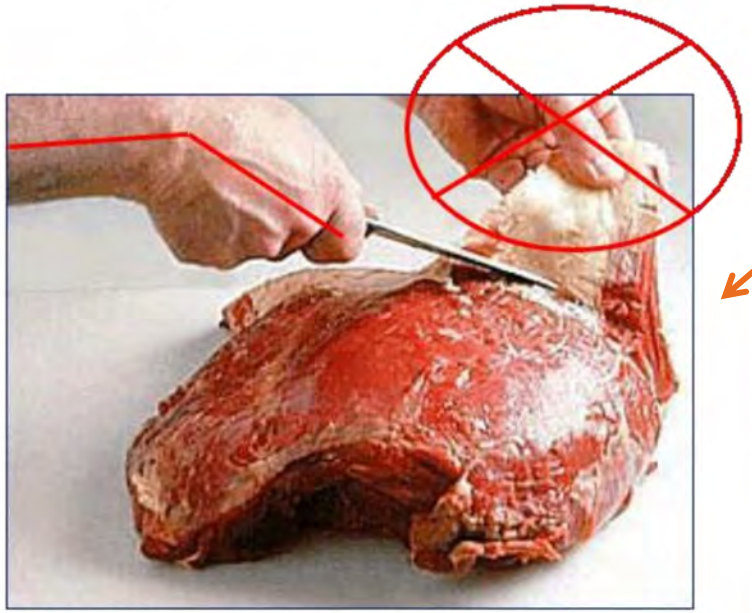
Hands above head

Elbows above shoulders



Working in any of these positions or combinations of positions for long periods of time can cause injuries.

Examples of three potential injury situations



This worker could end up with a sore right wrist and a cut right hand!

Awkward posture (bent wrist) & high force plus no cut-resistant glove.

High repetition & high force

Meat Wrapping

Meat wrapping by hand can result in wrist or elbow injury from wrist bending at awkward angles, especially if done frequently, for long periods of time and with high hand force.

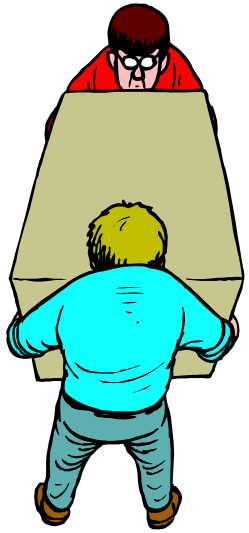
Lifting best practices

Get as close to the load as possible.

Face the load.

Bend your knees whenever possible.

While lifting, carrying, and lowering materials, keep the load as close to your trunk as possible.



Get help if the load is too heavy or bulky.

Avoid twisting your back.

After heavy lifting, take a mini-break. Pause a few seconds to straighten your back and stretch.

Link to lifting hazards online course

Preventing ergonomic injuries

Risk Factor	Prevention Measures
All ergonomic injuries	Stretching & exercise
Awkward Posture	Set up work area to minimize excessive kneeling, squatting, neck, back & wrist bending, hands above head, elbows above shoulder
Heavy Lifting	Get help to lift heavy objects or use carts, avoid twisting back, bend the knees, keep it close
Repetitive Movement	Take short breaks during repetitive tasks, rotate jobs
Hard Concrete Floors	Use cushioned floor mats, wear supportive shoes

Link – meatcutter ergonomics - Canada

How does cold affect work performance?

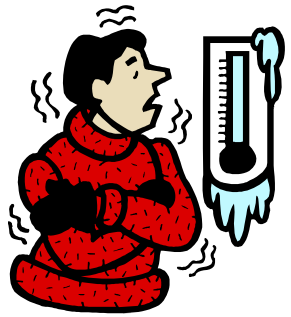
Uncomfortably cold working conditions

COLD STRESS

Immediate signs:

- decreased alertness
- restlessness, lack of concentration
- impaired performance of complex mental tasks
- impaired ability to perform manual tasks
- numbness, muscle weakness, stiffened joints

- Lower work efficiency
- Higher accident rates



Risk Factors for Cold Stress

Wearing inadequate or wet clothing increases the effects of cold on the body.

Alcohol, nicotine, caffeine, and certain medication can inhibit the body's response to the cold or impair judgment.

Having a cold or certain diseases, such as diabetes, heart, vascular, and thyroid problems, may increase susceptibility.

Men can experience greater problems from cold exposure than women, due to body-fat composition and other physiological differences.

Becoming exhausted may speed up the effects of cold weather.

Increased age and poor physical condition increases susceptibility

Sanitation in Meat Cutting

<u>To reduce risk of bacterial contamination</u>

Wash your hands for at least 20 seconds with soap and water before work or in between tasks.

Start with clean equipment and clean thoroughly after using.

Be sure all surfaces that come into contact with meat are clean. Sanitize surfaces with a solution of 1 tablespoon chlorine bleach per gallon of water and allow to air dry.

Keep raw meat separate from other foods.

Keep meat as cold as possible (40 degrees F or lower) during processing.

Additional Resources

DOSH Machine Guarding Rules (WAC 296-806)

How to do a Job Hazard Analysis

Meatcutter apprenticeship information

Working in cold environments

How to Control Repetitive Hand & Wrist Tasks

Lift height and risk of injury

Repetitive Stress Injuries - UFCW

DOSH Consultation Services

Your employer can request a safety & health worksite evaluation:

- By employer invitation only
- Free
- Confidential
- No citations or penalties
- Receive letter explaining findings
- Follow-up on all serious hazards

Washington State Department of Labor & Industries

For additional assistance, you can call one of our consultants.

L&I office locations

The following assisted us in developing this course:

Safeway – Tumwater Branch

Stewart's Meat Market - McKenna

Thank You !!

WHAT TO DO WHEN YOU ARE ISSUED A

BOIL WATER ORDER

Public Health
Seattle & King County

A **Boil Water Order** is issued when bacteria or other organisms that may be harmful are found in the water supply. All food establishments must do the following during a boil water order.

1 Stop Operations

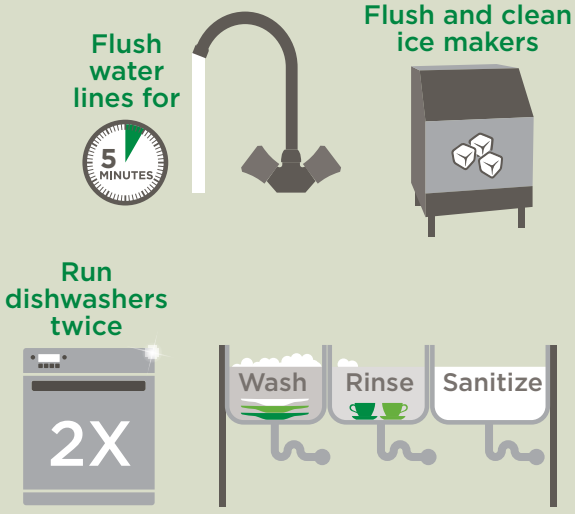
- This means: Stop all food service until the order is removed
- Including: cooking, food preparation, and washing

2 During the Boil Water Order

- Hand washing
  - Wash hands with soap and warm water for 20 seconds
  - Dry hands with clean paper towels
  - After washing, use hand sanitizer
- Throw away all fresh produce that was washed
- Report any illnesses to Public Health **206-296-4774**

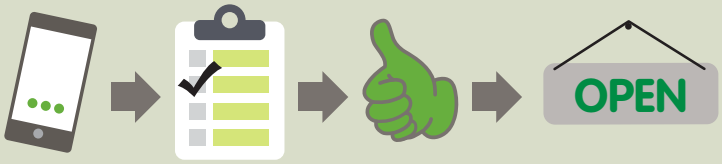
3 After the Order is Removed

- Flush all water lines for 5 minutes
- Wash, rinse, and sanitize food contact surfaces and sinks
- Empty and flush ice makers, clean and sanitize inside, and discard the first batch of ice
- Drain beverage machines and flush water lines
- Run dishwashers empty for at least two cycles
- Wash, rinse and sanitize all utensils, cups and plates



4 Re-Opening

Contact Public Health for re-opening inspection/approval: **206-263-9566**



See other side for detailed instructions.

DETAILED INSTRUCTIONS FOR A BOIL WATER ORDER AND FOOD ESTABLISHMENTS

All food establishments must do the following during a boil water order.

If you have any questions about procedures, contact Public Health at 206-263-9566.

1 Stop Operations

- A boil water order is issued when bacteria or other organisms that may be harmful are found in the water supply.
- You need to stop all of your food service operations until the order is lifted.
- Do not resume any food service operations until the water district and Department of Health have determined the water meets safe drinking water standards.

2 During the Boil Water Order

- Block all drinking water fountains and throw away all ice.
- Any produce (fruits, vegetables and herbs) that was washed prior to the order must be thrown away.
- Wash hands with soap and warm water for 20 seconds. Dry with clean paper towels. Follow with use of hand sanitizer. Do not allow bare hand contact with ready-to-eat foods.
- There may be an option to operate with a more limited menu, please contact Public Health to see if your establishment qualifies.

3 After the Boil Water Order is Removed

- Flush all water lines in your establishment. Run the water on full for five minutes. Remember to flush: faucets, ice makers, drink machines, dishwashers, and all other systems that use running water.
- Wash and sanitize your ice maker. Discard the first batch of ice.
- Beverage machines that use tap water must be drained and flushed.
- Run dishwashers empty for at least two cycles. Ensure that your dishwasher is operating properly by either testing the chemical sanitizer with appropriate test strips (50 – 100 ppm for chlorine) or by checking the water temperature on the gauges (180° F).
- Utensils, cups, and plates should be re-washed, rinsed, and sanitized.
- Running water dipper wells should be flushed. The wells should be drained, washed, rinsed, and sanitized before putting back for use.

4 Re-Opening

Before you can open contact Public Health at **206-263-9566**.

WHAT TO DO IN THE EVENT OF A POWER OUTAGE

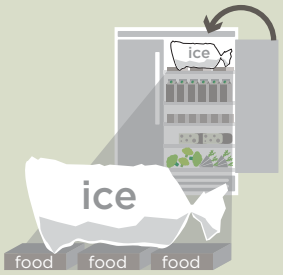
Public Health
Seattle & King County

All food establishments must:

1 Stop Operations

- This means: no food preparation or service
- Record time of power outage

2 While the Power is Out

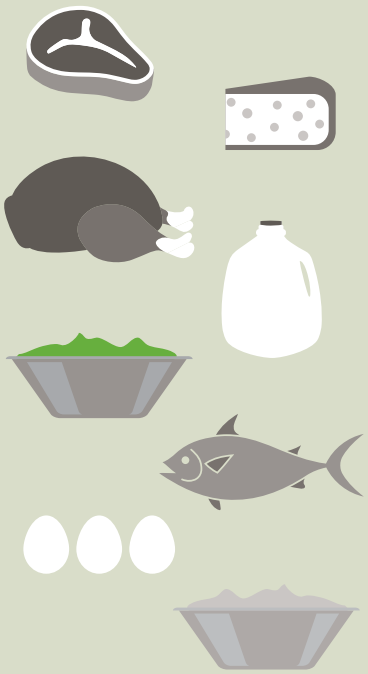


- Check the temperature of PHF
  - **PHF that is at or below 41°F** at the time the power is out: Keep cold
  - **PHF that is between 42°F -135°F** at the time the power goes out: Throw away
- Place bags of ice in coolers/freezers
- Keep refrigerator and freezer doors closed

3 After Power is Restored

- When the power comes back, check cold holding and throw away any PHF above 41°F or use the table below for guidelines on what food is safe to keep or serve. If the time is unknown, throw away.
- **Check operation of:**
  - ✔ Refrigerators/freezers
  - ✔ Hot and cold potable water
  - ✔ Hot food holding systems
  - ✔ Ventilation systems
  - ✔ Cooking equipment
- Frozen food that remained frozen can be saved

Potentially Hazardous Foods (PHF) include: high protein foods (meat, poultry, fish, eggs, dairy, cheeses); cooked rice, beans, potatoes, pasta, and vegetables; potato/pasta salads; custards/puddings; and cut leafy greens



Cold Food Temperature and Holding Time Guidelines

Time	42° to 45° F	46° to 55° F	56° F or above
0 to 4 hours	Safe to sell	Immediately cool to 41° F	Reheat to 165° F
4 to 12 hours	Safe to sell	Immediately cool to 41° F	PHF cannot be sold, throw away the food
12+ hours	Immediately cool to 41° F	PHF cannot be sold, throw away the food	PHF cannot be sold, throw away the food

Contact Public Health for any questions and for re-opening approval: 206-263-9566

See other side for detailed instructions.

DETAILED INSTRUCTIONS FOR POWER OUTAGE PROCEDURES

All food establishments must do the following in the event of a power outage.
Call Public Health for approval to open or questions: 206-263-9566.

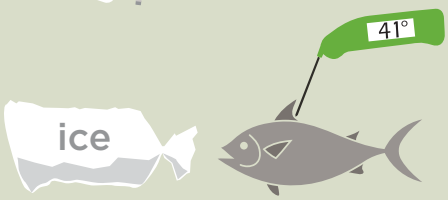
Potentially Hazardous Foods (PHF): include high protein foods (meat, poultry, fish, eggs, dairy, cheeses); cooked rice, beans, potatoes, pasta, and vegetables; potato/pasta salads; custards/puddings; cut leafy greens; and other similar food.

1 Stop Operations

During a power outage the establishment must be closed. Record the time of the power outage.

2 While the Power is Out

- Check the temperature of PHF
  - **PHF that is at or below 41°F** at the time the power is out: Keep cold
  - **PHF that is above 41°F** at the time the power goes out: Throw away
- Place bags of ice in coolers/freezers. Dry ice should not be used in enclosed spaces. Keep refrigerator and freezer doors closed at all times.
- **Do not place hot food in refrigerators or freezers.** Discard all PHF under 135°F after 4 hours. If power returns within 4 hours, reheat food to 165°F.



3 After Power is Restored

Follow these guidelines before re-opening the establishment.

Handling & discarding PHF – Use a clean and sanitized digital thermometer to identify PHF above 41°F. Consult the table on the opposite page for guidelines on how to handle and when to discard PHF. If time is unknown, discard. If in doubt, throw it out!

Frozen food – If food remained solid and there is no evidence of thawing, such as weeping, stains, physical depreciation, or container damage, food may be kept. Otherwise, throw away.

Check the following systems:

Ventilation – mechanical ventilation must be working before cooking operations can begin

Hot holding – hot holding equipment holds at **135°F or higher**

Refrigeration – refrigerators are holding at a temperature of **41°F or below**

Water – hot water out of the tap is **at least 100°F**

BE SAFE!

DO NOT USE: Charcoal, Wood, or Gas Cooking Equipment or Portable Generators Indoors!

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Thank you for taking an active role in food safety.

The information in this manual will help you store, prepare, and serve food safely.

Food safety knowledge prevents foodborne illness. Use what you learn from this manual at work and home.

After you read this manual, we hope you will remember these tips:

1. Never work when you are sick.
2. Wash your hands well and when needed.
3. Don't touch ready to eat food with bare hands.
4. Keep food hot or cold.
5. Cook food to the right temperature.
6. Cool hot food quickly.
7. Keep raw meat away from other food.
8. Clean and sanitize food equipment and keep your facility clean.
9. Always get food from a safe source or supplier.
10. Continue to learn and ask questions.

Remember: You are the most important ingredient in safe food!

Foodborne Illness

People get sick with foodborne illness when they eat food with harmful germs in it. Germs can get into food at any time. It's important to learn how to handle food safely to reduce the risk of foodborne illness.

Symptoms

Some foodborne illnesses cause symptoms like:

Diarrhea

Vomiting

Fever

Symptoms can be very serious and cause people to go to the hospital or die. Children, older adults, pregnant women, and people with chronic illness are more likely to get seriously ill.

Stay home if you feel sick.

Do not work with food when you are sick. Sick food workers can spread germs to food, surfaces, utensils, and other people.

Do you have:

Diarrhea or vomiting?	Yellow skin or eyes?
Do not work around food until you have no symptoms for at least 24 hours.	Stay home and see a doctor.

Do not go to work if you have:

- Hepatitis A
- *Salmonella*
- *Shigella*
- *E. coli*
- Norovirus

Foodborne illness is very common.

Foodborne illnesses per year:

48,000,000

Hospitalizations caused by foodborne illnesses per year:

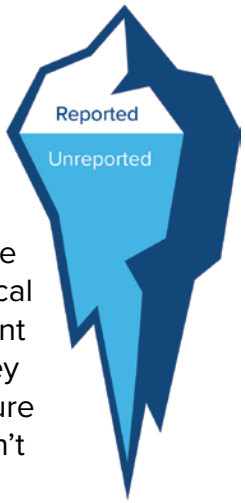
128,000

Deaths caused by foodborne illnesses per year:

3,000

Data source: CDC

Report foodborne illness.



Most cases go unreported. Report foodborne illness to your local health department immediately. They will help make sure more people don't get sick.

Scan QR code with phone to watch video online.

Food Worker Health

A healthy food worker helps prevent foodborne illness. Do not work with food if you feel sick. You can spread germs to food and other people.

Do not go to work if you have:

- Diarrhea, vomiting, or jaundice
- *Salmonella, Shigella, E. coli*, hepatitis A, or norovirus
- A sore throat with a fever and work with a Highly Susceptible Population

Do not work until vomiting and diarrhea are gone for at least 24 hours.

Call the health department if you are diagnosed with illness or jaundice.

Do not work with food or anything that touches food if you have:

- An infected wound you cannot cover
- Sneezing, coughing, or a runny nose
- A sore throat with a fever
- Been near someone with foodborne illness and you work with a Highly Susceptible Population

You can do jobs like:

- Take out the trash
- Sweep
- Mop
- Clean restrooms

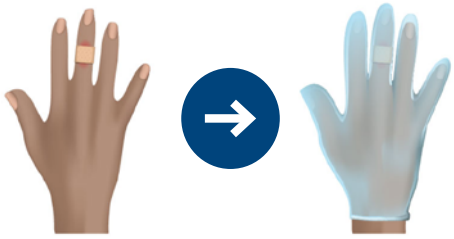
Tell the Person in Charge if you have been near someone with foodborne illness.

Personal Hygiene

Food workers can spread germs to food even if they look and feel healthy. Keep germs from getting into food with good personal hygiene.

Tips for good hygiene:

- Do not work with food when you are sick.
- Wash your hands often.
- Use utensils or clean gloves to handle food.
- Trim and clean fingernails.
- Wear clean clothing.
- Keep hair tied back, short, or covered with a hair net.
- Do not wear your apron or gloves to the bathroom.
- Cover a cut, burn, or sore on your hand with a bandage and a disposable glove.



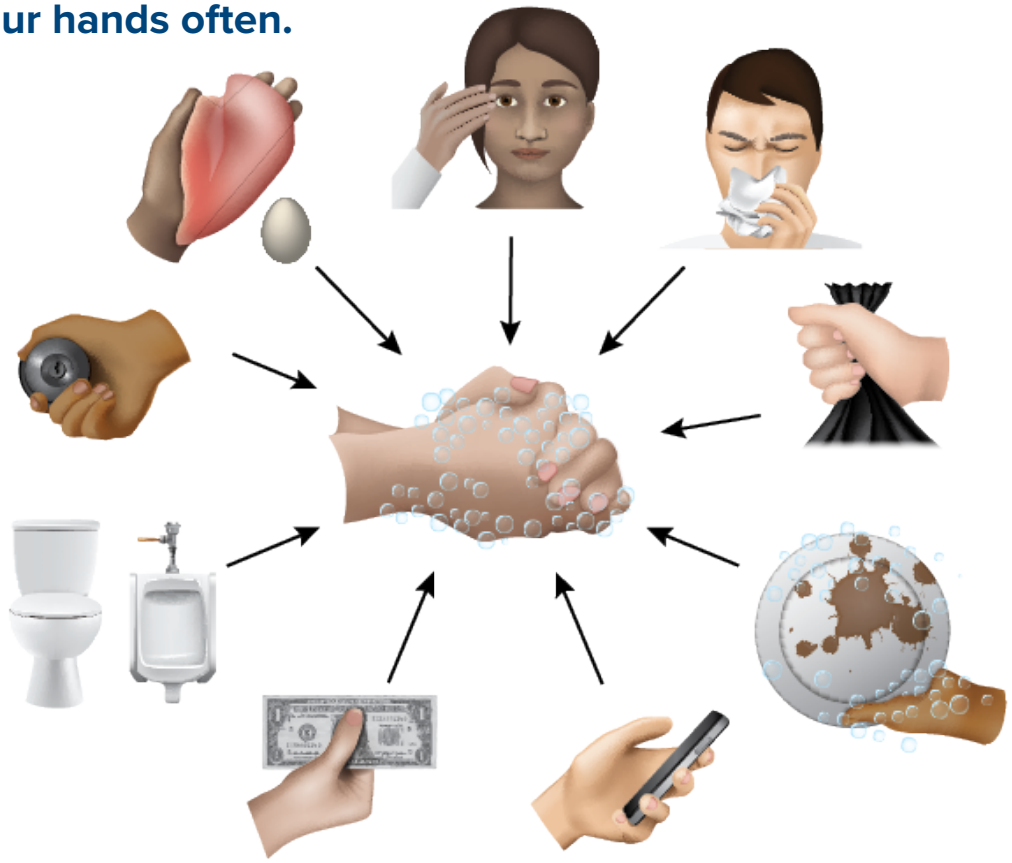
Scan QR code with phone to watch video online.

Handwashing

The best way to prevent foodborne illness is to wash your hands. Germs on your hands can get into food when you don't wash your hands correctly. You can't see germs with your eyes, so you can spread germs even if your hands look clean.

Scan QR code with phone to watch video online.

Wash your hands often.



Wash your hands after you:

- Use the bathroom
- Enter the kitchen
- Touch raw meat, seafood, poultry, or eggs
- Touch your hair or face
- Cough or sneeze
- Handle garbage, dirty dishes, money, or chemicals
- Eat, drink, or smoke
- Take a break or use your phone

Hand Sanitizer

Do not use hand sanitizer instead of handwashing. You may use a hand sanitizer after washing your hands.

Wash whenever your hands are dirty.

Trim fingernails so they are easy to clean. Wear gloves over painted or artificial fingernails to prepare food. For example, wear gloves to stir soup if you have artificial fingernails.

Bare Hand Contact

Scan QR code with phone to watch video online.

Never touch ready to eat food with your bare hands. Even with good handwashing, some germs remain on your hands and can get onto food.

Ready to eat food

Ready to eat food can be eaten without washing or cooking to remove germs. Examples:

- **Washed fruits and vegetables that will not get cooked.**
  Like sliced fruit, salad, pickles, and drink garnishes.
- **Bakery or bread items.**
  Like toast, cake, cookies, and tortillas.
- **Cooked food.**
  Like pizza, hamburgers, hot dogs, and tacos.
- **Food that will not get cooked.**
  Like sandwiches, sushi, deli meat, and ice for drinks.

Use disposable gloves, tongs, scoops, deli tissue, or other utensils to handle ready to eat food.

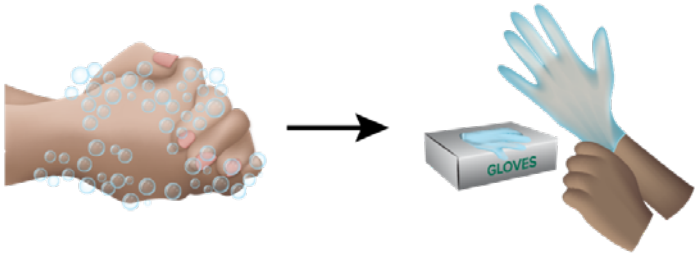
For example, use tongs for salad and deli tissue to handle cookies. Wear gloves to make a sandwich, prepare sushi, or slice vegetables.

Gloves

Dirty hands can put germs on the outside of gloves. Gloves are used to protect food from germs, not to protect your hands from the food.

Remember these rules for using gloves:

- Wash hands before putting on gloves.
- Only use disposable gloves.
- Never wash or reuse gloves.
- Throw gloves away after use.
- Change gloves that get ripped.
- Change gloves that may be contaminated.
- Remove gloves and wash hands after working with raw food.
- Use gloves to cover cuts, sores, or bandages.



Reduce waste. If you use a utensil, like tongs or a scoop, you don't need to wear gloves.

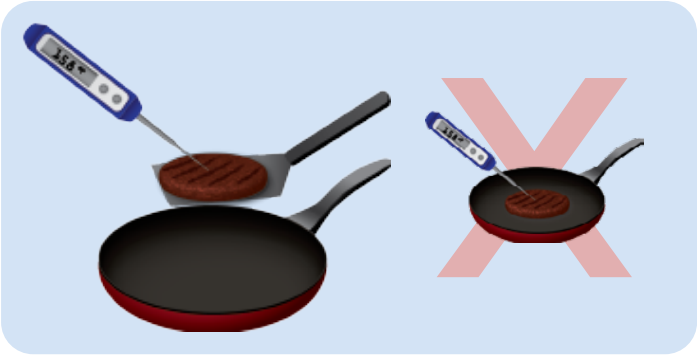
Thermometer Use

You can't tell if food is fully cooked by its color or how long it's been cooking. A thermometer is the only way to tell if food is fully cooked.

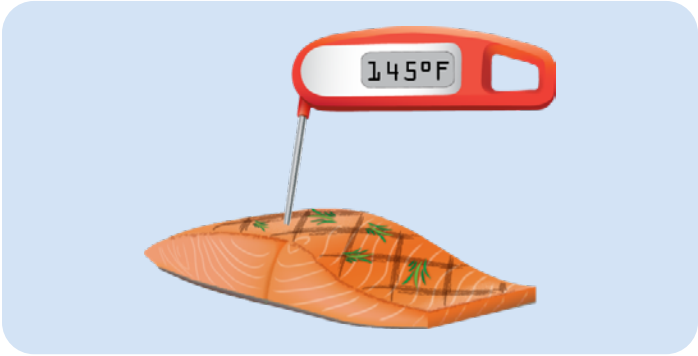
Scan QR code with phone to watch video online.

Every food establishment must have and use an accurate food thermometer. It must have a thin metal probe and be able to read temperatures between 0° and 220°F.

Use a thermometer correctly to get an accurate temperature.



Lift the food with a utensil or remove it from the cooking surface. Don't measure the food when it's on the cooking surface.



Poke the thermometer into the thickest part of the food. Wait until the temperature on the thermometer stops changing. This can take up to a minute.

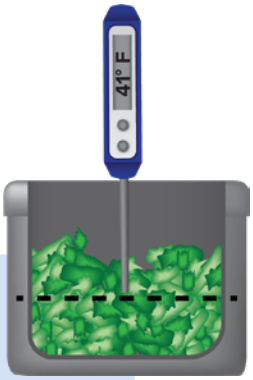
Check your thermometer to make sure it is accurate. Put the probe of the thermometer in a cup of crushed ice and water. The temperature should read 32°F. Adjust or replace the thermometer if it doesn't read 32°F.

Always clean and sanitize your thermometer before and after use. After cleaning, wipe with a sanitized cloth or use an alcohol wipe.

Cold Holding

Keep Temperature Control for Safety (TCS) food at 41°F or colder. This is called cold holding. Bacteria grow quickly when food is in the Danger Zone. Keep food cold in a refrigerator or surrounded by ice.

Use a thermometer to check the temperature of cold food.



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Tips for keeping food cold:

- Keep refrigerator doors shut as much as possible.
- In a prep cooler, use deeper pans and lids to help trap cold air. Do not overfill pans.
- If using ice, keep the ice level as high as the food level. Completely surround the container of food.
- Check the temperature often with a food thermometer.

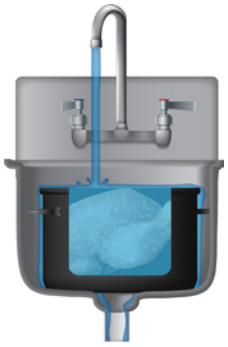
Thawing

Thaw frozen food safely to keep bacteria from growing.

Never thaw food on the counter or at room temperature.

There are 3 safe ways to thaw food:

In the refrigerator.
This is the best method, but it can take a while. Plan ahead.



In a food preparation sink.
Submerge food under cold running water. Never use hot water. Cook immediately or put it in the refrigerator once food is thawed.

In a microwave.
Cook the food immediately after thawing.

Cross Contamination

Raw meats—like beef, poultry, seafood, and eggs—may have germs. Cross contamination happens when germs from raw meat get onto other food. Eating food contaminated by raw meat can cause foodborne illness.

Keep raw meat separate from other food.

Store raw meat below other food in the refrigerator.

Store raw meat on shelves in order of cooking temperature. The higher the cooking temperature, the lower the shelf. Store raw fish and eggs higher than ground beef and ground pork. Store chicken and poultry on the bottom.

Ready to eat food

↓

Raw fish and eggs

↓

Raw ground or tenderized beef or pork

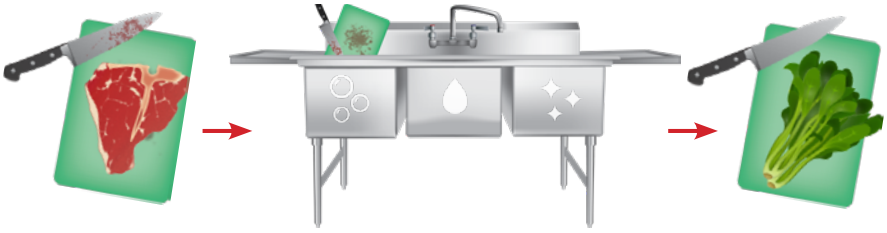
↓

Raw poultry

Prepare raw meat away from other food.

Use separate cutting boards and utensils. Prepare raw meat and produce in separate sinks.

Clean and sanitize after you prepare raw meat.



Blood or juice from raw meat can get onto surfaces and other food. Clean and sanitize the counter, cutting board, sink, and utensils after you prepare raw meat.

Wash hands after handling raw meat.

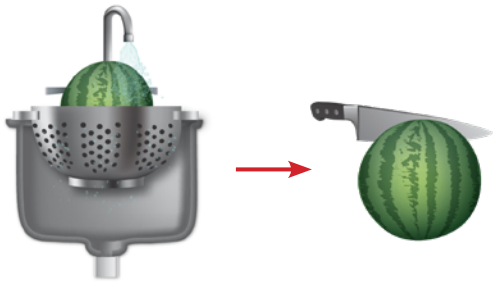
Produce Washing

Produce can have germs, dirt, and pesticides on the outside.

Wash produce before you prepare it, even if it will be cooked.

Rinse in cold running water. Do not use soap.

Wash produce, like avocados and melons, even though you don't eat the outside. A knife can carry germs and dirt from the outside to the inside of produce.



Clean and sanitize work surfaces raw produce has touched.

Keep unwashed produce separate from washed produce. Store unwashed produce below ready to eat food.

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Clean and Sanitize

Cleaning and sanitizing are not the same.

Cleaning uses soap and water to get rid of food, dirt, and grease.

Surfaces may look clean and still have germs you can't see.

Sanitizing uses chemicals or heat to kill germs.

Approved sanitizers:

- Chlorine bleach
- Quaternary ammonium
- Iodine

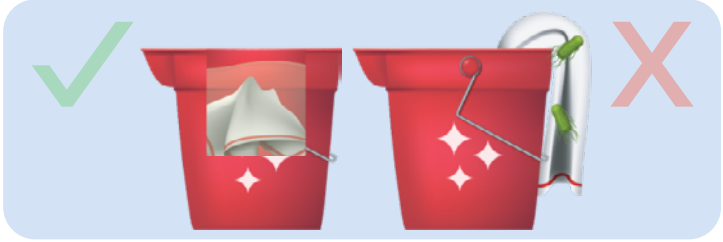
Other sanitizers are available.

Always follow instructions on the label.

Always measure when mixing sanitizer.
Do not add soap. Soap prevents sanitizer from killing germs. A common sanitizer is 1 teaspoon of bleach per gallon of water.

Check sanitizer strength.
Use test strips to make sure sanitizer is the right strength.

Use separate sanitizers.
Sanitize surfaces before and after you prepare raw meat and ready to eat food.



Store wiping cloths in sanitizer.
This stops germs from growing on the cloth.

Make sanitizer often.
It stops working over time. Change sanitizer if it becomes dirty or cloudy.

Wash, rinse, and sanitize utensils and equipment after use.
Always store them clean and sanitized.

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Dishwashing

Clean and sanitize dishes, utensils, and equipment. Wash dishes by hand in a 3-compartment sink or with a dishwasher.

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Follow these steps:

1. Scrape leftover food and grease into the trash.
2. Wash with hot, soapy water.
3. Rinse with hot, clean water.
4. Soak in sanitizer. Use test strips to make sure sanitizer is the right strength.
5. Air dry. Never use a towel. Towels can spread germs.

Dishwasher tips:

- Scrape leftover food and grease into the trash.
- Dishwashers use heat or chemicals to sanitize. Use test strips to make sure it is sanitizing correctly.
- Air dry dishes before you put them away.

Prep tables and large equipment

Not everything fits in a dishwasher or 3-compartment sink.

Steps to clean and sanitize other equipment:

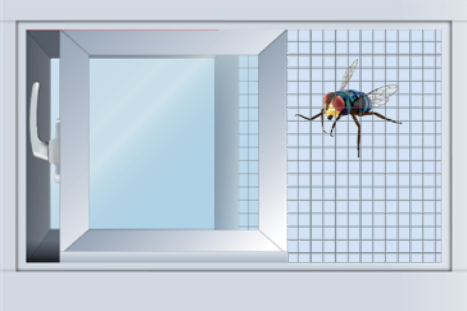
1. Scrub with hot, soapy water.
2. Rinse with clean water.
3. Wipe on sanitizer with a clean cloth.
4. Allow to air dry.

Clean and sanitize often.

Clean surfaces that touch food every 4 hours. Don't wait until the end of the day.

Pest Control

Pests like flies, cockroaches, and mice spread germs.



Don't let pests in.
Keep doors and windows shut or screened. Cover holes where pests can enter.

Use garbage cans with tight fitting lids.
Keep garbage areas clean.

Clean regularly and keep food covered.
Pests are always looking for a meal. Keep areas including floors and walls clean and dry. If pests can't find anything to eat or drink, they usually don't stay.

Look for signs of pests like droppings or chewed packaging.
If you have a pest problem, contact a licensed specialist. Never use homestyle pesticides.

It is easier to keep pests out than it is to get rid of them.

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Emergencies

Some situations make it unsafe to prepare or serve food. You may need to close until the problem is fixed.

Contact the health department for help with:

- A power outage
- No hot water or no water at all
- A sewage back-up
- A fire
- A flood
- A refrigerator or walk-in not keeping food cold
- Important equipment not working
- Chemical contamination
- A possible foodborne illness outbreak
- An employee that vomits or has diarrhea at work
- Anything that makes it difficult to safely prepare food

After an emergency food may not be safe to serve.

Check the food. Throw it away when it:

- Has been contaminated
- Warmed above 41°F
- Cooled below 135°F

When in doubt, throw it out.

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