

Grilling Outdoors Safely



Source: Paweł Kadysz (CC 0)

Rebecca Dittmar
and Jenna Anding*

Outdoor grilling is a fun way to cook food for family and friends. Although we often think about grilling as a summer activity, many people cook outdoors all year.

To keep your cookouts safe, follow these simple steps before, during, and after grilling to make sure that your workspace is clean and your food is prepared safely.

Before you begin

Choose meat, poultry, or seafood that is fresh and of high quality. After you buy it, get it home and in the refrigerator right away.

If the trip home takes more than 30 minutes, use a cooler. Cook or freeze fresh poultry, fish, seafood, or ground beef within 1 or 2 days; cook or freeze other meats such as steak and pork chops within 4 or 5 days.

Thaw foods safely. The best way to thaw frozen meat, fish, poultry, or seafood is to put it in the refrigerator. This lets it thaw completely and cook evenly. You can also thaw

foods in the microwave if you will cook them right away.

Do not thaw foods at room temperature; it can increase the number of germs that make people sick.

Marinate foods safely to add flavor, not germs. A marinade is a type of sauce used to tenderize or add flavor to foods. The amount of marinade needed depends on the amount of food that you are cooking.

A good rule is to use $\frac{1}{3}$ cup of marinade per pound of meat or poultry. If you are adding flavor, marinate for up to 2 hours. For tenderizing, marinate for up to 24 hours.

Follow these tips to marinate foods safely:

- Marinate only in the refrigerator—never on the countertop.
- If you want to use the marinade also as a sauce on the cooked meat or poultry, it is best to make an extra batch of marinade and set it aside.

Transport foods safely

When taking raw meat, poultry, fish, or seafood away from home, keep it cold (40°F or colder) with ice or ice packs. Put them in the

* Extension Program Specialist for Food Protection Management, and Professor and Associate Department Head, Nutrition and Food Science, The Texas A&M University System

cooler right before leaving, and take only what you plan to cook and eat that day.

Other tips to remember:

- Keep raw meat, poultry, and seafood tightly wrapped or stored in a sealed bag or container.
- Do not keep other foods in the same cooler as raw meat, poultry, or seafood.
- Store beverages and other perishable foods in separate coolers.
- Keep raw meat, poultry, and seafood refrigerated until you are ready to cook them. Take out only the amount that will be placed on the grill immediately.
- Keep coolers in the shade or out of direct sunlight to keep the temperature at 40°F or colder.
- To keep the cold air inside, open the coolers only when absolutely necessary.

Clean before, during, and after cooking

You can reduce the spread of harmful germs to food by keeping your hands, cooking area, and cooking utensils clean. When cooking away from home (such as at a park or campsite), make sure to have plenty of clean water for washing hands and utensils.

If there is not a source of clean water, bring your own. You can also use paper towels, towelettes, and hand sanitizer to clean your hands. Keep in mind that hand sanitizers reduce germs but not as well if your hands have visible dirt on them.

Other tips to keep germs from spreading:

- Wash your hands **before and after** touching raw meat, poultry, or seafood.
- **Wash work surfaces and cutting boards with hot, soapy water and sanitize them before and after grilling.** To make a sanitizing solution, mix 1 teaspoon of bleach with 1 quart of water.
- If you are away from home and have no hot water, use cutting boards only once.

General grill safety

- Propane and charcoal grills should be used outdoors only.
- Keep grills away from children and the home, deck railings, dogs, and out from under trees.
- Never leave a grill unattended.
- Open the lid of gas grills before lighting them.
- Never add lighter fluid when food is on the grill.
- When the food is done, be sure that the coals are cool before leaving the area or disposing of the contents.

Do not use them again until they have been cleaned and sanitized.

- Try to use one cutting board for fresh produce and another for raw meat, poultry, fish, and seafood.
- After you have put raw meat, poultry, fish, or seafood on the grill, **wash the utensils and platters with hot, soapy water before using them to serve the cooked food.** Otherwise, the unwashed platters and utensils will contaminate the cooked foods.

Cook foods to a safe internal temperature

To kill harmful germs, cook foods to a safe internal temperature. Meat and poultry cooked on a grill can brown very quickly, making it look like it is done. However, **the only way to tell if a food is cooked enough is to measure its internal temperature with a food thermometer.**

The chart on page 3 shows the minimum internal temperature that a food needs to be in order to be eaten safely.

To check the temperature, place the thermometer in the center-most part of the food—away from any bone. If the food is not done, continue cooking it. Be sure to wash the thermometer before reusing it.



Source: USDAgov (CC BY 2.0)

Test the internal temperature of meat and poultry with a food thermometer to make sure it is cooked through.

Flip meat, poultry, and fish at least once to make sure that it cooks evenly. If the fish is thin (less than ½ inch thick), you do not need to turn it.

After cooking whole cuts of meat (beef, veal, lamb, and pork) to the recommended internal temperature, remove them from the heat and allow the meat to stand (or rest) for 3 minutes before serving it.

To reduce grilling time, you can partially cook foods in a microwave, in the oven, or on the stove. Just be sure that you immediately place those foods on a preheated grill to finish the cooking process.

Keep hot foods hot

Keep cooked meat, poultry, fish, and seafood at 140°F or warmer until served. Keep cooked meats warm by moving them to the side of the grill, not directly over the coals where they could overcook.

Food	Minimum internal temperature
Beef, veal, and lamb steaks, and roasts	145°F (medium rare) 160°F (medium)
Hamburgers (made from ground beef)	160°F
Poultry (whole, ground, or parts)	165°F
Pork (all cuts)	145°F
Hot dogs (already cooked)	165°F



Source: Neeta Lind (CC BY 2.0)

Always trim meats of excess fat that can drip down on the coals and cause the flames that char the meat.

At home, place them in an oven set at 200°F or in a slow cooker.

Eat or refrigerate cooked foods right away

Cooked foods such as meat, poultry, fish, or seafood should be eaten or refrigerated right away. Never let them sit out for more than 2 hours.

When the weather is warm (90°F or above), eat or store cooked foods within 1 hour. Throw away food left out for more than 2 hours, or 1 hour if it is 90°F or above.

Is grilling hazardous to your health?

The flames and high heat can char foods cooked over a grill. Fat from the meat, fish, or poultry drips down on the hot coals, causing the flames that char the food.

Some research suggests that eating large amounts of charred foods can increase your risk of developing some forms of cancer. However, eating moderate amounts of foods cooked to a safe internal temperature without charring does not appear to increase the risk.

To prevent grilled foods from being charred:

- Remove as much of the visible fat as possible before placing the food on the grill.
- Clean the grill completely before cook-



Source: Didriks (CC BY 2.0)

Turn meat and poultry with tongs rather than a fork; a fork can pierce the flesh and release juice drippings on the coals, causing flareups that char the meat.

ing to remove any charred foods left over from past uses.

- If you are using starter fluid on charcoal, let any excess fluid burn off before placing food on the grill. Never add extra starter fluid while food is on the grill.
- Try not to use marinades that have large amounts of fat (butter, margarine, or vegetable oil)
- Cover the grill with aluminum foil. Punch holes between the grids to let juices drip out.
- Use tongs instead of a fork when cooking. The prongs of a fork can pierce meat and poultry, releasing the juices that cause the flames.
- If grilling fish or vegetables, wrap them in aluminum foil before placing them on the grill.

- Microwave food just before grilling. This can release some of the juices that drip on the coals and cause flames.
- Cut off and throw away the charred parts of cooked foods.

For more information

American Dietetic Association Complete Food and Nutrition Guide, by Roberta Larson Duyff. 3rd edition. Wiley Publishers, New Jersey, 2006

Barbecue and Food Safety, by the USDA Food Safety and Inspection Service. http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/barbecue-and-food-safety/CT_Index

Chemicals in Meat Cooked at High Temperatures and Cancer Risk, by the National Cancer Institute. <http://www.cancer.gov/about-cancer/causes-prevention/risk/diet/cooked-meats-fact-sheet>

Is it done yet? Food Safety Education Campaign, by USDA. <http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/teach-others/fsis-educational-campaigns/is-it-done-yet>

National Fire Protection Agency <http://www.nfpa.org/safety-information/for-consumers/outdoors/grilling/grilling-safety-tips>

Outdoor Food Preparation and Safety, by Tim Roberts. Virginia Cooperative Extension. <http://offices.ext.vt.edu/suffolk/programs/fcs/>

Texas A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

More Extension publications can be found at AgriLifeBookstore.org

Texas A&M AgriLife does not discriminate on the basis of race, color, religion, sex, national origin, disability, age, genetic information, veteran status, sexual orientation or gender identity and provides equal access in its programs, activities, education and employment.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.

New