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Grilling and Tailgating Safety

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With football season in full swing, many people enjoy grilling and tailgating on the weekends. While many are seasoned grillers, there are always tips to up your grilling game. Implementing a few best practices can improve the quality of grilled foods and ensure safety for you and your guests.

Plan Ahead

Planning ahead is the key to being able to safely prepare food away from home. Some questions to consider:

- **Will I have running water?** If not, consider having a small handwashing station so that you and your guests can properly clean your hands and utensils while making and eating food. North Carolina State University Extension[1] has compiled great information to create your own handwashing station.
- **Will I have refrigeration?** If not, pack a cooler with plenty of ice so food and leftovers can be stored properly before and after cooking.
- **Do I have enough utensils?** If you will not be able to wash utensils between uses for raw and cooked foods, pack extra so that you have clean utensils to use for cooked foods and wash the used utensils at home.

While planning ahead takes a bit more effort and supplies, you'll be able to keep your tailgating area clean and hygienic and avoid getting sick from a foodborne illness during or after the game.

Avoid Cross-Contamination

Cross-contamination is the act of transferring microorganisms from one food or surface to another, usually unintentionally.[2] Cross-contamination can occur at home or in food establishments and can cause foodborne illness. The risk may be even more prevalent during tailgating or grilling if you are without your usual resources and tools. The physical transfer of microorganisms can occur in the following ways:

- ☒ ***Problem***: Touching prepared or ready-to-eat foods after you have touched raw meats or produce.
- ☑ ***Solution***: Washing your hands thoroughly between tasks is the best way to prevent cross-contamination through handling.
- ☒ ***Problem***: Using the same hand towel to wipe dirty hands and dry clean hands after washing.
- ☑ ***Solution***: Washing hands properly (scrubbing for at least 20 seconds) and using disposable paper towels prevents cross-contamination between towels. If you cannot use disposable towels, washing thoroughly before drying on a cloth or reusable towel can help prevent cross-contamination.[3]
- ☒ ***Problem***: Using the same tongs, knives, or utensils for raw and cooked foods.
- ☑ ***Solution***: Clean and thoroughly wash utensils in between uses or get a fresh pair.

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- ☒ ***Problem***: Using the same surfaces for preparing raw foods as storing or serving cooked foods.
- ☑ ***Solution***: Clean and thoroughly wash surfaces and platters between uses or use a different platter for cooked foods. Follow the instructions on the label if using a sanitizer after cleaning a surface.
- ☒ ***Problem***: Touching prepared or ready-to-eat foods with unclean hands.
- ☑ ***Solution***: Ask all guests and helpers to wash their hands thoroughly before handling foods that others will consume.

Many instances of cross-contamination have been documented within consumer homes via cutting boards, hand towels, and other surfaces, but you can be diligent at your tailgate and prevent foodborne illness.[4, 5, 6]

Follow Proper Heating and Cooling Practices

Being a master tailgater means you also have mastered the fire (or refrigerator). Understanding how temperature affects bacteria will help keep food safe without overcooking. Most bacteria related to foods can be eliminated or controlled with specific temperature ranges. Cooking to the right temperatures, for example, will kill many harmful foodborne pathogens. Refrigerating leftovers in a timely manner prevents bacteria from growing to dangerous levels.

Grilling Temperatures[7]

The following cooking temperatures are recommended for various meat and egg products:

1. Poultry cuts and ground products (e.g., chicken breast, whole turkey) – 165°F.
2. Whole pork cuts (e.g., ham, pork loin, pork chops) – 145°F with 3-min rest time or 160°F.
3. Beef (e.g., intact steak, beef tenderloin) – 145°F with 3-min rest.
4. Eggs or dishes with egg as an ingredient (e.g., quiche) – 160°F.
5. Non-intact* meats (e.g. ground meats, tenderized steaks, marinated meats) – 160-165°F.
6. Alternative proteins (e.g. tofu burger, plant-based sausage) – 165°F.

Assessing Temperature

The best way to take the temperature of meat is to use a calibrated, digital, tip-sensitive thermometer (Figure 1). Dial thermometers can be effective, but they are more difficult to use. A digital, tip-sensitive, instant-read thermometer can provide a faster reading. To use the thermometer, insert the thermometer until it reaches the thickest part or "cold spot" to get a reading of "doneness." You can insert the thermometer horizontally from the side to avoid accidentally sticking the probe all the way through the meat. Taking the temperature in multiple places gives you confidence of proper cooking. Checking the temperature of grilled foods can also prevent overcooking and ensure the quality and experience. Color, texture, firmness and juices are not indicators of whether a product has been cooked to a safe temperature. Checking the internal temperature is the only way to properly gauge safety.

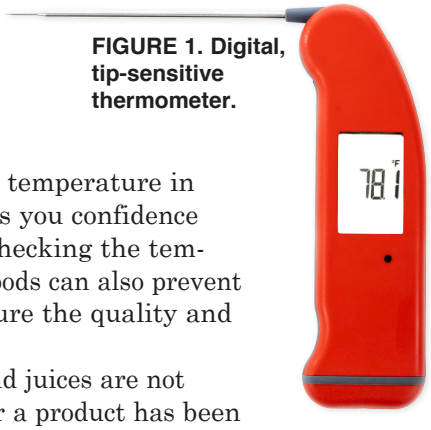
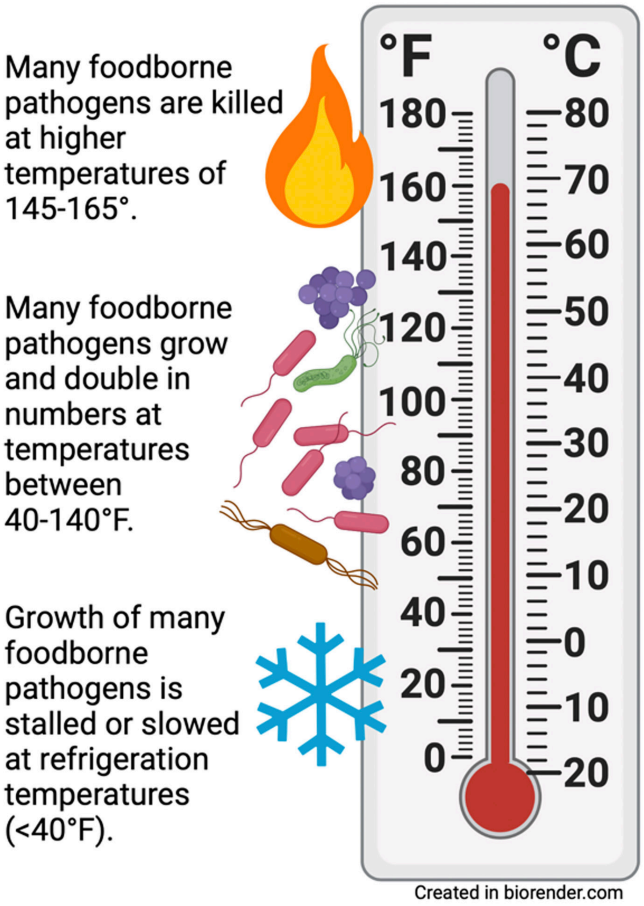


FIGURE 1. Digital, tip-sensitive thermometer.

Danger Zone Temperatures

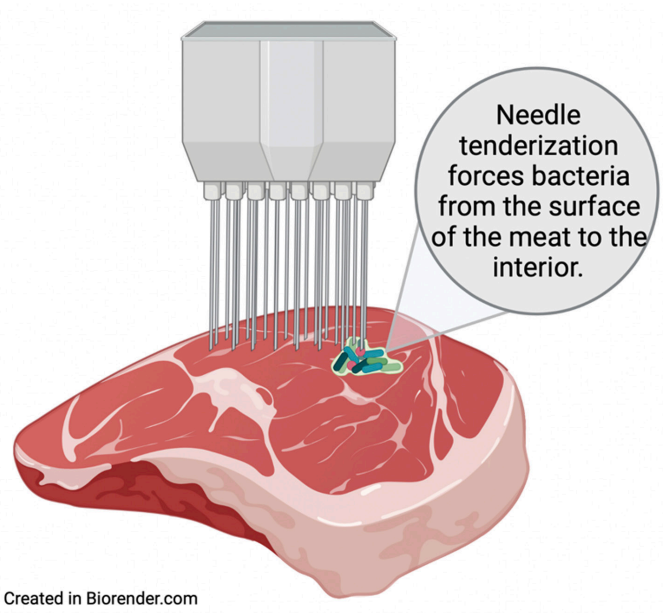
Controlling the cooking, holding and refrigeration temperatures is the best way to prevent growth of unwanted bacteria in foods. Cooking to high enough temperatures helps kill most foodborne pathogens. Refrigerating uncooked food or cooked leftovers is the primary way to prevent the growth of contaminating bacteria. When food is exposed to air or individuals handling the food, even cooked food can become a risk if not properly refrigerated. Leftovers should be refrigerated within 2 hours of cooking. Otherwise, the food may



sit at temperatures considered in the "Danger Zone." This is the temperature range of 40-140°F that pathogens prefer for growth.[8] Refrigerating foods and keeping them out of the Danger Zone will prevent the growth of pathogens that may make your leftovers unpleasant or unsafe to eat later.

*Non-intact meats

What are "non-intact" meats and why do they need to be cooked at a higher temperature than their "intact" counterparts? Non-intact meat products are those that have been "injected or enhanced with solutions, mechanically tenderized by needling, cubing, or pounding devices, or reconstructed into formed entrees."[9] Examples of non-intact meats include ground beef, sausage, marinated chicken and tenderized steaks. Some mechanically tenderized beef products sold in grocery stores are required to be labeled as such.[10] Intact meats are those that have not been altered beyond the original fabrication into primals and subprimals. Examples include steaks that have not been tenderized, briskets and roasts. Foodborne pathogens exist on the surface of the meat tissue, but not within the muscle tissue. When a cut of meat is ground, tenderized (mechanically or with a mallet), or marinated in some way, the pathogens can be forced into the center of the meat or distributed throughout.[11] Searing an intact cut of meat can kill pathogens on the surface of the meat. However, searing a non-intact cut of meat (one that has been tenderized in some way) would not kill pathogens that were transferred to the center unless the center also reaches the proper temperature.[12,13] A cut of beef that has been tenderized requires cooking to 160°F (or 145°F for 3-minute hold time) for safety. Marinating or grinding can also transfer pathogens from the surface of the meat to the center. Non-intact poultry products and ground pork and beef products should be cooked to 160-165°F.



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