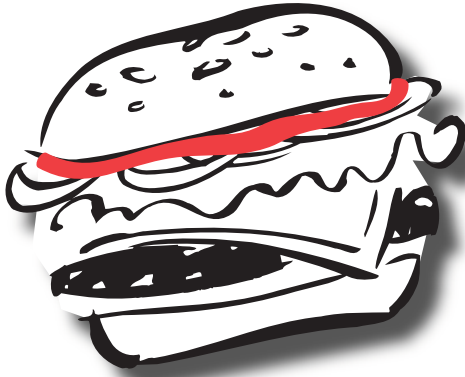


Grilling It Safely

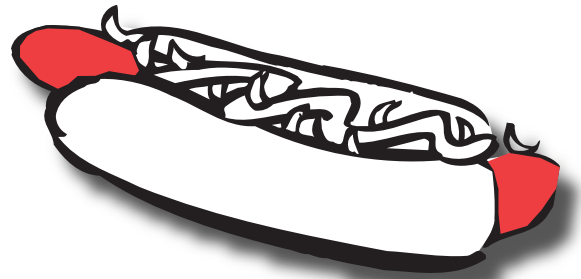


Grilling It Safely



Janie Burney, Associate Professor, Family and Consumer Sciences
Sandra Shivers, Director, Tennessee Nutrition and Consumer Education Program
Betsy Pitcock, Area Specialist, Tennessee Nutrition and Consumer Education Program
Deborah Seward, Area Specialist, Tennessee Nutrition and Consumer Education Program
Eugenia Southall, Area Specialist, Tennessee Nutrition and Consumer Education Program
Margaret Pile, Area Specialist, Tennessee Nutrition and Consumer Education Program

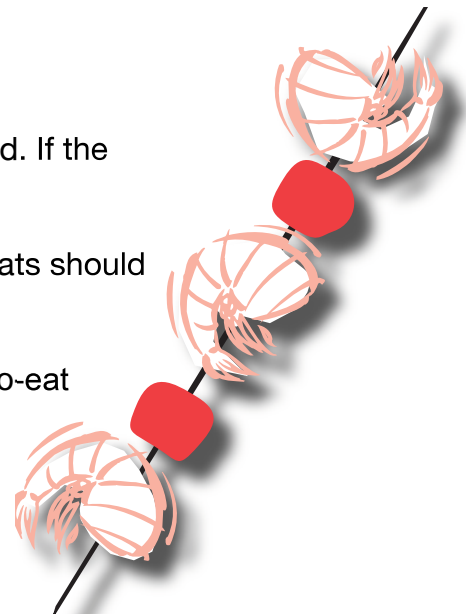
Nothing says summer like an outdoor barbeque and grilling. Cooking outdoors can get you out of that hot kitchen, and at the same time you can enjoy low-fat, low-cost meals prepared safely. In this publication, you will learn the basics of grilling and how to prevent foodborne illness.



Shopping and the Trip Home

Food safety is important when you shop. Follow these simple suggestions to keep your food safe from the grocery store to your home.

- Make the grocery store your last stop before going home.
- Shop for your meat, poultry and fish last.
- Check all packages carefully.
 - Do not buy food in packages that are open, torn or damaged. If the package is sealed, check to see that the seal is not broken.
 - Check the sell-by dates on the labels. As a general rule, meats should be frozen or cooked within 1 to 2 days of the sell-by date.
- Put your meat, poultry and fish in a separate bag from ready-to-eat foods, such as vegetables, salads and fruits.
- Choose the coolest place in the car for your groceries. If you are riding the bus, take along a canvas bag or ask the store to double bag your meats and other cold items.



- Take your groceries home as quickly as possible. In hot weather, take meats home to the refrigerator or freezer within an hour. They should never be at room temperature more than 2 hours.
- If you cannot get meats home within 1 to 2 hours, take along a cooler with ice or ice packs.

Preparing Food Safely

Once you get your food home, it must be handled safely to prevent foodborne illness.

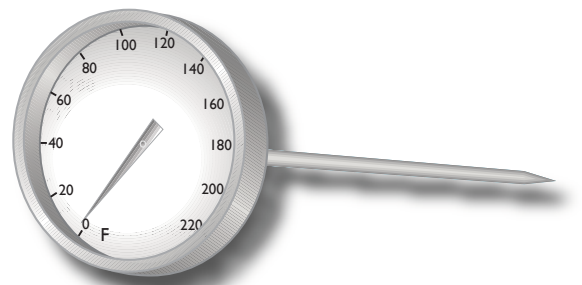
- Wash your hands before and after handling the food. Use warm running water and soap. Wash your hands for about 20 seconds.
- Clean up any spills immediately, especially juices from raw meats. Keep raw meat and its juice from touching other foods, such as fruits, vegetables and cooked meats.
- Clean anything that comes in contact with food, such as knives, plates and counter-tops, with hot water and soap before and after it touches food – especially raw meats.
- Marinate meats in the refrigerator. Discard any marinade not used in cooking.
- Cook foods to the correct internal temperatures. The following chart tells you what temperatures are recommended.

- Use a thermometer to check the internal temperature of food.
- Grill hot dogs until they are steaming hot.
- Use a clean plate when taking food off the grill.
- Refrigerate foods within two hours after grilling. In hot weather (90 F or above), refrigerate within one hour. This is also true for salads and other perishable foods.

Choosing Your Grill

Grills can range in price from about \$10 to hundreds of dollars. Most charcoal grills are less expensive than gas grills and do a good job. Consider these factors when choosing your grill:

- How much do you want to cook at a time? This determines the size of the grill you need.
- How much room do you have for storage? Portable grills are practical and easy to store.
- Do you prefer the taste of foods cooked over charcoal or gas briquets?



Temperature	Food
145 F	Beef, lamb and veal steaks and roasts, medium rare (160 F for medium)
160 F	Ground beef, pork, veal and lamb; pork chops, ribs and roasts; egg dishes
165 F	Ground turkey and chicken, stuffing and casseroles, leftovers
170 F	Chicken and turkey breasts
180 F	Chicken and turkey whole bird, legs, thighs, and wings

- How often will you use the grill? If you grill often, look for a sturdy grill that will last a few years.
- How much do you want to spend? Remember, the grill is not your only cost. You need to consider the cost of charcoal or gas. If you are on a tight budget, check out yard sales or share a grill with a close neighbor.



Charcoal Grill Safety Tips

- Place your grill on a solid surface away from overhangs, grass and shrubbery.
- Grill outside in a well-ventilated area. Never use charcoal inside your house, camper or tent. People die every year from carbon monoxide fumes from charcoal grills used inside.
- Store your grill outside. Do not store a grill with freshly used coals inside.
- Use lighter fluid made for grilling. Never use alcohol, gasoline or kerosene.
- Do not add lighter fluid to coals after they have been lit.
- Use long-handled tools and flame-retardant mitts to protect your hands.

- Keep loose clothing, especially apron strings and shirt tails, away from the grill.
- Never leave children or pets unattended near a grill.
- Keep a fire extinguisher and a spray bottle of water handy for flare-ups.

Preparing the Grill

Before you begin cooking, you need to prepare your grill. (The following steps are recommended for charcoal grills. Read your owner's manual if you are using a gas grill.)

- Remove old coals and soil from the bottom of the grill.
- Line the bottom with heavy-duty aluminum foil, shiny side up.
- Add about 30 charcoal briquets per pound of meat, and ignite. This can be done in a couple of ways.
 - Place the briquets in a mound in the center of the grill. Soak the briquets with charcoal lighter fluid available where charcoal briquets are sold. Wait a minute and ignite. Let the coals burn for several minutes until they turn mostly gray and glow orange. Spread the hot coals over the bottom of the grill toward the edges, about two inches beyond where food will cook. Light the briquets 20 to 40 minutes before cooking.
 - Buy or make a starter-can. You can make a starter can by cutting out the top and bottom of a 1-gallon tin can and punching holes around the bottom. Place the can in the center of the grill and add three to five crumpled sheets of newspaper in the bottom. Place briquets on top of the newspaper and ignite the paper. Wait about 10 to 15 minutes until briquets turn gray and glow orange. Remove can with pliers.

Spread the hot coals over the bottom of the grill using tongs with long handles.

- Add additional briquets as needed to keep the fire hot if your grilling time is longer than thirty minutes. Adjust the temperature of the coals by moving them apart and raising the grate to reduce the temperature. Raise the temperature by moving the coals closer together and lowering the grate.
- Clean the wire grate that comes in contact with your food while coals are heating. Scrub the grate with a stiff bristle brush to remove old food particles. Use a crumpled piece of foil if you don't have a brush. (See Charcoal Grill Cleaning Tips)

How Hot Is Your Temperature?

You can estimate the temperature of your grill by holding your hand, palm side down, about four inches from the coals. Count how long you can hold your hand over the coals before it is too hot and you have to pull away.

Number of seconds	Temperature
2	375 F or higher, Hot
3	350 to 375 F, Medium-hot
4	300 to 350 F, Medium
5	200 to 300 F, Low



Grilling Basics

What makes some people great at outdoor grilling? They have learned basic rules for successful grilling.

- Try one of the following grilling methods. The best method depends on what type of food you are cooking.
 - *Direct cooking method* – Place the food on the grate directly over the coals. This method is best for foods that will cook quickly, such as burgers and steaks.
 - *Indirect cooking method* – Place the food on the grate over a metal or disposable foil drip pan. Bank the coals on either side, or both sides of the pan. Use this method for slow, even cooking for large cuts of meat or whole chickens. You will need to add more briquets to maintain a hot enough temperature.
 - *Foil wrap method* – Place food on a sheet of foil and add herbs, sauces or a small amount of liquid. Wrap foil around the food and seal the edges. This method works well for tender foods, such as fish and vegetables.



- Cook fish at a lower temperature than other meats because it dries out quickly.
- Leave about 3/4 inch between pieces of food to ensure even cooking.

- To speed cooking, partially cook thicker pieces of meat and vegetables in the microwave before grilling. Do this just before they go on the grill. Meats thawed or partially cooked in a microwave should be cooked immediately.
- Use tongs to turn solid pieces of meat, such as steaks or poultry. This helps keep juices inside.

Finishing Touches

- Grilling isn't just for meat. Serve grilled side dishes, such as vegetables and fruit, along with meats. Tomatoes, potatoes, onions, squash, apples and many other foods taste great cooked on a grill.
- Preheat sauces you plan to spread on grilled foods because cool sauces will lower the temperature of the food.
- Spread sticky sauces on grilled foods at the end of cooking. Sticky sauces tend to burn the outside of the food.
- Add fresh herbs such as cilantro, basil or parsley to bottled sauces for a "special"

taste. Or, try other ingredients such as brown sugar, honey, thick fruit juice, black pepper, garlic, onion and oregano. Squeeze a fresh lemon, lime or orange for zesty flavor.

- Add salt and ingredients with salt after meat has cooked to reduce moisture loss.
- Serve a cool salad to complement hot, grilled foods.

Charcoal Grill Cleaning Tips

- Keep your grill clean by cleaning each time you use it.
- Wash the hood and inside with water and soap before you cook for the first time. Wash occasionally as needed.
- Use a scraper or wire brush to remove food from the grill before and after you cook.
- To prevent food from sticking, rub the grate with a small amount of vegetable oil on a paper towel or spray with vegetable cooking spray before lighting the charcoal.

Recipes for the Grill

Fruit

Grilled Apples

3 apples, peeled, pared and sliced
 1/4 cup margarine, melted
 1 tablespoon lemon juice
 1/2 teaspoon ground cinnamon
 2 tablespoons brown sugar

1. In a small bowl, mix margarine, lemon juice, cinnamon and brown sugar.
2. Place sliced apples on a large piece of heavy-duty aluminum foil. Top with margarine and next three ingredients. Fold the edges of the foil to seal.
3. Grill on low to medium heat for 20-30 minutes until tender. Serve warm.



Chicken

Grilled Chicken Barbeque

4 breasts or leg quarters or 1 whole chicken cut in half with skin
2 cups cider vinegar
½ teaspoon red pepper
1 cup vegetable oil
½ teaspoon garlic powder
1 teaspoon Tabasco sauce
2 teaspoons salt

1. Place chicken on the grill, cut side down.
2. Grill, covered with grill lid, over low- to medium-hot coals for 1 to 1½ hours until chicken reaches 180 F (170 F for breasts and wings), turning every 10 to 15 minutes to prevent burning.*
3. Baste with barbeque sauce before and after turning.

*Start with coals in a single layer. You may need to add more coals during cooking to keep grill hot. Keep vents in the top and bottom of grill three-fourths to fully open during the last 30 minutes of cooking.



Grilled Chicken Kabobs

4 skinless, boneless chicken breasts, cut into 1-inch pieces
1 carton (about 2 cups) cherry tomatoes
1 green bell pepper cut into small squares
1 16-ounce can pineapple chunks
1 cup teriyaki sauce or marinade
1 teaspoon paprika (optional)
1 teaspoon garlic powder (optional)

1. Mix teriyaki sauce or marinade with spices as desired. Set aside a small amount of marinade for basting later. Place the chicken pieces in the marinade in a glass dish and refrigerate for 30 minutes to 2 hours. Drain chicken and dispose of the marinade.
2. Place chicken, vegetables and pineapple on long wooden or metal skewers. Alternate chicken with vegetables and pineapple. Leave a space between each piece of chicken and the vegetables or pineapple to allow even cooking.
3. Place skewers on grill rack and grill, covered with grill lid, over hot coals 5 to 10 minutes on each side. They are done when they reach 170 F. To avoid burning, baste skewers with teriyaki sauce when chicken is nearly done.

Vegetables

Roasted Corn

1 box or 2 to 3 cups of frozen whole kernel corn (no added sauce)
Nonstick cooking spray
Salt (optional)

1. Spray heavy-duty aluminum foil with nonstick cooking spray. Form a pan with the foil by turning up edges.
2. Place frozen corn on foil. Sprinkle with salt if desired.
3. Grill corn until done, about 20 minutes. Shake pan often to prevent sticking.

Another idea: Peel and husk corn on the cob and soak it in cold water for 1 hour. Wrap the corn in aluminum foil and grill for 20 to 30 minutes, turning every few minutes.



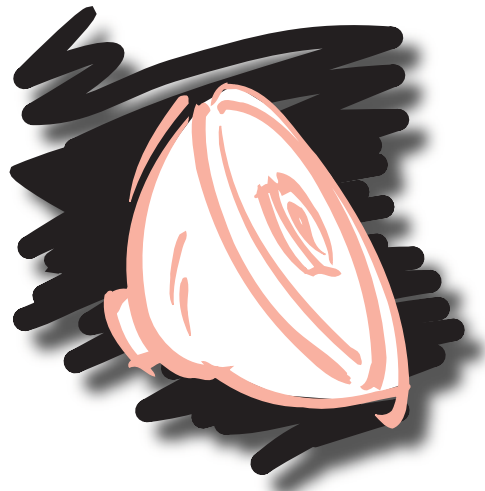
Grilled Whole Onion

1 large yellow or white onion per person
Bowl of cold water
1 teaspoon margarine

Optional condiments:
Worcestershire sauce
Hot pepper sauce
Lemon pepper
Chopped parsley
Chopped dill

1. Soak unpeeled onion in bowl of cold water for 30 minutes to prevent burning. Cover onion with a plate to keep it under water.
2. Drain and grill on low to medium heat for 20 to 30 minutes, rotating every 10 minutes so that it heats evenly. Insert a fork into onion to test for desired tenderness.
3. Serve onion whole. Remove skin, add margarine and any desired condiments.

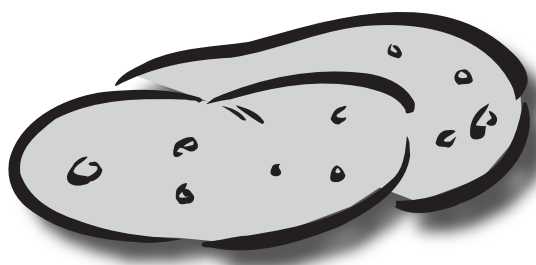
Another idea: Slice onions and add seasonings. Wrap in heavy-duty foil and grill for 15 to 20 minutes.



Grilled Vegetable Medley

- 2 zucchini, sliced
- 2 summer squash, sliced
- 2 potatoes, sliced
- ¼ cup butter or margarine, melted
- 1 teaspoon paprika
- ½ teaspoon salt (optional)
- 1 onion, sliced (optional)

1. Wash vegetables in clean water. Use a vegetable brush to remove soil from vegetables with tough skins such as potatoes.



2. Combine melted butter or margarine with paprika and salt.

3. Place vegetables on a sheet of heavy-duty aluminum foil, bringing up edges of foil. Pour butter or margarine mixture over vegetables. Close foil around vegetables, sealing tightly.

4. Place vegetables on grill rack and grill, covered with grill lid, over medium-hot coals for 15 to 20 minutes.

Another idea: Brush quartered red potatoes with olive oil. Sprinkle with seasonings. Grill wrapped in aluminum foil over medium coals for 20 to 30 minutes.

Fish

Grilled White Fish

- 2 pounds fish fillets, skin and bones removed*
- Vegetable cooking spray
- ½ cup vegetable oil
- 2 tablespoons lemon juice
- 1 tablespoon parsley**
- Salt and black pepper (optional)

1. Coat pieces of heavy-duty aluminum foil with vegetable cooking spray or vegetable oil.

2. Combine vegetable oil and lemon juice. Brush mixture over fillets. Sprinkle with parsley. Add salt and pepper if desired. Close foil around fish, sealing tightly.

3. Place packets on grill rack and grill, covered with grill lid, over hot coals 10 to 15 minutes or until fish flakes easily when tested with a fork.

*Buy about ½ pound per person of any variety.

**Add other spice or herb mixtures, such as dill or lemon-pepper for more flavor. Or, top with salsa for spicy flavor.

Grilled Whole Fish

1 large fresh fish, scaled and gutted*

Vegetable cooking spray or vegetable oil

1 clove garlic, finely minced

½ cup butter or margarine, melted

½ cup chopped onion

1 lemon, sliced thinly

¼ cup lemon juice

1 bunch fresh herbs (parsley, dill or rosemary), 2 tablespoons chopped, the rest left in sprigs



1. Rinse the fish, inside and out, under cold running water. Drain and blot dry, inside and out, with paper towels.

2. Coat a large piece of heavy-duty aluminum foil with vegetable cooking spray or vegetable oil. Place fish on foil.

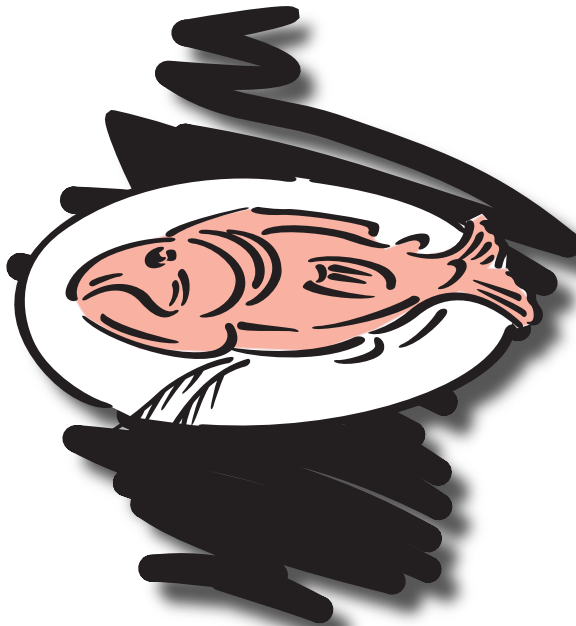
3. Season the cavity of the fish with onion, herbs, lemon slices and lemon juice.

4. Stir chopped parsley, herbs and garlic into melted butter or margarine. Brush the outside of the fish with the mixture. Sprinkle with lemon juice and seal edges of foil.

5. Place fish on grill rack and grill, covered with grill lid, over medium-hot coals about 8 minutes per pound until cooked through. Fish should be moist but flake easily with a fork.

6. To serve, run a knife or fork along the spine. Gently peel back the top layer of skin. Using a large fork, remove the fish in segments onto plates. Once the first side is complete, gently lift off the skeleton and remove the remaining fish onto plates. Drizzle with the additional butter or margarine and serve with a slice of lemon.

*Try large fish such as trout, catfish, bass or salmon.

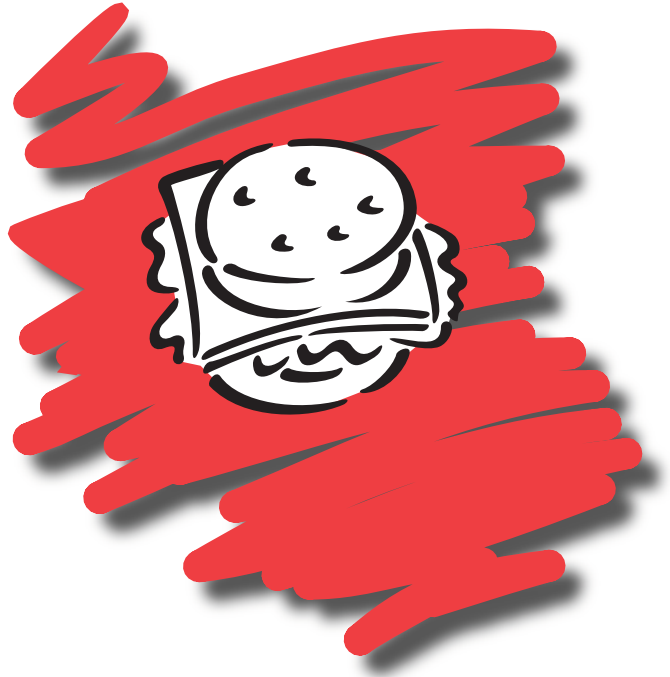


Ground Beef

Mighty Burgers

- 1 pound ground beef
- 1 egg or egg substitute
- ½ tablespoon diced parsley
- ½ cup cracker or bread crumbs
- ½ cup milk
- 1 teaspoon dry mustard
- ¼ teaspoon garlic powder
- ¼ teaspoon black pepper
- 1 tablespoon chopped onion (optional)

1. Mix ingredients together in a large bowl.
2. Shape into six patties spread to 1/2-inch thickness.
3. Grill over medium-hot coals, until the center of the meat reaches 160 F.
4. Serve on whole-wheat hamburger buns, split and toasted.



Big Orange Burgers

- 1 pound ground beef
- ¼ cup water
- ½ cup finely shredded carrot
- ¼ cup finely chopped onion
- ¾ teaspoon salt
- ¼ teaspoon garlic powder
- ⅛ teaspoon pepper
- 4 slices Monterey Jack cheese

1. Mix carrot, onion, salt and garlic powder with water. Add ground beef; mix well.
2. Shape into four patties spread to 1/2-inch thickness.
3. Grill over medium heat until center of the meat reaches 160 F.
4. Top with cheese and serve on whole-wheat hamburger buns, split and toasted.

Visit the UT Extension Web site at
<http://www.utextension.utk.edu/>



The Food Stamp Program provides nutrition assistance to people with low income.
It can help you buy nutritious foods for a better diet.



05-0279-10M R12-5310-065-001-06

Copyright 2005. The University of Tennessee. All rights reserved. This document may be reproduced and distributed for nonprofit educational purposes providing that credit is given to University of Tennessee Extension.

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities
in programs and employment.