

Natural Health News

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GRILLING SAFELY WITHOUT CARCINOGENS

Summer time lends itself to many fun outdoor activities such as grilling or “backyard” barbecuing. However, grilling over an open flame can be a serious health hazard due to the chemical reactions that take place when animal foods such as beef, poultry, pork, fish and sausages are cooked at high temperatures. This article will discuss healthy grilling tips which can significantly reduce exposure to carcinogenic (cancer-causing) compounds when food is under high heat and grilled. There are many studies that have isolated three specific carcinogenic compounds caused by grilling, high heat cooking, and overcooking animal foods: polycyclic aromatic hydrocarbons (PAHs), heterocyclic amines (HCAs), and advanced glycation endproducts (AGEs). PAHs are a group of over 100 chemicals that form when the fat from meat drips onto the flame or hot coals and creates smoke. That smoke, which many consider a flavor enhancer from grilling, is absorbed with those carcinogenic PAHs by the food. PAHs have been linked to increased risk of bladder and lung cancer. HCAs are carcinogens that are produced directly within the food when it’s cooked at extremely high temperatures. This is true no matter what the cooking method: barbecuing, stove top cooking, or oven roasting or broiling. HCAs form when creatine (found in muscle) and amino acids (found in protein) react at temperatures above 300 degrees F. HCAs have been linked to increased risk of colorectal, prostate, and pancreatic cancers. Cooking low and slow will help to avoid creating HCAs. Protein (or fat) *plus* heat *plus* sugar may be the most “troublesome trio”. When cooked at high heat, a chemical reaction takes place between protein or fat and sugar which creates toxins called advanced glycation end products (AGEs). Also known as glycotoxins, AGEs contribute to increased oxidative stress and inflammation, which are linked to diabetes, Alzheimer’s, cardiovascular disease, and cancer. A few important measures will allow you to eliminate or reduce most of these carcinogens when grilling or eating any grilled foods.

- 1. Marinate meat using natural, antioxidant ingredients prior to grilling:** a study found that a high antioxidant marinade of chili pepper, thyme, rosemary, garlic, and ginger reduced HCAs by 74%. You can reduce AGEs by using an acidic marinade that contains lemon juice and/or vinegar. Black pepper, allspice, and/or chives can also provide powerful protection against carcinogens. Make your own high antioxidant marinade or rub that contains a combination of these ingredients. However, **do not add sugar or honey** into your marinade sauces. Thick commercial marinades that contain honey, sugar, or corn syrup create three times more HCAs than grilling without marinades.
- 2. Add fruit to ground meat, poultry, or pork:** researchers found that adding cherries, a great source of antioxidants, to ground beef prior to pan frying reduced HCAs by about 70%. It is suggested to mix a cup of chopped tart cherries with a pound of ground beef. Make sure to remove the cherry pits! You can do the same with other antioxidant-rich red and blue fruits such as blueberries, blackberries, raspberries, etc. Combining antioxidants often increases their beneficial effect.
- 3. Clean your entire grill:** if you want to mitigate the damaging effects of PAHs, it is wise to clean your grill completely and not just the grill surface itself. A warm grill will allow for easier cleaning. Make sure to use a grill cleaner that is non-toxic.
- 4. Trim the fat:** when fat drips onto an open flame, carcinogens are produced. Trimming as much fat as possible before you cook will reduce PAH production and lower HCAs.
- 5. Partially cook food before putting it on the grill:** this will reduce grilling time and exposure to carcinogenic compounds (do not use microwave!).

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6. **Use non-toxic coals and avoid those that contain chemicals:** chemicals in coals help them ignite easily and/or burn more evenly. These chemicals can also be toxic and carcinogenic. The same is true for the igniting fluid that is often used to douse on coals to get them started more easily. Fortunately, non-toxic coals are available. 7. **Slow down and cook under low heat:** slow cooking under low heat may take longer, but it is the best way to cook animal foods, no matter what the method of cooking. Lower heat is always a good idea while grilling and will help you to reduce carcinogenic compounds. Another way to reduce the heat your food is exposed to is to place food further away from the flame on a higher grill top. Placing food on a cedar plank can also reduce the food's cooking heat. 8. **Keep the temperature below 300 degrees F:** cooking meats over 300 degrees F is dangerous regardless of what cooking medium is used. Some gas grills come with temperature gauges, but those that don't can be fitted with one. 9. **Keep it rare and avoid well-done meat:** shockingly, well-done meats contain up to 3.5 times the levels of HCAs as meats cooked to medium-rare according to one major study. Rare meats also contain more enzymes than meats that are well done. Eating organic, pasture-raised animal foods will be healthier and beef (not poultry or pork) can be cooked rare with little risk of harmful bacteria. It is best if the meat's internal temperature does not exceed 160 degrees F. A meat thermometer, stuck into the meat, can be used while cooking as a temperature gauge. 10. **Flip meats frequently:** this avoids charring and reduces HCA production. 11. **Grill smaller pieces:** these take less time to cook and HCAs will likely have less time to form. Avoid pressing down on meat with your spatula as it will increase the fat drippings on the grill, therefore creating higher temperatures and HCAs and more smoke will create PAHs. If meat or any other animal food is charred, it is carcinogenic. Never eat the black or brown parts. The type of animal food grilled also influences HCA levels. Grilling pork creates the most HCAs and bacon is the worst. Fish and shrimp produce fewer HCAs from high heat exposure (avoid farm raised and consume wild-caught only!). Next to grilling shrimp and fish, grilling chicken creates lower HCAs. Meats processed with nitrates are already carcinogenic even before they are grilled or cooked. Avoid them unless you are certain that they are nitrate free. Veggie burgers can be a great option for barbecuing. However, avoid veggie burgers that contain soy or soy protein as these are not health foods. Grilling fruits and vegetables won't create any cancer causing compounds. However, be aware that over-cooking can increase nutrient loss from food. You may want to thaw frozen food before you grill it, however, do NOT use a microwave oven to do so. Swiss and Russian scientists have proven that microwaving animal foods, for even short periods of time, can make them carcinogenic and alters the food's DNA making it toxic.

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NON-TOXIC BBQ-GRILL CLEANER

Vinegar works great for cleaning the grill and you don't have to worry about leaving harmful residue behind that can get on your food and make you sick. It only takes a few simple steps to clean your grill with vinegar. Pour 1 cup of vinegar into a spray bottle and add 1 cup of lukewarm water on top of it. Put the lid on the bottle and shake it vigorously to mix the solution. Fold a piece of aluminum foil until you have a small square of approximately two inches across in each direction. Spray the solution on the racks of the grill and the area above and underneath them to saturation. Let the solution dry for 10 minutes. While the grill dries, pour out any extra water/vinegar solution and refill the bottle with vinegar only. Spray the vinegar on the foil and use it to scrub the grill's interior. No rinsing is required. You can also use vinegar to clean the exterior of your grill. If you don't want it to smell like vinegar for days on end, it is best to use the diluted solution. Instead of using aluminum foil to scrub, just use a standard cotton cloth. Spray the solution on the cloth instead of directly on the grill so it is easier to make sure you hit every area. Use a cotton swab to take care of any tight spots. You can also use the vinegar/water solution to keep charcoal fires under control. If the flame start to get too high, you can spray the coals with the solution to get them back under control.

