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Is your backyard barbecue a health hazard?

Air Quality News from IQAir, the world leader in air purifiers.

More than any other time of the year, summer is an occasion to cook outdoors over a fire. As many as 72% of all households own and use an outdoor grill. But many people still don't know that grilling can harm their health in two ways:

1. **Ingesting carcinogens.** Grilled foods contain cancer-causing compounds (carcinogens) produced by the burning fats and high temperatures of grilling. The carcinogens are then ingested and absorbed through the stomach.

2. **Inhaling carcinogens.** Smoke produced by grilling contains carcinogens and other pollutants that damage health. This smoke can be inhaled directly from the grill and can enter the body through the lungs. Smoke from the grill also contributes to local air pollution.

**Ingestion of carcinogens**

As meat, poultry and fish cook over a fire, fat drips from the cooking meat and burns. Burning fat produces smoke containing carcinogenic compounds called polycyclic aromatic hydrocarbons (PAHs). The smoke particles coat the meat that is being cooked. In addition to causing cancer, PAHs have also been linked to reproductive and developmental abnormalities.

High-temperature cooking methods, including grilling, also produce carcinogens known as heterocyclic amines (HCAs). This happens when meat and poultry are cooked at temperatures higher than 300 degrees, causing a reaction of amino acids, sugar and creatine. Well-done, grilled and barbecued chicken and steak have high levels of HCAs, which have been linked to cancer of the colon, rectum, stomach, breast, lung and prostate.

**Inhalation of carcinogens**

In addition to the dangers of ingesting chemicals on grilled food, the inhalation of smoke from the grill is also a health risk. Barbecue smoke contains PAHs (see above), which are carcinogenic and easily absorbed in the lungs. Smoke from charcoal or wood also produces hydrocarbons, a type of volatile organic compound, and soot particles, which are inhaled deep in the lungs and contribute to a variety of respiratory illnesses.
Air pollution

Grilling is also a source of outdoor air pollution. Researchers at the University of California, Riverside, found that emissions from commercial grills in Southern California are a significant source of air pollution. "For comparison, the average diesel-engine truck on the road today would have to drive 10 miles on the freeway to put out the same mass of particles as a single charbroiled hamburger patty," the study noted.

In Beijing, authorities have recently banned all outdoor grilling. Although motor vehicles and industrial factories are the greatest sources of air pollutants in Beijing, authorities say the ban on barbecues helps reduce the level of PM2.5 particulates in the air. Under the new regulations, barbecues in the open are prohibited throughout the city.

Cleaner, safer grilling

Most experts agree that a few simple steps will help make grilling safer, healthier and a lot better for the environment. Here are a few suggestions:

• **Pre-cook meat over low heat** in a skillet, oven or microwave, before cooking it on the grill. This will help remove some of the fat that can drip and smoke, thereby reducing the production of airborne pollutants and chemicals that coat the meat.

• **Grill veggies instead of meats.** Grilled vegetables do not contain HCAs, even when charred. Vegetable kabobs can be delicious and offer many healthy nutrients.

• **Reduce drippings.** Use aluminum foil as a protective barrier under the meat to help prevent drippings from smoking. Choosing a leaner cut of meat will also reduce the amount of fat dripping onto the fire.

• **Consider gas or propane over charcoal.** Charcoal emits more smoke and pollutants than gas, and charcoal fires are often started with chemical starter fluids that emit additional pollutants. But charcoal from wood is a renewable resource and so it may be better for the environment in the long run.

• **Consider location and wind direction when grilling.** Adjust the grilling location if grilling upwind from a home. Close windows if smoke from the grill is headed toward the house or a neighbors’ house.

To learn more about grilling and health, visit the National Cancer Institute website at www.cancer.gov.

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