

IN EVERY ISSUE

## Good Grilling

BY LENA HUANG

*How to avoid carcinogens on the barbecue.*

Now that summer is here, grills are being fired up for outdoor cooking across the country. Grilling is perceived to be a healthier form of cooking compared with other high-fat methods, such as deep-frying, but studies have shown that some grilled meats contain carcinogens, substances that may cause cancer. However, there are methods for cooking meats that can lessen exposure to these substances.

Results from a nutrition study in Europe, reported in the May issue of *The American Journal of Clinical Nutrition*, support an association between intake of heterocyclic amines (HCAs), a carcinogen found in grilled meat, and colorectal adenoma risk. While colorectal adenomas are benign tumors, they are the starting point of most colon cancers and are used as a marker for colon cancer risk, says Karen Collins, RD, nutrition adviser to the American Institute for Cancer Research. (Studies have linked carcinogens found in grilled meats to higher risk of breast, stomach, and pancreatic cancers, but those links are less clear than with colorectal cancer.)

HCAs form when muscle meats, such as beef, pork, chicken, and fish, are cooked at high temperatures. Amino acids (building blocks of protein) and creatine (a chemical found in muscle) react to high temperatures. Other sources of protein, such as organ meat (liver), eggs, and tofu, have little to no HCA content naturally or when cooked.

Another grilling-related carcinogen is polycyclic aromatic hydrocarbons (PAHs), which form when fat drips off the meat into the flame or heating element and smoke generates. The PAHs rise in the smoke and can deposit on the food, says Carol Frankmann, RD, director of clinical nutrition at M.D. Anderson Cancer Center in Houston. The chemicals can also be found in the charred, blackened parts of grilled meat.

Currently there are no guidelines concerning the consumption of foods with HCAs or PAHs, and there is no measure of how much of these carcinogens have

to be consumed to increase cancer risk.

“The overall advice for cancer survivors is to follow the recommendations for prevention of cancer,” Collins says. “So that would mean, first and foremost, top priorities are weight control, regular physical activity, and a diet with lots of vegetables, fruits, and whole grains, and limited red and processed meats. Then, moving beyond those priorities, I would suggest enjoying grilled vegetables; and for other grilling options, following lower-risk [grilling] methods and choosing poultry and seafood more often than red meat.”

So don't throw out the grill. Here are some recommendations from Collins and Frankmann on better ways to grill:

- > Most experts agree that grilling vegetables or fruits is safe since HCAs only form on muscle meat. For a substitute, try grilling a veggie burger.
- > A simple way to decrease the formation of HCAs is to cook at lower temperatures.
- > Raise the grilling surface from the heat source to reduce the temperature and the black char that can form on meat.
- > Flip meat frequently when cooking to prevent HCAs from forming.
- > Marinating meats can decrease HCA formation by up to 96 percent, although studies are still under way to determine which ingredients help the most.
- > Limit exposure by partially cooking meat a couple of minutes in the microwave before grilling.
- > Trim meat or grill with leaner cuts of meat that drip less to reduce exposure to PAHs.
- > Spread foil on or under the grill to reduce dripping fat.