



Food Facts Highlight: Reducing Cancer Risk from Grilled Meat

Summer in the United States means cookouts and family barbecues. Hamburgers, hotdogs, steaks and chicken are the epitome of the perfect weekend summer meal. For years, there has been controversy over whether meat grilled on a charcoal grill could cause cancer. Here is more about that controversy and tips for enjoying a healthy barbeque meal.

According to officials of the American Cancer Society, eating **excessive** amounts of grilled meat or chicken can increase your risk of developing cancer. This is also true for meats pan-fried at high temperatures. Current research tells us that **over cooked** or **burnt meats** pose the greatest risk. Whether you are using red meat, poultry or seafood, substances in the muscle proteins of these foods react under **very** high heat to form carcinogenic compounds called heterocyclic amines (HCAs). HCAs can damage DNA, beginning the process of cancer development. Consumption of HCAs is mostly clearly linked to cancers of the colon and stomach. One study found that people who eat the most barbecued red meat (beef, pork and lamb) almost doubled their risk of colon polyps, compared to those who did not eat these foods. Colon polyps can develop into colon cancer. Some evidence also suggests that these carcinogenic compounds can travel through the bloodstream to other tissues. This would explain why HCAs could be a factor in breast cancer and other cancers.

Keep in mind, that grilling is okay – firing up the barbeque every week in the summer would not be expected to increase risk. **Excessive consumption** of grilled foods is the risk factor; and **excessive consumption** of charred foods is the real culprit. Keep in mind that just like everything in life, moderation is key. **There is only an increased risk of cancer when excessive amounts are consumed.** This is by no means an alert or warning to toss out your grills! You still can enjoy grilled meats, but just do it in moderation.

And there are a few steps that you can take to further decrease your risk:

- **Cook at lower temperatures.** Charring is most often associated with grilling over high heat/flames. If you are using a charcoal grill, allow the time for the coals to burn white-hot; and then place them to one side. Use the other side of your grill for grilling. This indirect heat will cook food at a lower temperature and prevent burning. Or, try moving the heat of the grill surface away from the embers. If you have a gas grill, regulate the heat to low or medium-low to control charring.
- **Choose lean cuts of meat.** Flare-ups are most often associated with fat dripping onto hot goals or a grill surface. Before grilling, trim external fat from steaks, roasts or chicken, and choose lean ground meat for grilling.
- **Try marinating meat.** The color and flavor that develop when cooking meat over high heat can add taste-appeal. You can marinate meat in a salt/sugar brine before grilling and encourage color and flavor development without high heat. A standard marinade consists of an acidic ingredient such as vinegar, wine or lemon juice to help tenderize meat, high-salt ingredients such as soy sauce, and sugar or fruit juices, along with spices and seasonings.
- **Choose meat from younger animals.** The protein in older animals is more likely to have free fragments (amino acids) that will react to form heterocyclic amines. If you

purchase meat in the grocery store, it will be difficult to tell the age of the animal; but if you raise animals yourself, reserve the meat from older animals for stewing, not grilling.

- **Avoid eating burned or charred areas.** Since heterocyclic amines are associated only with burned or charred areas, simply trim these areas off before cutting into a steak or chicken breast. If the burned area is on the skin of chicken, simply remove the skin and enjoy!
- **Use a meat thermometer to tell when food is done.** Once meat has reached the proper internal temperature to ensure safety, remove it from the grill. Over-cooking meat is also a way to produce harmful compounds.
- **Try vegetables or fruits on the grill.** Vegetables and fruits don't form heterocyclic amines on grilling. They also supply a whole range of cancer-fighting nutrients and phytochemicals. In fact, the natural phytochemicals in vegetables stimulate enzymes that can convert HCAs to an inactive, stable form that is easily eliminated from the body.

