

Cooking methods may be causing cancer

By Brian Palmer, Slate

Grilling meats is an American tradition, but it's not the healthiest thing to do. A growing body of research suggests that cooking meats over a flame is linked to cancer. Combusting wood, gas, or charcoal emits chemicals known as polycyclic aromatic hydrocarbons. Exposure to these so-called PAHs is known to cause skin, liver, stomach, and several other types of cancer in lab animals. Epidemiological studies link occupational exposure to PAHs to cancer in humans. When PAHs from a flame mingle with nitrogen, say from a slab of meat, they can form nitrated PAHs, or NPAHs. NPAHs are even more carcinogenic than PAHs in laboratory experiments. The reasonable conclusion is that grilling meat may be hazardous to your health.

The evidence linking cancer to cooking meat over a combustion source has been accumulating for decades. Epidemiologists first noticed a connection between the consumption of smoked foods and stomach cancer in the 1960s. Japan, Russia, and Eastern Europe, where smoking is a popular way to preserve meat and fish, became laboratories for gastric cancer research. Newer studies suggest that eating smoked meats may lead to cancer even outside the gastrointestinal tract. A 2012 study, for example, linked smoked meat consumption with breast cancer.

In subsequent decades, it has become clear that smoking isn't the only problematic cooking method. Frying bacon, for example, produces significant levels of PAHs, probably due to volatilization of carbon in the bacon itself. An Iranian study published last year found that people who develop certain kinds of gastrointestinal cancers are more likely to have a

diet high in fried rather than boiled foods. (The researchers linked level of browning to cancer incidence, thus reducing the likelihood that oil consumption was the culprit.) The FDA and WHO also remain concerned about the presence in food of acrylamides, a known carcinogen that forms from sugar and amino acids when cooked at high temperatures. Long-term studies are currently under way. The worrying implication is that cooking foods at high heat, even without active combustion, may be dangerous.

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