

Safe Summer Grilling



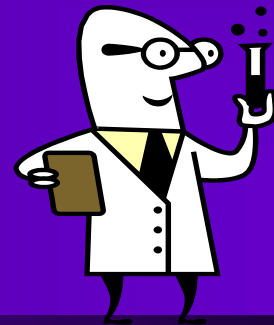
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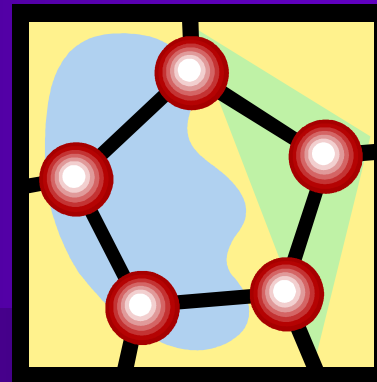
Does grilling meats produce cancer-causing compounds?

- The concentration of dietary carcinogens in grilled meats is low and the risk factors are not alarming...
- However these compounds have been associated with tumors in animals and may increase the risk of breast, colon, stomach, and prostate cancer in humans



How does grilling produce dietary carcinogens?

- Animal muscle contains creatine and creatinine
- When heated these compounds mutate to form heterocyclic aromatic amines (HAAs) and polyaromatic hydrocarbons (PAHs)
- Sometimes HAAs are called heterocyclic amines (HCAs)





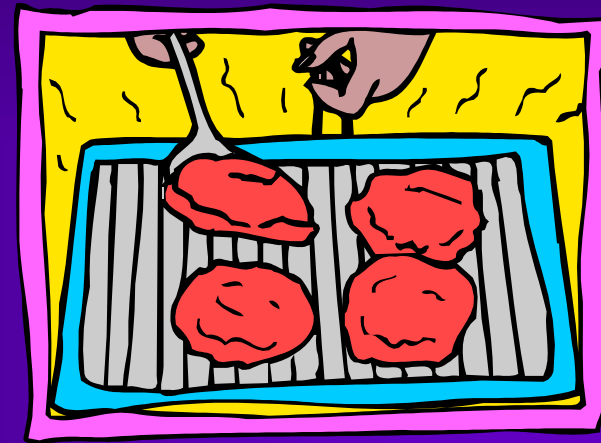
HAAs and PCAs

- HAAs are found in the “black stuff” that is on the grill and the food
- PCAs are found in the smoke that rises when the fat from the meat drips on to the hot coals

Tips for reducing dietary carcinogens in grilled meats

■ Choose low-fat meats to grill

- “loin” or “round”
- skinless chicken
- fish
- trim visible fat
- watch portion size



Tips for reducing dietary carcinogens in grilled meats

- Since fat adds flavor, try these for adding flavor back to low-fat meats:
 - fat free salad dressing/marinades
 - fresh herbs
 - rubs
- It is interesting to note that a study done in 1997 found an 87% decrease in HAAs in marinated chicken breast

Tips for reducing dietary carcinogens in grilled meats

- Use a spatula or tongs to turn meat. This helps prevent PCAs
- Turning meat frequently also helps prevent HAAs and PCAs
- Pre-cook meat in a microwave before sticking it on the grill. Microwaving causes a clear liquid to be released which contains the creatine and creatinine.

Tips for reducing dietary carcinogens in grilled meats

- Remove the charred or burned portions from the meat before you eat it
- Grill meat in foil packets to keep smoke from the food
- Find alternative foods to grill such as vegetables, veggie burgers, tofu, and even fruit!
- Cover the grill grate with aluminum foil punched with holes

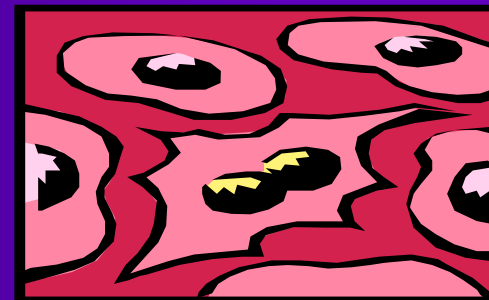
A word about food safety

- Food poisoning cases rise greatly in the summer months
 - improperly cooked meats
 - harmful bacteria multiply quickly outdoor
- Keep raw meat away from cooked meat and ready-to-eat foods
 - Use color-coded plates



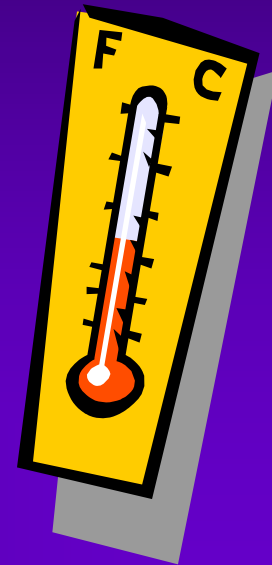
A word about food safety

- Always check the internal temperature of the meat before you eat it
 - There is absolutely no other way to know if your meat reaches the proper temperature for killing bacteria. You cannot tell by looking.
- Refrigerate promptly to temperatures below 40 degrees F



Adequate internal temperatures for meat

- Chicken 170 to 180 F
- Ground Beef 160 F
- Beef/Pork whole cuts 145 F



Websites of interest

- American Institute of Cancer Research
 - www.aicr.org
- Food Mutagens: The Cooking Makes the Difference, Lawrence Livermore National Laboratory
 - www.llnl.gov
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References

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