



Q and A: International Agency for Research on Cancer Monograph on Red Meat and Cancer October 23, 2015

What is the International Agency for Research on Cancer (IARC)?

IARC is an agency that is part of World Health Organization based in France, which has a Monograph program that convenes panels of scientists to examine scientific evidence and conduct “hazard assessments.” The phrase “hazard assessment” is important because an IARC Monograph is only examining whether a substance or an occupation could theoretically, under some circumstance, at some level, pose a risk of cancer. IARC’s Monograph panels do not attempt to answer questions such as “How likely is this to occur?” or “What is my personal risk?”

For example, if IARC’s Monograph panel determines that working in a coal mine poses a risk of lung cancer the panel does not distinguish between working in a mine for one week, one year or 40 years. The panel only votes about whether the occupation could pose a risk of cancer and evaluates whether the evidence is strong.

Have other substances and foods been placed in the same category as red and processed meat?

While IARC has not released its official Monograph detailing their final decision (the official release is planned for October 26), news reports indicate that processed meats have been placed in the highest hazard classification while red meat is in the second highest. IARC’s Monograph program has now completed reviews of 940 agents and occupations and only one (a substance in yoga pants) has been determined to pose no hazard. Other agents and occupations that have received the highest risk classifications include sunlight, air, wood dust, alcohol, grilling, night shift work, barbering and hair coloring.

What is the significance of a classification?

An IARC classification should be treated as an academic exercise that spurs more research to clarify evidence because the science the IARC Monograph considers does not – and cannot – determine cause and effect. However, IARC Monograph classifications are often reported by media outlets as if cause and effect have been determined, which is false.

Does this mean eating meat causes cancer?

No. The research IARC Monograph considers does not prove causes and effects. IARC Monograph panels only review research completed by others and try to make conclusions about theoretical hazards. They also determine what research to consider and what research to disregard. In the review of red and processed meat, many reputable studies were not considered by the panel.

Should I stop eating meat or reduce my consumption?

Consumers should continue to follow the U.S. and Canadian dietary guidance that includes meat and poultry in a healthy, balanced diet. In fact, Americans and Canadians, on average, currently consume meat and poultry at recommended levels.

Did the IARC Monograph consider the nutrition benefits that meat offers?

No. The IARC Monograph panel did not consider meat's nutrition benefits in assigning its classification and did not consider the potential negative health implications of discouraging consumers from making meat part of their healthy balanced diet. Meat is a rich source of key vitamins, minerals and complete protein.

What kind of studies does the IARC Monograph consider?

The Monograph panel considers human epidemiological studies that rely either on food diaries kept by people participating in the study or on their memory of what they ate in the past and how these reported diets correlate with their health. This approach is notoriously unreliable because consumers often do not recall accurately what they ate. The Monograph panel also considers studies of animals fed certain diets and their health outcomes.

What do other experts say?

One leading expert, Dr. David Klurfeld of the U.S. Department of Agriculture's Agricultural Research Service and a member of the IARC Monograph panel, recently published a paper called "*Research gaps in evaluating the relationship of meat and health*," *Meat Science*, 2015. In it, he said:

"Humans evolved as omnivores and it has been proposed that cooking meat allowed for evolution of larger brains that has led to our success as a species. Meat is one of the most nutrient dense foods, providing high-quality protein, heme iron, zinc, and vitamins B6 and B12. Despite these advantages, epidemiologic studies have linked consumption of red or processed meat with obesity, type 2 diabetes, cardiovascular diseases, and cancers of multiple organs. Most observational studies report small, increased relative risks. However, there are many limitations of such studies.

Accepting small, statistically significant risks as ‘real’ from observational associations, the field of nutrition has a long list of failures including beta-carotene and lung cancer, low-fat diets and breast cancer or heart disease that have not been confirmed in randomized trials. Moderate intake of a variety of foods that are enjoyed by people remains the best dietary advice.”

Do studies exist showing red and processed meat do not cause cancer?

Yes. Many recent, peer reviewed and public studies have found no relationship between red and processed meat and a variety of cancers. But the IARC Monograph did not consider the totality of the scientific evidence regarding red and processed meats. Unlike most scientific evaluations or reviews, the Monograph panel has the latitude to preferential weight single studies to support their conclusions.

Research papers that found no relationship between meat and cancer include:

[The role of red and processed meat in colorectal cancer development: a perspective](#), *Meat Science*, 2014

[Meta-analysis of prospective studies of red meat consumption and colorectal cancer](#), *European Journal of Cancer Prevention*, 2011

[Vitamins, minerals, essential fatty acids and colorectal cancer risk in the United Kingdom Dietary Cohort Consortium](#), *International Journal of Cancer*, 2011

[Processed meat and colorectal cancer: a quantitative review of prospective epidemiologic studies](#), *European Journal of Cancer Prevention*, 2010

[Low-Fat Dietary Pattern and the Risk of Colorectal Cancer](#), *Journal of the American Medical Association*, 2006

[Dietary Fat and Fatty Acids and Risk of Colorectal Cancer in Women](#), *American Journal of Epidemiology*, 2004

[Meat, Fat, and Their Subtypes as Risk Factors for Colorectal Cancer in a Prospective Cohort of Women](#), *American Journal of Epidemiology*, 2003

[Diet and risk of colorectal cancer in a cohort of Finnish men](#), *Cancer Causes and Control*, 1999

[Ingested nitrate and nitrite and stomach cancer risk: An updated review](#), *Food and Chemical Toxicology*, 2012

[Dietary Patterns and Risk of Stomach Cancer Mortality: The Japan Collaborative Cohort Study](#), *Annals of Epidemiology*, 2010

What have some of these researchers concluded?

Many researchers have questioned the meat and cancer hypothesis and even more have documented the health benefits of meat in a balanced diet. Following are select quotes from key studies challenging the meat and cancer link.

“The available epidemiologic data are not sufficient to support an independent and unequivocal positive association between red meat intake and CRC. This conclusion is based on summary associations that are weak in magnitude, heterogeneity across studies, inconsistent patterns of associations across the subgroup analyses, and the likely influence of confounding by other dietary and lifestyle factors.”

-- *“Meta-analysis of prospective studies of red meat consumption and colorectal cancer,” European Journal of Cancer Prevention, 2011*

“It has been proposed that high intakes of iron might increase the risk for colorectal cancer by promoting oxidation, but previous studies of total iron intake have not supported this hypothesis and we did not observe any association of total iron intake with risk. It is possible that heme iron might be more important, but in a previous publication from this dataset we reported no association of red meat, the main source of heme iron, with colorectal cancer risk.”

-- *“Vitamins, minerals, essential fatty acids and colorectal cancer risk in the United Kingdom Dietary Cohort Consortium,” International Journal of Cancer, 2011*

“The currently available epidemiologic evidence is not sufficient to support a clear and unequivocal independent positive association between processed meat consumption and colorectal cancer.”

-- *“Processed meat and colorectal cancer: a quantitative review of prospective epidemiologic studies,” European Journal of Cancer Prevention, 2010*

“In this study, a low-fat dietary pattern intervention did not reduce the risk of colorectal cancer in postmenopausal women during 8.1 years of follow-up.”

“Low-Fat Dietary Pattern and Risk of Colorectal Cancer,” The Women’s Health Initiative Randomized Controlled Dietary Modification Trial, Journal of the American Medical Association, 2006

“Intakes of total, saturated, monounsaturated, and polyunsaturated fats were not appreciably associated with colorectal cancer risk. In conclusion, these prospective data do not support a positive association between higher red meat and fat intake and colorectal cancer risk.”

-- *“Meat and fat intake and colorectal cancer risk: A pooled analysis of 14 prospective studies,” Proceedings of the American Association for Cancer Research, 2004*

“Relative risks for increasing quintiles of total meat and red meat consumption indicated no association with colorectal cancer (relative risk for high compared with low quintile = 1.10, 95% confidence interval: 0.83, 1.45) for red meat. For total fat, there was also no association with increasing quintiles of consumption (relative risk for high compared with low quintile = 1.14, 95% confidence interval: 0.86, 1.53). Additionally, none of the other subtypes of either meat or fat showed any association with colorectal cancer. This study provided no evidence of an association between either meat or fat (or any of their subtypes) and colorectal cancer incidence...”

-- *“Meat, Fat, and Their Subtypes as Risk Factors for Colorectal Cancer in a Prospective Cohort of Women,” American Journal of Epidemiology, 2003*