

Should We All Be Eating Less Meat?

Exploring the Science and Controversies Surrounding Meat

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“Eat less meat” has become a mantra of the popular media and many health experts. Yet, an estimated 95 percent of Americans make meat or poultry a regular part of their balanced diet. Many consumers want to continue to enjoy meat but are confused by scary headlines and debates over the relationship of meat consumption and health. Today we take a closer look at the issue of meat consumption in the context of healthy eating patterns.

2015 Dietary Guidelines for Americans Recommendations

Eating lean meat in smart portions can fit into a heart-healthy dietary pattern.

The American Heart Association (AHA), American College of Cardiology, and the 2015 Dietary Guidelines for Americans (DG)¹ recommend lean meats and poultry containing less than 10 g fat, 4.5 g saturated fats and less than 95 mg of cholesterol per 3.5-ounce portion. The AHA recommends not more than 6 ounces of cooked lean meat, skinless chicken or fish per day. Heart-healthy omega-3-fatty acid rich fish is encouraged twice a week.

There are multiple healthy eating patterns described within the DG, including ones that include a variety of nutrient-rich animal products. One well-documented heart-healthy dietary pattern is the DASH (Dietary Approaches to Stop Hypertension) diet rich in produce, whole grains, low-fat dairy and six ounces of lean protein, including lean meat, poultry or eggs, every day.

DG recommendations are for a maximum of 26 ounce-equivalents of protein foods from animal sources, per week. Protein can come from both animal and plant sources to meet nutritional needs of different dietary patterns. A combination of animal and plant-based foods provides a healthful balance of protein intake.

Health Benefits of Today's Meat

All meat is not created equally. Credit improved animal agriculture and feeding practices that today approximately 60 percent of beef cuts are considered lean when cooked without visible fat.

When enjoyed within recommended guidelines, meat can be a part of a healthy dietary pattern. Cuts with ‘round’ or ‘loin’ in the name, and 95% lean ground beef, are examples of lean choices.

Meat is not just beef but includes fresh pork, lamb, veal, goat, venison, bison, and elk.

Nutrient-rich meat can help meet DG recommendations to ‘focus on variety, nutrient density and amount’ to meet nutrient needs within calorie limits. Consumers who eat animal products are encouraged to

Average U.S. Meat and Cured Meat Consumption In Ounces

	Women Age 2+	Men Age 2+
Daily Fresh Red Meat	1.06	1.81
Daily Cured Meat	0.75	1.18
Weekly Red Meat	7.42	12.67
Weekly Cured Meat	5.25	8.26
Total Weekly Red and Cured Meat Consumption	12.67	20.93
U.S. Government Protein Recommendation Age 2+	38.5 ounce equivalents per week of which 26 ounces can be meat, poultry and eggs*	

* Based on a 2,000 calorie per day diet

Sources:
What We Eat in America, NHANES, 2013-2014. Food Pattern Equivalency Database, https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/FPED/tables_1-4_FPED_1314.pdf, accessed October 2, 2017
U.S. Dietary Guidelines for Americans, Appendix 3, <https://health.gov/dietaryguidelines/2015/guidelines/appendix-3/>, accessed October 2, 2017

follow the guidelines and keep within the limits for sodium, saturated fats and total calories.

Meat is a principal source of protein in many diets. It is nutrient-rich, containing high biological-value protein and essential nutrients including B vitamins (B₁₂, B₆, riboflavin, and niacin), vitamins E, selenium, iron, zinc, phosphorus, choline and more. Vitamin B₁₂ is only found in animal sources and is a nutrient of importance especially during aging, pregnancy and infancy.

Meat protein provides the most abundant source of zinc in many diets. Further, meats provide the most bioavailable (heme) iron to the diet. ‘Heme iron is especially important for young children and women who are capable of becoming pregnant or who are pregnant,’ says the DG.

Meat also contains cholesterol, fats and saturated fats. The fat and cholesterol content vary depending on animal species, age, sex, breed, feed, and the cut of the meat. Roughly half of the fats in beef are heart-healthy mono-unsaturated fatty acids and about one-third of the saturated fat is stearic acid, a fatty acid that has been shown to have neutral effects on serum cholesterol levels.²

Dietary patterns with adequate amounts of high-quality animal protein are essential for optimal growth, development, and health of children as well as for maintenance in adults.³ Because of the nutritional goodness of meat, many pediatricians now recommend meat as a first complementary food for babies.

The power of protein in weight control includes animal proteins. A 2017 “WISE” study found that lean beef combined with exercise could foster weight loss and muscle mass maintenance while supporting a healthy heart.⁴

Are We Eating Too Much Meat?

American men on average eat 4.81 oz. of meat and poultry per day and women eat 3.07 oz. according to the U.S. Department of Agriculture’s What We Eat in America, NHANES, 2013-2014, Food Pattern Equivalency Database. USDA estimates that 17 percent of calories in the typical diet come from meat, poultry, and fish.

Most Americans, according to the DG, are not overeating protein foods from meat, poultry and eggs except teen boys and adult men who on average consume more meats, poultry and eggs. (Chap 2: fig 2-6) Commonly consumed protein foods include beef (especially ground beef), chicken, pork, processed meats (e.g., hot dogs, sausages, ham, luncheon meats), and eggs. Individuals who are consuming more than the recommendations are encouraged to replace meat with fish and increase plant proteins.

Scientific Review

Epidemiological studies have raised concerns over the association of excess meat consumption and risks for certain cancers, heart disease, diabetes and mortality.^{5, 6, 7} Excess consumption is not clearly defined so it is assumed to be more than the recommended intake.

Notably, the International Agency for Research on Cancer sent shock waves through the media with its 2015⁸ report that associated meat, especially processed meat, and cancer risk. What was missing in the media headlines was the agency’s recognition that the findings are based on epidemiological studies that suggest there may be small increases in the risk of several cancers associated with high consumption of red meat or processed meat. Further, in the review, red meat was classified ‘Group 2A, probably carcinogenic to humans’ based on limited evidence from epidemiological studies showing associations between eating red meat and developing colorectal cancer.

Additionally, previous epidemiologic studies on meat and fat intake and colorectal cancer risk have been inconclusive.⁹

In a large cohort epidemiologic study, researchers found red meat consumption was associated with an increased risk of cardiovascular disease, cancer and mortality.¹⁰ However, a 2004 meta-analysis of 14 prospective follow-up studies of 725,258 men and women over 5 to 20-year period did not support a positive association with higher red meat intake and colorectal cancer risk.⁹

‘Strong’ evidence from primarily epidemiologic studies, says the DG, has shown that dietary eating patterns that include lower intake of meat (processed and whole muscle) are associated with reduced risk of CVD in adults. The weight of the evidence is rated ‘moderate’ that these eating patterns are associated with reduced risk of obesity, type 2 diabetes, and some types of cancer in adults. Individuals who exceed the 26 ounces per week of animal protein would benefit by reducing the amount and type of protein.

A 2017 epidemiologic study found eating red meats was among the dietary factors associated with a proportion of deaths from heart disease, stroke, and type 2 diabetes.¹¹

Sorting out the Evidence

Critics point out much of the research on meat and health has grouped together all meats and poultry, regardless of fat content or processing, lifestyle factors and overall dietary patterns.

Some researchers question the risks and point out the limitations of epidemiologic studies that have linked consumption of red or processed meat with obesity, type 2 diabetes, cardiovascular diseases, and cancers.¹² Results of epidemiologic studies often establish a correlation, which is significantly different from causation.

“Most observational studies report small, increased relative risks. I have become less and less convinced that observational studies on diet and health are able to provide useful information in discerning causality from associations because of the inability to control for other factors that correlate with the behavior of interest” says David Klurfeld, PhD, National Program Leader for Human Nutrition in the Agricultural Research Service of the USDA since 2004.

There is scant evidence of carcinogenicity in humans who consume an adequate intake of lean animal protein.¹³

A panel of experts convened in Norway in November 2013 to evaluate the evidence and cancer risk of red and processed meat. They concluded ‘epidemiological and mechanistic data on associations between red and processed meat intake and colorectal cancer are inconsistent and underlying mechanisms are unclear.’¹⁴ The panel noted an increased risk for colorectal cancer may result from very high intakes of meat in imbalanced diets. They assert a need for further studies on all types of meat and processed meats.

Other researchers maintain the evidence is limited regarding unprocessed red meat intake and diseases such as cardiovascular disease, type 2 diabetes or other cancers.¹⁵

Two large cohorts showed inverse or non-significant associations of unprocessed meat and colorectal cancer.^{16, 17}

A growing body of evidence has demonstrated the role of lean meat in a heart-healthy diet. A recent study, The Beef in an Optimal Lean Diet (BOLD), used a DASH-style eating pattern with lean beef.¹⁸ Researchers found that 4-5.5 ounces of lean beef daily was equally as effective (10 percent decline) at lowering LDL cholesterol levels and improving blood pressure as the standard DASH diet plan.

“Both the BOLD and WISE studies demonstrate the positive impacts of lean meat and shows how meat can be incorporated into a healthy dietary pattern, promote weight loss or maintenance and lower LDL cholesterol,” says Texas A&M meat science professor, Kerri B. Gehring RD, PhD.

Are There Risks Eliminating Meat?

Nutrient rich high quality protein foods can play an important role in meeting nutritional needs.

Vegetarians, vegans and anyone who removes animal protein from their diets is at risk for potential nutritional deficiencies. Recent evidence suggests limiting red meat may result in unintended consequences.¹⁹

Numerous studies document the nutritional deficiencies experienced by vegetarians and vegans at different stages of life that could potentially lead to chronic medical conditions.²⁰

A review of 18 articles found deficiencies of vitamin B₁₂ common in vegetarian diets of pregnant women, children and the elderly.²¹ A 2016 analysis of 40 studies found that B₁₂ deficiency among pregnant vegetarians ranged from 17 to 39 percent and was ranged from 0 to 86.5 percent in adults and elderly. The reviewed studies documented relatively high deficiency prevalence among vegetarians.²²

In infancy, deficiencies of vitamin B₁₂ and folate can have serious negative consequences on the developing brain.²³

Vegetarian adults are also at risk for depleted iron stores and iron deficiency anemia.²⁴ Zinc may be less bioavailable in vegetarian diets suggesting a need for higher intakes.²⁵

Animal protein provides key nutrients. However when eliminated, these can be supplied to the diet with careful dietary management. “Seeking professional advice from credentialed RDNs is often necessary to ensure that consumers are getting accurate advice on how to fill in nutrient gaps,” says Gehring, who serves as President/CEO of the International HACCP Alliance.

Our Role as Healthcare Professionals

When it comes to dietary advice, dietitians know that specificity is important.

One size does not fit all. “Nutrition is so complex and needs to always be individualized – we don’t consume foods as single foods that are either good or bad, instead we need to focus on dietary patterns that are individualized,” says Gehring.

As professionals, we look to the DG to weigh the scientific evidence, balance the health benefits and risks and provide us with public health messages that can be customized to our clients and patients.

Bottom line, lean meats in controlled portions consumed within limits for sodium, saturated fats and total calories can be a part of a healthy eating pattern. Overall healthy dietary patterns including a wide variety of foods in the context of a healthy lifestyle are more important to good health and the best dietary advice.

Sources:

Kerri B. Gehring RD, PhD, Professor, Meat Science, Department of Animal Science, Texas A&M University and President/CEO International HACCP Alliance
David Klurfeld, PhD, National Program Leader for Human Nutrition in the Agricultural Research Service and former Professor and Chairman of the Department of Nutrition & Food Science at Wayne State University.

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