

## Red-meat intake linked to increased risk of diabetes

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Increased consumption of both unprocessed and processed red meat has been linked to an increased risk of diabetes over time.

The latest nutrition news may put a damper on your desire to grill hot dogs, pork chops and T-bone steaks this summer.

**Increasing your intake of red meat over time is associated with a higher risk of developing type 2 diabetes, says a large, long-term study out Monday.**

Other research has linked consumption of both unprocessed and processed red meat to diabetes, but this study tracked the risk of developing the disease over a long time because people's eating behaviors often change through the years.

**"This is stronger evidence that red meat consumption contributes to an increased risk of diabetes,"** says the study's senior author Frank Hu, a professor of nutrition and epidemiology at the Harvard School of Public Health.

**For the latest study, researchers analyzed data from three Harvard studies that tracked 149,000 health-care professionals who completed questionnaires about their diets every four years.** The men and women were followed for 12 to 16 years. Red meat consumption varied widely, but on average people ate 1-½ servings a day.

The findings, published online in *JAMA (Journal of the American Medical Association) Internal Medicine*, show:

- **People who increased their intake of red meat by as little as a half a serving a day (about 1.5 ounces) had a 48% increased risk of developing type 2 diabetes** over a four-year period, compared with people who did not change their red-meat intake.

- **Eating more red meat was associated with weight gain, and that weight gain accounted for some but not all of the increased risk of developing the disease.**

- People who decreased their red-meat intake by half a serving a day over four years did not have a short-term reduced risk of developing the disease in the next four years, but they had a reduced risk of developing the disease by 14% over the next 10 years or so, suggesting a long-term effect.

**The findings apply to both processed red meat, such as lunch meat and hot dogs, and unprocessed red meat, such as hamburger, steak and pork, but the association was stronger for processed meat,** says lead author An Pan of the National University of Singapore who worked on the study while he was at Harvard.

Diabetes afflicts almost 26 million adults and children in the USA. Most have type 2 diabetes. About 79 million Americans have prediabetes. The long-term complications of the disease include heart attacks, stroke, blindness, kidney failure, nerve damage and amputations.

The authors note the study is observational and does not prove cause and effect.

**Hu says the high amount of sodium and nitrites in processed meats are possible factors contributing to diabetes.** The heme iron in red meat also may be one of the contributing factors, he says. Although iron helps prevent anemia, many people in this country have iron overload, which is a risk factor for diabetes, he says. "There are probably other factors in these meats that contribute to diabetes."

He advises reducing the consumption of these types of meats and incorporating more nuts, low-fat dairy and whole grains into meals.

**Registered dietitian Shalene McNeill, a spokeswoman for the National Cattlemen's Beef Association, says, that there's "a lot of good scientific evidence" that supports the role of lean beef in a healthful, balanced diet.**

A 3-ounce serving of lean beef provides 10 essential nutrients, such as protein, zinc, iron and many other vitamins and minerals, for only about 150 calories, she says.

William Evans, head of the Muscle Metabolism Discovery Performance Unit at GlaxoSmithKline, and an adjunct professor of geriatric medicine at Duke University, says in the accompanying editorial that "the interaction of the many genetic and lifestyle factors that contribute to the cause of type 2 diabetes is remarkably complex and still not well understood. The major factors associated with risk are levels of physical activity, body fatness, distribution of body fat and diet."

**Evans says he doesn't think it's the red meat that's the problem, "but the amount of saturated fat in meat.** Saturated fat causes the inflammation in the body which increases the risk of bad things like heart disease and diabetes.

"You can eat lean cuts of beef like sirloin tip steak, top round steak and beef tips that are extremely low in fat and saturated fat, even lower than a number of cuts of chicken. Cheddar cheese has as much saturated fat as a T-bone steak."

As people grow older, they need to eat more protein, but they also need to reduce their calories, Evans says. "You can get that protein from fish, poultry and lean red meat."

Yet, Hu says, "saturated fat is just one of the many components of red meat that contribute to diabetes."

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