

Red and processed meat consumption associated with higher type 2 diabetes risk, study of 2 million people finds

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Meat consumption, particularly consumption of processed meat and unprocessed red meat, is associated with a higher type 2 diabetes risk, an

analysis of data from 1.97 million participants, published in *The Lancet Diabetes & Endocrinology*, has found.

Global meat production has increased rapidly in recent decades and [meat consumption](#) exceeds dietary guidelines in many countries. Earlier research indicated that higher intakes of processed meat and [unprocessed red meat](#) are associated with an elevated risk of type 2 diabetes, but the results have been variable and not conclusive.

Poultry such as chicken, turkey, or duck is often considered to be an alternative to processed meat or unprocessed red meat, but fewer studies have examined the association between poultry consumption and type 2 diabetes.

To determine the association between consumption of processed meat, unprocessed red meat and poultry and type 2 diabetes, the team led by researchers at the University of Cambridge used the global [InterConnect project](#) to analyze data from 31 study cohorts in 20 countries. Their extensive analysis took into account factors such as age, gender, health-related behaviors, energy intake and body mass index.

The researchers found that the habitual consumption of 50 grams of processed meat a day—equivalent to two slices of ham—is associated with a 15% higher risk of developing type 2 diabetes in the next 10 years. The consumption of 100 grams of unprocessed red meat a day—equivalent to a small steak—was associated with a 10% higher risk of type 2 diabetes.

Habitual consumption of 100 grams of poultry a day was associated with an 8% higher risk, but when further analyses were conducted to test the findings under different scenarios, the association for poultry consumption became weaker, whereas the associations with type 2 diabetes for processed meat and unprocessed red meat persisted.

Professor Nita Forouhi of the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge, and a senior author on the paper, said, "Our research provides the most comprehensive evidence to date of an association between eating processed meat and unprocessed red meat and a higher future risk of type 2 diabetes. It supports recommendations to limit the consumption of processed meat and unprocessed red meat to reduce type 2 diabetes cases in the population.

"While our findings provide more comprehensive evidence on the association between poultry consumption and type 2 diabetes than was previously available, the link remains uncertain and needs to be investigated further."

InterConnect uses an approach that allows researchers to analyze individual participant data from diverse studies, rather than being limited to published results.

This enabled the authors to include as many as 31 studies in this analysis, 18 of which had not previously published findings on the link between meat consumption and type 2 diabetes. By including this previously unpublished study data, the authors considerably expanded the [evidence base](#) and reduced the potential for bias from the exclusion of existing research.

Lead author Dr. Chunxiao Li, also of the MRC Epidemiology Unit, said, "Previous meta-analysis involved pooling together already published results from studies on the link between meat consumption and type 2 diabetes, but our analysis examined data from individual participants in each study. This meant that we could harmonize the key data collected across studies, such as the meat intake information and the development of type 2 diabetes.

"Using harmonized data also meant we could more easily account for different factors, such as lifestyle or health behaviors, that may affect the association between meat consumption and diabetes. "

Professor Nick Wareham, Director of the MRC Epidemiology Unit, and a senior author on the paper said, "InterConnect enables us to study the risk factors for obesity and type 2 diabetes across populations in many different countries and continents around the world, helping to include populations that are under-represented in traditional meta-analyses.

"Most research studies on meat and type 2 diabetes have been conducted in the U.S. and Europe, with some in East Asia. This research included additional studies from the Middle East, Latin America and South Asia, and highlighted the need for investment in research in these regions and in Africa.

"Using harmonized data and unified analytic methods across nearly 2 million participants allowed us to provide more concrete evidence of the link between consumption of different types of meat and type 2 diabetes than was previously possible."

More information: Meat consumption and incident type 2 diabetes: a federated meta-analysis of 1.97 million adults with 100,000 incident cases from 31 cohorts in 20 countries., *The Lancet Diabetes & Endocrinology* (2024). [DOI: 10.1016/S2213-8587\(24\)00179-7](https://doi.org/10.1016/S2213-8587(24)00179-7)

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