

An Updated Statistical Analysis of Red Meat and Colorectal Cancer

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Editorial

The scientific community has vigorously debated the connection between eating red meat and the risk of developing colorectal cancer. When analysing study data, drawing conclusions, and turning them into acceptable dietary recommendations, scientists, dieticians, as well as the general public, become perplexed as a result of the uncertainty surrounding this topic. The science of nutritional epidemiology as a whole has several difficulties in evaluating complicated epidemiologic findings, which extends beyond the issue of red meat consumption and cancer. Numerous methodological factors must be taken into account when interpreting data from epidemiologic studies looking at diet and health outcomes, including accurately measuring food intake, dietary pattern differences between populations, food definitions, outcome classifications, bias and confounding, multicollinearity, biological mechanisms, genetic variation in metabolising enzymes, and differences in analytical metrics and statistical methods.

The fact that studies of dietary variables and cancer frequently produce modest statistical relationships, with relative risks typically ranging between 0.8 and 1.25, further complicates matters. On the other hand, sources of uncertainty including confounding, exposure misclassification, and other biases might not be enough to mask a true connection if there is a substantial exposure impact. Even little confounding, moderate exposure, confounder measurement error, and other biases can significantly affect effect estimates in the case of weak connections, though. This methodologically challenging paradigm is appropriate for the subject of red meat intake and CRC. Red meat's potential to enhance the risk of CRC has been linked to a number of posited processes, including the meat's composition.

Cooking-related mutagenesis substances and gut microbiota diversity. The evidence for an underlying biological mechanism of action, however, has not been firmly demonstrated by epidemiologic studies of red meat consumption and CRC. Over the past ten years, a few metaanalyses on this subject have been published. In general, all of them have provided similar summary estimates based on comparable analytical methods. As a result, we used a new method for evaluating the evidence in the current review by honestly and completely investigating study-specific relationships by consumption category. To be more precise, we expanded on our earlier meta-analysis by including data from fresh prospective cohort studies and performed a more thorough examination of the relative risk estimates by certain consumption amounts. Additionally, we talk about the pertinent methodological and analytical elements.

Scientific discussion has centred on a possible link between eating red meat and colon cancer. Our goal was to update the status of the research

by undertaking a rigorous quantitative review of the epidemiology literature because of the significant degree of ensuing ambiguity. Particularly our earlier meta-analysis by including information from fresh prospective cohort studies and carrying out a more thorough analysis of the relative risk estimations by distinct consumption groups. info from 27 Using random-effects models, different prospective cohort studies were combined, and sources of Subgroup and sensitivity analyses were used to look at possible heterogeneity. Additionally, a thorough a prospective dose-response pattern analysis was done with time.

A thorough assessment of possible dose-response patterns was also carried out. A marginally higher summary relative risk was seen in the meta-analysis of all cohorts, but there was also statistically significant heterogeneity. In general, summary connections were lessened in models that focused primarily on fresh red meat, made more pertinent adjustments, only looked at women, and were done in nations other than the United States. Furthermore, there were no discernible dose-response patterns. In conclusion, the epidemiologic research on red meat consumption and CRC is currently in a state best characterised by weak associations, heterogeneity, an inability to distinguish effects from those of other dietary and lifestyle factors, a lack of a distinct dose-response relationship, and waning evidence over time [1-5].

Conflict of interest

None.

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