

RESEARCH SUMMARY

April 15, 2020

Tong Tammy Y N, Appleby Paul N, Bradbury Kathryn E, Perez-Cornago Aurora, Travis Ruth C, Clarke Robert et al. Risks of ischaemic heart disease and stroke in meat eaters, fish eaters, and vegetarians over 18 years of follow-up: results from the prospective EPIC-Oxford study *BMJ* 2019; 366 :l4897

<https://doi.org/10.1136/bmj.l4897>

Abstract (Selected Excerpts)

Objective To examine the associations of vegetarianism with risks of ischaemic heart disease and stroke.

Participants 48 188 participants with no history of ischaemic heart disease, stroke, or angina (or cardiovascular disease) were classified into three distinct diet groups: meat eaters (participants who consumed meat, regardless of whether they consumed fish, dairy, or eggs; n=24 428), fish eaters (consumed fish but no meat; n=7506), and vegetarians including vegans (n=16 254), based on dietary information collected at baseline, and subsequently around 2010 (n=28 364).

Results Over 18.1 years of follow-up, 2820 cases of ischaemic heart disease and 1072 cases of total stroke (519 ischaemic stroke and 300 haemorrhagic stroke) were recorded. After adjusting for sociodemographic and lifestyle confounders, fish eaters and vegetarians had 13% (hazard ratio 0.87, 95% confidence interval 0.77 to 0.99) and 22% (0.78, 0.70 to 0.87) lower rates of ischaemic heart disease than meat eaters, respectively ($P<0.001$ for heterogeneity). This difference was equivalent to 10 fewer cases of ischaemic heart disease (95% confidence interval 6.7 to 13.1 fewer) in vegetarians than in meat eaters per 1000 population over 10 years. The associations for ischaemic heart disease were partly attenuated after adjustment for self reported high blood cholesterol, high blood pressure, diabetes, and body mass index (hazard ratio 0.90, 95% confidence interval 0.81 to 1.00 in vegetarians with all adjustments). By contrast, vegetarians had 20% higher rates of total stroke (hazard ratio 1.20, 95% confidence interval 1.02 to 1.40) than meat eaters, equivalent to three more cases of total stroke (95% confidence interval 0.8 to 5.4 more) per 1000 population over 10 years, mostly due to a higher rate of haemorrhagic stroke. The associations for stroke did not attenuate after further adjustment of disease risk factors.

Conclusions In this prospective cohort in the UK, fish eaters and vegetarians had lower rates of ischaemic heart disease than meat eaters, although vegetarians had higher rates of haemorrhagic and total stroke.

Notes

1. The Toronto Vegetarian Association (TVA) had no involvement with this study, financially or otherwise, and has no conflicts-of-interest. The TVA is not responsible for the accuracy of this study.
2. This summary is intended for educational purposes only. Interpretations are made to the best of our ability. Always refer solely to the original study when citing the claims of the study.

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TVA Summary

This 2019 study was performed by researchers from the University of Oxford and published in *BMJ*, one of the world's oldest medical journals. The study followed 48,188 participants in the UK who were recruited between 1993 and 2001, who were grouped into three categories: meat eaters, "participants who consumed meat, regardless of whether they consumed fish, dairy or eggs;" fish eaters (pescetarians), those who, "consumed fish but no meat;" and vegetarians including vegans. The purpose of the study was, "to examine the associations of vegetarianism with risks of ischaemic^[1] heart disease and stroke." These participants had, "no history of ischaemic heart disease, stroke, or angina (or cardiovascular disease[.]"

It is important to note that this study can be classified as an 'observational study,' meaning that the researchers had to rely on the participants' honesty in reporting and maintaining their diet, and that the study can only establish correlation, not causation, in its results. Also, note that results for vegetarians and vegans are grouped together. While reading this summary, 'vegetarians' should be read as referring to both vegetarians and vegans, collectively, unless stated otherwise.

"After adjusting for sociodemographic and lifestyle confounders," the study found that pescetarians had a 13 percent lower rate of ischemic heart disease than meat eaters, while vegetarians had a 22 percent lower rate of ischemic heart disease than meat eaters. "This difference was equivalent to 10 fewer cases of ischaemic heart disease ... in vegetarians than in meat eaters per 1000 population over 10 years." The study states that this difference, "appears to be at least partly due to lower body mass index and lower rates of high blood pressure, high blood cholesterol, [and] diabetes associated with these diets."

The study also found that vegetarians had a 20 percent higher rate of total stroke (haemorrhagic and ischemic), "equivalent to three more cases of total stroke ... [in vegetarians than in meat eaters] per 1000 population over 10 years, mostly due to a higher rate of haemorrhagic stroke." There was no noticeable difference in stroke rates between pescetarians and meat eaters.

In a *Time* article, the study's co-author Tammy Tong concludes that since, "stroke is a much rarer event than heart disease," then, "the lower risk of heart disease does seem to outweigh the higher risk of stroke."²

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¹ Ischemic, or ischaemic, means "resulting from insufficient blood supply to tissue," in this case, the heart.

² Ducharme, J., 2019, Sep 5, "A New Study Suggests Vegetarians and Vegans Are at Higher Risk of Stroke. But Don't Reach for That Steak Just Yet", *Time*, <https://time.com/5669628/vegetarians-vegans-stroke-study/>