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Vol. 284 No. 12,
September 27,
2000

JAMA



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Authors' ArticlesReturn to
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Whole Grain Consumption and Risk of Ischemic Stroke in Women

A Prospective Study

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Context Although increased intake of grain products has been recommended to prevent cardiovascular disease (CVD), prospective data examining the relation of whole grain intake to risk of ischemic stroke are sparse, especially among women.

Objective To examine the hypothesis that higher whole grain intake reduces the risk of ischemic stroke in women.

Design, Setting, and Participants A prospective cohort of 75,521 US women aged 38 to 63 years without previous diagnosis of diabetes mellitus, coronary heart disease, stroke, or other CVDs in 1984, who completed detailed food frequency questionnaires (FFQs) in 1984, 1986, 1990, and 1994, and were followed up for 12 years as part of the Nurses' Health Study.

Main Outcome Measure Incidence of ischemic stroke, confirmed by medical records, by quintile of whole grain intake according to FFQ responses.

Results During 861,900 person-years of follow-up, 352 confirmed incident cases of ischemic stroke occurred. We observed an inverse association between whole grain intake and ischemic stroke risk. The age-adjusted relative risks (RRs) from the lowest to highest quintiles of whole grain intake were 1.00 (referent), 0.68 (95% confidence interval [CI], 0.49-0.94), 0.69 (95% CI, 0.51-0.95), 0.49 (95% CI, 0.35-0.69), and 0.57 (95% CI, 0.42-0.78; $P = .003$ for trend). Adjustment for smoking modestly attenuated this association (RR comparing extreme quintiles, 0.64; 95% CI, 0.47-0.89). This inverse association remained essentially unchanged with further adjustment for known CVD risk factors, including saturated fat and *trans*fatty acid intake (multivariate-adjusted RR comparing extreme quintiles, 0.69; 95% CI, 0.50-0.98). The inverse relation between whole grain intake and risk of ischemic stroke was also consistently

observed among subgroups of women who never smoked, did not drink alcohol, did not exercise regularly, or who did not use postmenopausal hormones. No significant association was observed between total grain intake and risk of ischemic stroke.

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Conclusions In this cohort, higher intake of whole grain foods was associated with a lower risk of ischemic stroke among women, independent of known CVD risk factors. These prospective data support the notion that higher intake of whole grains may reduce the risk of ischemic stroke.

JAMA. 2000;284:1534-1540

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Funding/Support: The work reported in this article was supported by grants CA40356, HL24074, HL34594, and DK02767 from the National Institutes of Health.

Acknowledgment: We thank the participants in the Nurses' Health Study for their continuing exceptional cooperation and also acknowledge the unfailing help and support from our research staffs and Frank Speizer, MD, the principal investigator of the Nurses' Health Study.

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