Association between dietary whole grain intake and risk of mortality: two large prospective studies in US men and women.


Abstract

IMPORTANCE: Higher intake of whole grains has been associated with a lower risk of major chronic diseases, such as type 2 diabetes mellitus and cardiovascular disease (CVD), although limited prospective evidence exists regarding whole grains' association with mortality.

OBJECTIVE: To examine the association between dietary whole grain consumption and risk of mortality.

DESIGN, SETTING, AND PARTICIPANTS: We investigated 74,341 women from the Nurses’ Health Study (1984-2010) and 43,744 men from the Health Professionals Follow-Up Study (1986-2010), two large prospective cohort studies. All were free of CVD and cancer at baseline.

MAIN OUTCOMES AND MEASURES: Hazard ratios (HRs) for total mortality and mortality due to CVD and cancer according to quintiles of whole grain consumption, which was updated every 4 years using validated food frequency questionnaires.

RESULTS: We documented 26,920 deaths during 272,956 person-years of follow-up. After multivariate adjustment for potential confounders, including age, smoking, body mass index, physical activity, and modified Alternate Healthy Eating Index score, higher whole grain intake was associated with lower total and CVD mortality but not cancer mortality. The pooled HRs for quintiles 1 through 5, respectively, of whole grain intake were 1.0 (reference), 0.99 (95% CI, 0.95-1.02), 0.99 (95% CI, 0.95-1.02), 0.97 (95% CI, 0.93-1.01), and 0.94 (95% CI, 0.89-1.00) for total mortality (P trend < 0.01). For CVD mortality, 1.0 (reference), 0.94 (95% CI, 0.88-1.01), 0.94 (95% CI, 0.87-1.01), 0.87 (95% CI, 0.80-0.94), and 0.80 (95% CI, 0.78-0.82) for CVD mortality (P trend < 0.001); and for cancer mortality (P trend < 0.05), respectively. We further estimated that every serving (25 g) of whole grain intake was associated with a 5% (95% CI, 2%-7%) lower total mortality or a 5% (95% CI, 4%-13%) lower CVD mortality, whereas the same intake level was nonsignificantly associated with lower cancer mortality (HR, 0.98; 95% CI, 0.94-1.02). Similar inverse associations were observed between whole grain intake and CVD mortality, with a pooled HR of 0.90 (95% CI, 0.80-0.99) for CVD mortality, but not with cancer mortality after adjustment for bran intake.

CONCLUSIONS AND RELEVANCE: These data indicate that higher whole grain consumption is associated with lower total and CVD mortality in US men and women, independent of other dietary and lifestyle factors. These results are in line with recommendations that promote increased whole grain consumption to facilitate disease prevention.