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ORIGINAL RESEARCH COMMUNICATION

Whole-grain intake and carotid artery atherosclerosis in a multiethnic cohort: the Insulin Resistance Atherosclerosis Study[1,2,3]

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Background: Whole-grain intake has been shown to be inversely associated with cardiovascular events, but an association with atherosclerosis is less well established.

Objective: We sought to evaluate the association of whole-grain intake with carotid intimal medial thickness (IMT) and IMT progression in a multiethnic cohort.

Design: This study evaluated 1178 participants in the Insulin Resistance Atherosclerosis Study. Baseline whole-grain intake was estimated on the basis of intake of dark breads, cooked cereals, and high-fiber cereals assessed with a validated food-frequency questionnaire. Bilateral carotid IMT was evaluated ultrasonographically, yielding 16 IMT measures at baseline and year 5. Multivariate models evaluated the independent association of whole-grain intake with common carotid artery (CCA) and internal carotid artery (ICA) IMT and IMT progression.

Results: The cohort had a mean (±SD) age of 55.2 ± 8.4 y and was 56% female. The baseline median whole-grain intake was 0.79 servings/d. Whole-grain intake was inversely associated with CCA IMT (ß ± SE: −0.043 ± 0.013, P = 0.005) and IMT progression (ß ± SE: −0.019 ± 0.011, P = 0.09) in models adjusted for demographics, energy intake, energy expenditure, cardiovascular disease risk factors, and medication use. This association was less significant for ICA IMT (ß ± SE: −0.049 ± 0.023, P = 0.05) and not significant for ICA IMT progression (ß ± SE: −0.013 ± 0.014, P = 0.35). The relation between whole-grain intake and CCA IMT remained significant after adjustment for mediating pathways (lipids, adiposity, and insulin resistance), nutrient constituents, and a principal components–derived healthy dietary pattern.

Conclusions: Whole-grain intake is inversely associated with CCA IMT, and this relation is not attributable to individual risk intermediates, single nutrient constituents, or larger dietary patterns.

Key Words: Atherosclerosis • cereals • diet • ethnic groups • cohort studies • Doppler ultrasound

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