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ORIGINAL RESEARCH COMMUNICATION

Vegetables, fruit, and antioxidant-related nutrients and risk of non-Hodgkin lymphoma: a National Cancer Institute–Surveillance, Epidemiology, and End Results population-based case-control study^{1,2,3}

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Background: Factors related to DNA damage and altered immunologic responses, such as reactive oxygen species production, are associated with the risk of non-Hodgkin lymphoma (NHL).

Objective: The aim was to evaluate NHL risk with intakes of vegetables, fruit, and nutrients involved in antioxidant activities.

Design: Incident case subjects aged 20–74 y were identified between 1998 and 2000 from a National Cancer Institute–sponsored study by using four Surveillance, Epidemiology, and End Results registries. Control subjects, who were selected by random dialing (<65 y) and from Medicare files (≥65 y), were matched to cases by age, center, race, and sex. Of 1321 case and 1057 control subjects who enrolled, dietary data were collected on a subset (466 cases and 391 controls). Carotenoid intakes were estimated by using updated values from the US Department of Agriculture nutrient databases. Unconditional logistic regression models were used to estimate odds ratios (ORs) and 95% CIs.

Results: NHL risk was inversely associated with higher number of weekly servings of all vegetables (multivariable OR for highest compared with lowest quartile: 0.58; 95% CI: 0.35, 0.95; *P* for trend = 0.04), green leafy vegetables (OR: 0.59; 95% CI: 0.36, 0.96; *P* for trend = 0.01), and cruciferous vegetables (OR: 0.62; 95% CI: 0.39, 1.00; *P* for trend = 0.05) and with higher daily intakes of lutein and zeaxanthin (OR: 0.54; 95% CI: 0.32, 0.91; *P* for trend = 0.06) and zinc (OR: 0.58; 95% CI: 0.36, 0.91; *P* for trend = 0.02). An effect modification by exercise and NHL subtype was observed with some food groups and nutrients.

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Conclusion: Higher intakes of vegetables, lutein and zeaxanthin, and zinc are associated with a lower NHL risk.


Key Words: Anticarcinogenic agents • cruciferous vegetables • carotenoids • diet • neoplasms • zinc

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