

# Dietary Intake of Antioxidants and Risk of Age-Related Macular Degeneration

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**Context** Age-related macular degeneration (AMD) is the most prevalent cause of irreversible blindness in developed countries. Recently, high-dose supplementation with beta carotene, vitamins C and E, and zinc was shown to slow the progression of AMD.

**Objective** To investigate whether regular dietary intake of antioxidants is associated with a lower risk of incident AMD.

**Design** Dietary intake was assessed at baseline in the Rotterdam Study (1990-1993) using a semiquantitative food frequency questionnaire. Incident AMD until final follow-up in 2004 was determined by grading fundus color transparencies in a masked way according to the International Classification and Grading System.

**Setting** Population-based cohort of all inhabitants aged 55 years or older in a middle-class suburb of Rotterdam, the Netherlands.

**Participants** Of 5836 persons at risk of AMD at baseline, 4765 had reliable dietary data and 4170 participated in the follow-up.

**Main Outcome Measure** Incident AMD, defined as soft distinct drusen with pigment alterations, indistinct or reticular drusen, geographic atrophy, or choroidal neovascularization.

**Results** Incident AMD occurred in 560 participants after a mean follow-up of 8.0 years (range, 0.3-13.9 years). Dietary intake of both vitamin E and zinc was inversely associated with incident AMD. The hazard ratio (HR) per standard deviation increase of intake for vitamin E was 0.92 (95% confidence interval [CI], 0.84-1.00) and for zinc was 0.91 (95% CI, 0.83-0.98). An above-median intake of all 4 nutrients, beta carotene, vitamin C, vitamin E, and zinc, was associated with a 35% reduced risk (HR, 0.65; 95% CI, 0.46-0.92) of AMD. Exclusion of supplement users did not affect the results.

**Conclusion** In this study, a high dietary intake of beta carotene, vitamins C and E, and zinc was associated with a substantially reduced risk of AMD in elderly persons.

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