

Vitamin K and Alzheimer's Disease

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Low vitamin K intakes in community-dwelling elders at an early stage of Alzheimer's disease.

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An increasing body of evidence points to a role for vitamin K in brain physiology through its participation in sphingolipid metabolism and biological activation of the vitamin K-dependent protein Gas6. One hypothesis is that vitamin K may also play a role in the pathogenesis of Alzheimer's disease. A recent study found that patients with early-stage Alzheimer's disease consumed less vitamin K than did cognitively intact control subjects. To learn more about the dietary intakes and food sources of vitamin K in these patients, a detailed analysis was conducted. Dietary vitamin K intakes were assessed from 5 nonconsecutive days of food records collected from 31 community-dwelling patients with early-stage Alzheimer's disease and in 31 age- and sex-matched cognitively intact control subjects. Mean vitamin K intake on a person-day basis was 63+/-90 microg/day in patients and 139+/-233 microg/day in control subjects. Vitamin K intakes were significantly less in participants with Alzheimer's disease ($P<0.0001$), even after adjusting for energy intakes ($P=0.0003$). Vegetables, fats, and fruits contributed more than 70% of total vitamin K intake in both groups. The main source of vitamin K was green vegetables, which contributed 33% and 49% to total intakes in patients and control subjects, respectively. This lower consumption of green vegetables in participants with Alzheimer's disease explained their lower vitamin K intakes overall. Despite their limitations, results are in line with the most recent research in both vitamin K and Alzheimer's disease and suggest a need to consider vitamin K in future investigations on the role of diet in Alzheimer's disease.

Publication Types:

- [Research Support, Non-U.S. Gov't](#)

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Poor nutrient intakes during 1-year follow-up with community-dwelling older adults with early-stage Alzheimer dementia compared to cognitively intact matched controls.

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OBJECTIVE: Decreased food intakes, eating behavior disturbances, and loss of body weight are particularly significant problems among those with Alzheimer dementia. To follow the natural evolution of dietary and nutrition status among elderly community-dwelling adults with Alzheimer dementia. **METHODS:** With their caregivers, 36 community-dwelling patients in early stages of Alzheimer dementia, aged > or =65 years, were recruited from memory clinics in Montréal, age-matched to cognitively intact community-based controls (n=58), and interviewed at four to five time points (T0 to T4) across an 18-month period. Current diet and supplement use were assessed monthly by two food records and/or 24-hour diet recalls (666 records/recalls from patients and 1,678 records/recalls from controls), using adapted data collection techniques among patients, and analyzed using CANDAT with the 2001b Canadian Nutrient File. **RESULTS:** Nutrient intakes from diet and supplements were higher in control subjects, with significant differences in energy, the macronutrients, calcium, iron, zinc, vitamin K, vitamin A, and dietary fiber as well as n-3 and n-6 fatty acids. Repeated measures analysis of variance confirmed these observations among balanced groups of participants aged > or =70 years with full nutrient data during 12 months' follow-up. **CONCLUSIONS:** Dietary intakes by persons with Alzheimer dementia are poor compared to cognitively intact age-matched controls. Suboptimal diet is evident early in the onset of the disease. This vulnerable population would benefit from systematic dietary assessment and intervention to prevent further deterioration in food consumption and increased nutritional risk.

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The possible role of vitamin K deficiency in the pathogenesis of Alzheimer's disease and in augmenting brain damage associated with cardiovascular disease.

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The incidence of Alzheimer's disease (AD) increases with age and in carriers of the apolipoprotein E4 genotype. A relative deficiency of vitamin K, affecting the extrahepatic functions of the vitamin, is common in ageing men and women. The concentration of vitamin K is lower in the circulating blood of APOE4 carriers than in that of persons with other APOE genotypes. Evidence is accumulating that vitamin K has important functions in the brain, including the regulation of sulfotransferase activity and the activity of a growth factor/tyrosine kinase receptor (Gas 6/Axl). The hypothesis is now proposed that vitamin K deficiency contributes to the pathogenesis of AD and that vitamin K supplementation may have a beneficial effect in preventing or treating the disease. Vitamin K may also reduce neuronal damage associated with cardiovascular disease. Copyright 2001 Harcourt Publishers Ltd.

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