

# Higher total folate intake may be associated with lower risk of exfoliation glaucoma

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Exfoliation glaucoma (EG), caused by exfoliation syndrome, a condition in which white clumps of fibrillar material form in the eye, is the most common cause of secondary open-angle glaucoma and a leading cause of blindness and visual impairment. Effective strategies for preventing this disease are lacking.

Elevated [homocysteine](#), which may enhance exfoliation material formation, is one possible risk factor that has received significant research attention. Research studies demonstrate that high intake of vitamin B6, vitamin B12 and folate is associated with lower [homocysteine levels](#). A prospective study from Massachusetts Eye and Ear, Brigham and Women's Hospital (BWH) / Harvard Medical School (HMS), and Harvard School of Public Health (HSPH) set out to evaluate the association between the intake of these vitamins and EG.

The researchers designed a [prospective cohort study](#) using more than 20 years of follow-up data from the Nurses' Health Study (all female registered nurses) and the Health Professionals Follow-up Study (all male [health professionals](#)) from June 1, 1980 to May 31, 2010 (Nurses' Health Study) and Jan. 1, 1986 to Dec. 31, 2010 (Health Professionals Follow-up Study). They observed that higher total folate intake was associated with a lower risk for EG/suspected [exfoliation glaucoma](#) (SEG), supporting a possible causal role of homocysteine in EG/SEG. Their results are published online in the April 3, 2014 issue of *JAMA Ophthalmology*.

"We included a subset of 78,980 women and 41,221 men who were 40 years or older, free of glaucoma, had completed dietary questionnaires, and reported an eye examination during follow-up," said lead author Jae H. Kang, Sc.D., Channing Division of Network Medicine, Department of Medicine, BWH/HMS. "Incident cases of EG/SEG, totaling 339 were first identified with the questionnaires and were subsequently confirmed with medical records. Multivariable relative risks for EG/SEG were calculated in each cohort and then pooled with meta-analysis."

The results showed that vitamin B6 and B12 intake was not associated with EG/SEG risk in pooled analyses ( $P = .52$  and  $P = .99$  for linear trend, respectively). However, there was a trend of a reduced risk of EG/SEG with higher total folate intake, with relations being stronger for higher folate intake from supplements than from diet alone.

"Our conclusions are that higher folate intake is associated with a lower risk for EG/SEG, supporting a possible causal role of homocysteine in EG/SEG," said senior author Louis Pasquale, M.D., Glaucoma Service Director, Mass. Eye and Ear. "More work needs to be done but these are critical insights that may give us a better understanding of how EG progresses, which helps to bring us closer to developing interventions or treatments that prevent this blinding disease."

Provided by Massachusetts Eye and Ear Infirmary

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