

BLUE MOUNTAIN EYE STUDY MULTIVITAMIN...B12...STRONGLY PROTECTIVE...CORTICAL CATARACT



To investigate relationships between a wide range of macro- and micronutrients, including antioxidant vitamins, and the three main types of cataract in older people, a population-based cross-sectional study¹⁸ was conducted with 2,900 people aged 49 to 97 years living in an urban community near Sydney, Australia. Food frequency questionnaires and lens photography were used, and main outcome measures were lens photographs graded for presence and severity of cortical, nuclear, and posterior subcapsular cataracts. The results showed that higher intakes of protein, vitamin A, niacin, thiamin, and riboflavin were associated with reduced prevalence of nuclear cataract. After adjusting for multiple known cataract risk factors, the odds ratios for those in the highest intake quintile groups compared to those in the lowest intake quintiles were 0.5 (95% confidence interval [CI], 0.3-0.8) for protein, 0.5 (95% CI, 0.3-0.9) for vitamin A, 0.6 (95% CI, 0.4-0.9) for niacin, 0.6 (95% CI, 0.4-0.9) for thiamin, and 0.5 (95% CI, 0.3-0.9) for riboflavin. Intake of polyunsaturated fats was associated with reduced prevalence of cortical cataract. No nutrients were associated with posterior subcapsular cataract. In conclusion, the nucleus of the lens is particularly sensitive to nutrient deficiencies. Protein, vitamin A, niacin, thiamin, and riboflavin protected against nuclear cataract in this study.

In a follow-up evaluation¹⁹ of the Blue Mountains Eye Study, researchers studied 79% of participants aged 49 to 97 years attending the cross-sectional Blue Mountains Eye Study who completed a detailed food frequency questionnaire, which included type, dose, and duration of vitamin supplement use. The results showed that use of multivitamin supplements was associated with reduced prevalence of nuclear cataract, odds ratio 0.6, 95% confidence interval 0.4 to 1.0, $P = .05$. For both nuclear and cortical cataract, longer duration of multivitamin use was associated with reduced cataract prevalence (nuclear cataract, trend $P = .02$; cortical cataract, trend $P = .03$). Use of thiamin supplements was associated with reduced prevalence of nuclear (odds ratio 0.6, confidence interval 0.4 to 1.0, $P = .03$, dose trend $P = .03$) and cortical cataract (odds ratio 0.7, confidence interval 0.5 to 0.9, $P = .01$, dose trend $P = .02$). Riboflavin (odds ratio 0.8, confidence interval 0.6 to 1.0, $P = .05$) and niacin (odds ratio 0.7, confidence interval 0.6 to 1.0, $P = .04$) supplements also exerted a protective influence on cortical cataract. Vitamin A supplements were protective against nuclear cataract (odds ratio 0.4, confidence interval 0.2 to 0.8, $P = .01$, dose trend $P = .01$). Folate (odds ratio 0.4, confidence interval 0.2 to 0.9, $P = .03$) appeared protective for nuclear cataract, whereas both folate (odds ratio 0.6, confidence interval 0.3 to 0.9, $P = .01$, dose trend $P = .04$) and vitamin B12 supplements (odds ratio 0.7, confidence interval 0.5 to 1.0, $P = .03$, dose trend $P = .02$) were strongly protective against cortical cataract. In conclusion, long-term use of multivitamins, B group and vitamin A supplements was associated with reduced prevalence of either nuclear or cortical cataract. A strong

protective influence on cortical cataract, from use of folate or vitamin B12 supplements, is a new finding.

¹⁹ Kuzniarz M, Mitchell P, Cumming RG, Flood VM. Use of vitamin supplements and cataract: the Blue Mountains Eye Study. *Am J Ophthalmol*. 2001 Jul;132(1):19-26.