

# Sunlight Exposure, Antioxidants, and Age-Related Macular Degeneration

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**Objective:** To examine the association of sunlight exposure and antioxidant level with age-related macular degeneration (AMD).

**Methods:** Four thousand seven hundred fifty-three participants aged 65 years or older in the European Eye Study underwent fundus photography, were interviewed for adult lifetime sunlight exposure, and gave blood for antioxidant analysis. Blue light exposure was estimated by combining meteorologic and questionnaire data.

**Results:** Data on sunlight exposure and antioxidants were available in 101 individuals with neovascular AMD, 2182 with early AMD, and 2117 controls. No association was found between blue light exposure and neovascular or early AMD. Significant associations were found between blue light exposure and neovascular AMD in individuals in the quartile of lowest antioxidant level—vitamin C, zeaxanthin, vitamin E, and dietary zinc—with an odds ratio of about 1.4 for 1 standard deviation unit increase in blue light exposure. Higher odds ratios for blue light were observed with combined low antioxidant levels, especially vitamin C, zeaxanthin, and vitamin E (odds ratio, 3.7; 95% confidence interval, 1.6-8.9), which were also associated with early stages of AMD.

**Conclusions:** Although it is not possible to establish causality between sunlight exposure and neovascular AMD, our results suggest that people in the general population should use ocular protection and follow dietary recommendations for the key antioxidant nutrients.

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