



## Preventing AMD

### Using Vitamins, Minerals and Lutein

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The use of vitamins is often considered to be within the domain of complementary medicine and there is often controversy regarding their use for treating health problems. However, ophthalmologists are recommending vitamins to prevent further deterioration in age-related macular degeneration (AMD).

#### What is AMD and how is it classified?

AMD is a progressive eye disease that causes blurred vision and can lead to blindness. It is characterized by the presence of yellow deposits called drusen in the macula, the part of the retina that creates blind spots. The pigment of the retina may become disturbed with areas of hyperpigmentation and hypopigmentation.

- **Category 1:** Patients are free of age-related macular abnormalities and have less than five small drusen.
- **Category 2:** Patients have mild macular age-related features with multiple small drusen and pigment abnormalities.
- **Category 3:** Patients have a least one large drusen, extensive intermediate drusen or geographic atrophy that does not involve the center of the macula.

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#### What do the studies show?

##### Lutein Antioxidant Supplementation Trial (LAST)

A prospective, 12-month, randomized, double-masked, placebo-controlled trial of 90 patients (mostly male) with atrophic age-related macular degeneration (AMD).

Patients in:

- Group 1 received lutein, 10 mg, per day,
- Group 2 received lutein, 10 mg, with a spectrum supplementation of antioxidants/vitamins.
- Group 3 received placebo.

##### Age-Related Eye Study (AREDS)

The AREDS included 3,640 patients, aged 55 to 80, randomized into four groups: placebo; zinc (80 mg daily); antioxidants (vitamin C, 500 mg, vitamin E, 400 mg, beta-carotene, 15 mg, and cupric oxide, 2 mg) and zinc plus antioxidants. Sixty-seven per cent of participants took additional multiple vitamins to recommended daily allowances. They were followed for an average of 6.3 years.

There was no significant statistical difference in the cataract trial between treatment and placebo. In the AMD trial groups, those at high risk of developing advanced AMD lowered their risk by about 25% when treated with the mega dosages of the combination of antioxidants and minerals. People supplemented with antioxidants and zinc were less likely to lose 15 or more letters of visual acuity. This effect was seen more strongly in people with moderate to severe disease. There were few events in people with early signs of the disease and the study was underpowered to determine if patients with early stages of the disease might benefit.<sup>3</sup>

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### Adherence?

When 108 patients with AMD were surveyed:

- 79% were taking dietary supplements and
- 68% were taking at least one AREDS ingredient.

The mean dosages of beta-carotene, vitamins C and E and zinc were all below AREDS recommendations. No patient met the recommended dosages for all four ingredients. AREDS concluded that patients with AMD may not be receiving the recommended dosages of beta-carotene, vitamins C and E and zinc. The authors indicated that until new formulations of high-dose antioxidant and zinc supplements are available in Canada, patients should be counselled to attempt to meet recommended dosages by using combinations of currently available supplements.<sup>4</sup>

### Safety?

AREDS evaluated many safety outcomes, of which hospitalization for genitourinary problems was more common in people taking zinc and the yellowing of skin was more common in people taking antioxidant micronutrients. Participants randomly assigned to receive zinc had a lower mortality than those not taking zinc. Two unrelated studies found that smokers who took beta-carotene had higher mortality rates due to lung cancer than those who didn't. No differences in mortality were evident for smokers or non-smokers in these trials; however, harmful effects of long-term supplementation cannot be ruled out.

- **Category 4:** Patients have advanced AMD or visual acuity less than 20/32 due to AMD in one eye.

It is believed that antioxidants may prevent cellular damage in the retina by reacting with free radicals produced in the process of light absorption.

### *Diet and AMD*

A prospective follow-up study was done involving 77,562 women in the Nurses' Health Study and 40,866 men in the Health Professionals Follow-up Study.

The participants were at least 50 years old, had no diagnosis of age-related maculopathy (ARM) or cancer at baseline and were followed for up to 18 years (women) and up to 12 years (men). Fruit and vegetable intake was assessed by a validated, semi-quantitative, food-frequency questionnaire, at most five times for women and three times for men during followup.

The study found that participants having the highest fruit intake had the lowest risk of neovascular ARM. Participants who consumed at least three fruit servings per day had a pooled multivariate relative risk of 0.64 compared to participants consuming less than 1.5 servings per day. The results were similar in women and men. Intake of vegetables, antioxidant vitamins or carotenoids were not strongly related to either early or neovascular ARM.<sup>1</sup>

Antioxidant vitamin or mineral supplementation may delay the progression of AMD in people with moderate to severe disease. **Dx**

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### References

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