

The Age-Related Eye Disease Study (AREDS) - 2001



Objective

To study the clinical course of age-related macular degeneration (AMD) and age-related cataract, while studying the effect of high-dose vitamin and mineral supplements on disease progression.

Methods

Design: Double-masked RCT

Sample Size: N = 4,757

- 55-80 year old adults
- 3,640 participants with AMD
- 4,629 participants with cataract

Treatment Groups:

- Placebo
- Antioxidant formulation
(500 mg vitamin C, 400 IU vitamin E, 15 mg β -carotene)
- Zinc formulation
(80 mg zinc, 2 mg copper)
- Antioxidant + zinc formulation

Outcome Measures:

- Change in visual acuity and ocular status (AMD or cataract)

Results

Point 1: Compared to placebo, antioxidant + zinc supplement provided significant odds reduction for development of advanced AMD (OR=0.72)

- Antioxidant + zinc treatment offered 25% risk reduction of progression from intermediate to advanced AMD; zinc alone reduced risk by 21%
- Antioxidant + zinc treatment reduced odds of severe visual acuity loss by 27%
- Antioxidant + zinc treatment reduced development of neovascular AMD changes (OR, 0.62; 99% CI, 0.43-0.90)
- There was no statistically significant evidence of a treatment benefit in delaying progression from mild to intermediate AMD

Point 2: AREDS antioxidant supplementation offered no improvement in cataract development compared to placebo (OR=0.97, $P=.55$)

- Treatment yielded no significant effect in reducing progression for nuclear, cortical, or posterior subcapsular lens opacities, or for cataract surgery.
- For participants with no AMD at baseline, AREDS antioxidant formulation did not offer significant protection from moderate visual acuity loss.

TLDR: In people at high risk of developing advanced AMD, treatment with the AREDS vitamin formulation containing antioxidants and zinc significantly reduced progression to advanced AMD and vision loss.

Age-Related Eye Disease Study Research Group. The Age-Related Eye Disease Study (AREDS): design implications. AREDS report no. 1. *Control Clin Trials*. 1999 Dec;20(6):573-600. doi: 10.1016/s0197-2456(99)00031-8. PMID: 10588299

Age-Related Eye Disease Study Research Group. A randomized, placebo-controlled, clinical trial of high-dose supplementation with vitamins C and E, beta carotene, and zinc for age-related macular degeneration and vision loss: AREDS report no. 8. *Arch Ophthalmol*. 2001 Oct;119(10):1417-36. doi: 10.1001/archophth.119.10.1417. PMID: 11594942

Age-Related Eye Disease Study Research Group. A randomized, placebo-controlled, clinical trial of high-dose supplementation with vitamins C and E and beta carotene for age-related cataract and vision loss: AREDS report no. 9. *Arch Ophthalmol*. 2001 Oct;119(10):1439-52. doi: 10.1001/archophth.119.10.1439. PMID: 11594943