Supplements found to slow disease progression during late stage of 'dry' age-related macular degeneration

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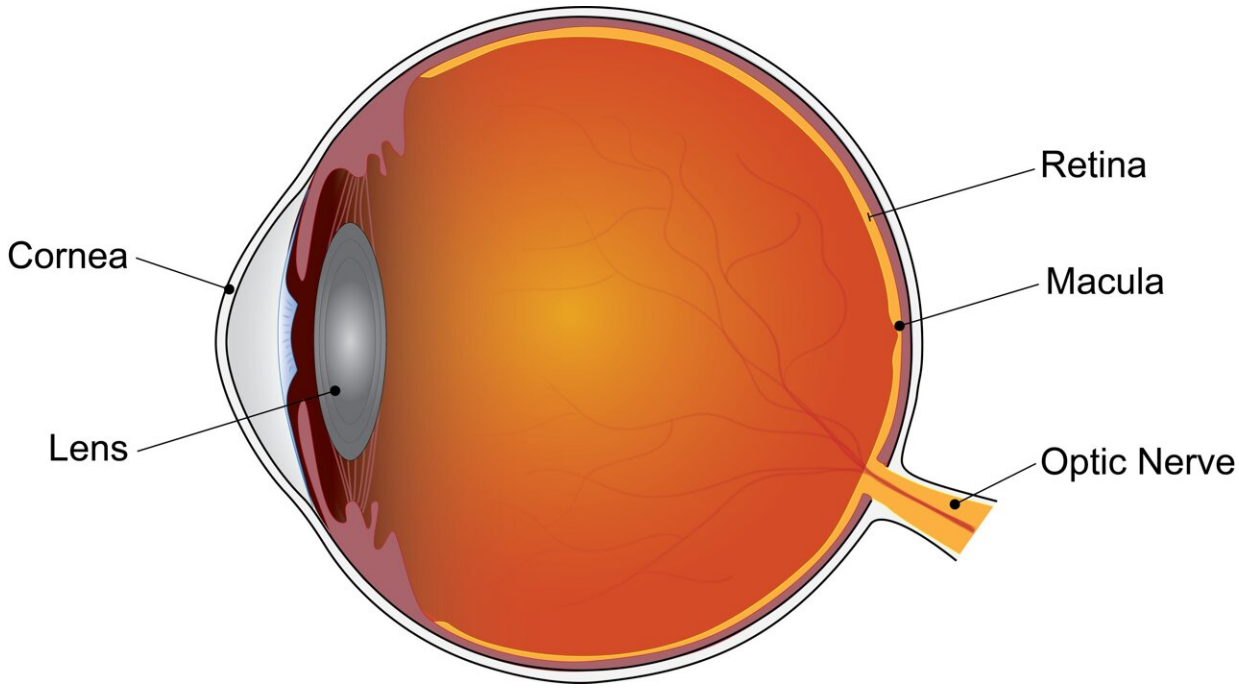

Age-related macular degeneration affects the macula, the part of the retina that provides central vision. Credit: National Eye Institute

In a new analysis of data, researchers at the National Institutes of Health (NIH) have found that taking a daily supplement containing antioxidant vitamins and minerals slows progression of late-stage dry age-related macular degeneration (AMD), potentially helping people with late-stage

disease preserve their central vision.

Researchers reviewed the original retinal scans of participants in the Age-Related Eye Diseases Studies (AREDS and AREDS2) and found that for people with late-stage dry AMD, taking the antioxidant supplement slowed expansion of geographic atrophy regions towards the central foveal region of the retina. The study was published in the journal *Ophthalmology*.

"We've known for a long time that AREDS2 supplements help slow the progression from intermediate to late AMD. Our analysis shows that taking AREDS2 supplements can also slow disease progression in people with late dry AMD," said Tiarnan Keenan, M.D., Ph.D., of NIH's National Eye Institute (NEI) and lead author of the study. "These findings support the continued use of AREDS2 supplements by people with late dry AMD."

In their new analysis, the researchers reviewed the original retinal scans of participants in the AREDS (total 318 participants, 392 eyes) and AREDS2 (total 891 participants, 1,210 eyes) trials who developed dry AMD, calculating the position and expansion rate of their regions of geographic atrophy.

For those people who developed geographic atrophy in their central vision, the supplements had little benefit. But for the majority who developed geographic atrophy far from the fovea, the supplements slowed the rate of expansion towards the fovea by approximately 55% over an average of three years.

In early and intermediate AMD, the light-sensing retina at the back of the eye develops small yellow deposits of fatty proteins called drusen. When the disease progresses to the late stage, people can develop leaky blood vessels ("wet" AMD) or can lose regions of light-sensitive cells in

the retina ("dry" AMD). The geographic atrophy in these regions slowly expands over time, causing people to progressively lose their central vision.

The original AREDS trial found that a supplement formula containing antioxidants (vitamin C, E, and beta-carotene), along with zinc and copper, could slow progression of intermediate to late-stage AMD. The subsequent AREDS2 trial found that substituting the antioxidants lutein and zeaxanthin for beta-carotene improved the efficacy of the supplement formula and eliminated certain risks. At the time, neither trial detected any further benefit once participants had developed late-stage disease.

However, that original analysis did not account for a phenomenon in the dry form of late AMD called "foveal sparing." While all regions of the retina are sensitive to light, the region that gives us the highest acuity central vision is called the fovea. Many people with dry AMD first develop geographic atrophy outside this foveal region, and they only lose their central vision when the geographic atrophy regions expand into the foveal area.

"Our high acuity central vision is essential for tasks like reading and driving. Given that there are few therapeutic options for people with late-stage dry AMD to retain or restore their vision, antioxidant supplementation is a simple step that may slow central vision loss, even for those with late disease," Keenan said. "We plan to confirm these findings in a dedicated clinical trial in the near future."

More information: Tiarnan Keenan et al, Oral antioxidant and lutein/zeaxanthin supplements slow geographic atrophy progression to the fovea in age-related macular degeneration, *Ophthalmology* (2024). DOI: 10.1016/j.ophtha.2024.07.014. www.aaojournal.org/article/S01 … (24)00425-1/abstract

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