

# The 'see food' diet

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Current research suggests that a diet high in omega-3 fatty acids may help prevent one of the leading causes of legal blindness among the elderly. The related report by Tuo et al, "A high omega-3 fatty acid diet reduces retinal lesions in a murine model of macular degeneration," appears in the August 2009 issue of the *American Journal of Pathology*.

Age-related [macular degeneration](#) (AMD), loss of vision in the center of the visual field (macula) due to retinal damage, is one of the leading causes of legal blindness among the elderly. Approximately 10% of people from 66 to 74 years of age will develop some level of macular degeneration, making it difficult for them to read or even recognize faces.

A diet high in omega-3 fatty acids has been found to protect against a variety of diseases including atherosclerosis and Alzheimer's disease. Retrospective studies have suggested that diets high in [fish oil](#) or omega-3 fatty acids may also contribute to protection against AMD. A group led by Dr. Chi-Chao Chan at the National Eye Institute in Bethesda, MD examined the direct effect of omega-3 fatty acids on a mouse model of AMD. A diet with high levels of omega-3 fatty acids resulted in slower lesion progression, with improvement in some lesions. These mice had lower levels of inflammatory molecules and higher levels of anti-inflammatory molecules, which may explain this protective effect.

Tuo et al suggest that "a diet enriched in EPA and DHA can ameliorate the progression of retinal lesions in their mouse model of AMD" and

that "the results in these mice are in line with the epidemiological studies of AMD risk reduction by long chain n-3 fatty acids." The results "further provide the scientific basis for the application of [omega-3 fatty acids](#) and their biologically active derivatives in the prevention and treatment of AMD." In future studies, Dr. Chan and colleagues plan to use this murine model "to evaluate [other] therapies that might delay the development of AMD." Their ongoing projects include the "testing of systematic delivered pharmacochaperones and antioxidative molecules, as well as intraocularly delivered gene therapies."

More information: Tuo J, Ross RJ, Herzlich AA, Shen D, Ding X, Zhou M, Coon SL, Hussein N, Salem Jr N, Chan C-C: A high omega-3 fatty acid diet reduces retinal lesions in a murine model of macular degeneration. *Am J Pathol* 2009 175: 799-807

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