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Topics: Omega-3 fatty acids, docosahexaenoic acid (DHA), Eicosapentaenoic acid (EPA), long chain polyunsaturated fatty acids (LC-PUFAs), age-related macular degeneration (AMD), central geographic atrophy (CGA).

Objective: To determine if omega-3 LC-PUFA (EPA and DHA) intake is associated with a reduced risk of developing central geographic atrophy (CGA) and macular degeneration (AMD) in the eye.

Background: Age-related macular degeneration (AMD) and the associated condition CGA, are two of the major causes of vision loss in people of Western European ancestry. The incidence of AMD in particular is expected to rise by about 50% over the next two decades. Previous small population studies have indicated that higher intake of omega-3 LC-PUFAs may be associated with reduced incidence of AMD.

Method: This multi-centred, prospective study included 1837 people aged 55-80 years from eleven clinical sites who were enrolled in the 12 year Age-Related Eye Disease Study (AREDS) that ran from November 1992 until December 2005. All participants had a visual acuity of 20/32 or better at the start of the study and were at moderate-to-high risk of progression to advanced AMD. The following assessments were conducted:

1) Initial general physical and ophthalmic examinations to obtain information on demographic factors, environmental exposures, medical history, drug use, and habitual diet in the year before enrolment.
2) Periodic retinal photographs using standardized AREDS-certified protocols (trained fundus graders ascertained AMD status from annual stereoscopic color photographs using standardized methods at a single reading center across the 12 year period).
3) Dietary LC-PUFA intake measured by validated, semi-quantitative, food frequency questionnaire. Participants were ranked into 5 groups depending on their intake of LC-PUFAs.

Findings:

1) Participants with the highest reported intake of omega-3 LC-PUFAs (0.11 % of total Energy or 240 mg of combined EPA+DHA) were 30% less likely to develop CGA and AMD. The respective odds ratios were 0.65 (95% CI:0.45, 0.92; P</=0.02) and 0.68 (95% CI: 0.49, 0.94; p</=0.02).

Conclusion: The 12 year incidence of CGA and AMD in people at moderate to high risk of developing these conditions is reduced by increased intake of omega-3 LC-PUFAs. LC-PUFA supplementation may be a cost effective and easy way to prevent progression to advanced AMD.

Relevance to Efalex Active 50+

Reference:

SanGiovanni JP, Agrón E, Meleth AD, Reed GF, Sperduto RD et al. w-3 Long chain polyunsaturated fatty acid intake and 12-y incidence of neovascular age-related macular degeneration and central geographic atophy: a prospective cohort study from the Age-related eye disease study. Am J Clin Nutr Published ahead of print Oct 7, 2009 as doi:10.3945/ajcn.2009.27594.

PRESS RELEASE

Omega-3 intake prevents age-related macular degeneration and associated sight loss[1].

The longest and largest trial to date investigating the impact of omega-3 long chain fatty acid (LC-PUFA) supplementation on the development of age-related macular degeneration (AMD) has reported significant benefits. The study, dubbed the *Age-Related Eye Disease Study (AREDS)*, was supported by the National Eye Institute, National Institute of Health, Bethesda, MD, in collaboration with the Department of Ophthalmology, George Washington University, Washington, DC, USA. It showed that eating 240 mg of combined eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) daily reduced the likelihood of developing AMD and a related condition called central geographic atrophy (CGA) by 30%.

AMD is a disease associated with aging that gradually destroys sharp, central vision. Central vision is needed for seeing objects clearly and for common daily tasks such as reading and driving. AMD is a leading cause of vision loss in people from Western European descent, 60 years of age and older. People in middle-age have about a 2 percent risk of getting AMD, but this risk increases to nearly 30 percent in those over age 75.

AMD affects the macula, the part of the eye that allows you to see fine detail. It is located in the center of the retina**,** the light-sensitive tissue at the back of the eye. The retina is comprised largely of DHA, an omega-3 LC-PUFA that we obtain in our diet primarily from fish.

The AREDS study included 1837 people aged 55-80 years from eleven clinical sites and ran from November 1992 until December 2005. All participants had a visual acuity of 20/32 or better at the start of the study and were at moderate-to-high risk of developing AMD later in life. All were periodically assessed using retinal photography over the twelve years of the study and their dietary LC-PUFA intake was measured using a validated, semi-quantitative, food frequency questionnaire. Following analysis of the data, participants were ranked into 5 groups depending on their intake of LC-PUFAs. Results showed that those with the highest reported intake of omega-3 LC-PUFAs (0.11 % of total energy or 240 mg of combined EPA+DHA) had a 30% lower risk of developing AMD and CGA.

Results of this study confirm findings in previous smaller studies including reports that:

- Higher dietary total omega-3 LCPUFA, and total and broiled/baked fish intake was inversely associated with AMD[2]
- DHA intake was modestly inversely related to AMD incidence while greater than 4 servings of fish per week was associated with a 35% lower risk of AMD compared with 3 or less servings per month[3]
- Increased fish intake reduced risk of AMD, particularly when 2 or more servings per week were consumed, while dietary omega-3 fatty intake was inversely associated with AMD[4]
- People with the highest verses lowest intake of omega-3 LC-PUFAs had a lower risk of early ARM development[5]
- People who ate fish more often had decreased development of late ARM[6], and
- Diets high in omega-3 LC-PUFAs[7] and fish intake[8] were inversely associated with risk for AMD when intake of linoleic acid was low.

Combined, with the AREDS study, these results strongly indicate that combined EPA and DHA supplementation may prevent the onset and/or slow the progression of AMD. A five year randomized, double-blind, placebo controlled clinical study including over 4000 people is now underway to provide proof of that benefit (www.areds2.org).

References:

1. SanGiovanni JP, Agrón E, Meleth AD, Reed GF, Sperduto RD et al. w-3 Long chain polyunsaturated fatty acid intake and 12-y incidence of neovascular age-related macular degeneration and central geographic atophy: a prospective cohort study from the Age-related eye disease study. Am J Clin Nutr Published ahead of print Oct 7, 2009 as doi:10.3945/ajcn.2009.27594.
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