

More good fat, less bad, reduces age-related macular degeneration risk

Two reports published in the May, 2009 issue of the American Medical Association journal *Archives of Ophthalmology* reveal a protective effect for omega-3 fatty acids, fish, nuts and olive oil, and an adverse effect for trans fatty acids, on the risk of developing age-related macular degeneration (AMD), a leading cause of vision loss in older individuals.

In the first study, Jennifer S.L. Tan, MBBS, BE at the University of Sydney, Australia and her colleagues evaluated data from 2,454 participants in the Blue Mountains Eye Study of men and women aged 49 and older. Dietary questionnaires completed at the beginning of the study were analyzed for fatty acid intake, and photographs of the retina taken upon enrollment and at 5 and 10

year follow-up examinations assessed the development of macular degeneration.

After excluding cases of late AMD that were present on enrollment, 72 subjects were found to have developed late disease and 266 developed early disease over the follow-up period. Those who consumed one serving of fish per week were shown to have a 31 percent lower adjusted risk of developing early AMD compared with those who consumed less. This association was mainly evident among those with a low intake of the omega-6 fatty acid linoleic acid. A similar effect was observed in association with omega-3 polyunsaturated fatty acid intake.

Compared with those who consumed nuts less than once per week, those who reported eating one to two weekly servings had a 35 percent lower risk of early disease. The fatty acids and foods identified as beneficial in this study may help protect the eyes by preventing atherosclerotic plaque buildup, lowering inflammation, reducing blood formation and helping to prevent oxidative stress.

"Our findings support the hypothesis that increased intake of omega-three polyunsaturated fatty acids and regular consumption of fish and/or nuts in the diet may protect against the development of early AMD," the authors conclude. "These findings also suggest that an appropriate balance among various nutrients is essential for maximizing nutritional benefit."

In the second article, Elaine W. T. Chong, MD, PhD, of the Centre for Eye Research Australia and her associates evaluated data from 6,734 men and women aged 58 to 69 who participated in the Melbourne Collaborative Cohort Study. Dietary questionnaires completed between 1990 and 1994 were analyzed for the intake of various foods and individual fatty acids. Follow up examinations conducted between 2003 and 2006 detected 2,872 cases of early age-related macular degeneration and 88 cases of late disease.

A high intake of trans-unsaturated fats was associated with a significant increase in late macular degeneration, with those whose intake was categorized as among the top 25 percent of participants having a 76 percent greater risk than those whose intake was among the lowest fourth.

Olive oil emerged as protective against late disease. When those who reported consuming at least 100 milliliters per week olive oil were compared with those who consumed less than 1 milliliter per week, they were found to have a 52 percent lower risk of late AMD.

For early AMD, those whose omega-3 fatty acid intake was among the top 25 percent had a 15 percent lower risk compared with those whose intake was among the lowest quarter.

Trans fatty acids increase cholesterol levels and inflammation, both of which affect the eyes' blood vessels, while omega-3 fatty acids may help protect the retina. Although the main fats contained in olive oil were not associated with macular degeneration risk, the oil contains antioxidants and anti-inflammatory compounds that could be protective. "A diet low in trans-unsaturated fat and rich in omega-3 fatty acids and olive oil may reduce the risk of AMD," the authors conclude.

Health Concern

Age-related macular degeneration

Age-related macular degeneration (AMD) is a condition characterized by the deterioration of the macula portion of the eye. Macular is derived from the Latin word macula, meaning "spot." The macula is the central and most vital area of the retina, providing the clearest, most distinct vision needed in reading, driving, seeing fine detail, and recognizing facial features, for example. There are two forms of macular degeneration: atrophic (dry) and neovascular (wet). Both forms of the disease may affect both eyes simultaneously. Vision can become severely impaired, with central vision rather than peripheral vision affected.

Oxidative stress that reduces blood flow to the eye and increases the level of free radicals is a contributing factor to both wet and dry macular degeneration. This occurs when naturally occurring antioxidants are present in decreased concentrations. Diminished levels of glutathione occur during aging, which makes the lens nucleus susceptible to oxidative stress-induced clouding. Decreased vitamin C, normally highly concentrated in the aqueous humor and corneal epithelium, is less effective in helping absorb ultraviolet radiation and preventing cataracts than when present in high concentration.

Deficiencies in the carotenoids lutein, zeaxanthin, and meso-zeaxanthin are linked to AMD. Lutein, zeaxanthin, and meso-zeaxanthin are present in the retina and positively affect macular pigment density. Lutein and zeaxanthin are important in the prevention of AMD by maintaining denser macular pigment; this results in less retinal tearing or degeneration. The therapeutic efficacy of lutein and zeaxanthin in AMD is significant, according to the Lutein Antioxidant Supplementation Trial (LAST), which showed improvement in several symptoms accompanying AMD.

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For calcium to prevent bone loss, adequate amounts of vitamin D3, zinc, manganese and other nutrients should be available so that calcium, magnesium, and phosphorus can be incorporated into the bone matrix. Another issue that many people are not aware of is that many forms of calcium do not absorb particularly well.

In order to overcome the impediments that preclude aging women and men from achieving optimal calcium status, a mineral formula has been designed that provides 1200 elemental milligrams from three different forms of calcium per daily dose, along with critically important nutrients needed to promote healthy bones. Bone Restore delivers a potent dose of magnesium, along with nutrients that enable calcium and magnesium to be incorporated in the bone matrix, like boron and silicon to further boost the body's ability to maintain healthy bone density.

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- Study concludes omega-3, lutein/zeaxanthin supplement use could help seniors maintain independence, save billions

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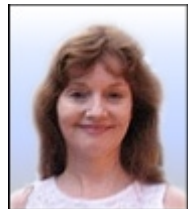
- Eating oily fish once per week cuts macular degeneration risk in half
- Omega-3 fatty acids associated with protection against macular degeneration
- Omega-3 fatty acids protective against advanced age-related macular degeneration

Life Extension magazine

- The missing link in combating macular degeneration
- The role of nutrition in macular degeneration

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