

Omega-3s in fish, seafood may protect seniors' eyes; a new test may catch glaucoma early

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Seniors interested in lifestyle choices that help protect vision will be encouraged by a Johns Hopkins School of Medicine study, and people concerned about glaucoma can take heart from work on early detection by the University of Miami Miller School of Medicine. Both studies are published in the December issue of *Ophthalmology*, the journal of the American Academy of Ophthalmology.

New Evidence for Eye-Protective Effects of Omega-3-Rich Fish, Shellfish

Researchers at Wilmer Eye Institute, Johns Hopkins School of Medicine, wanted to know how the risk of age-related macular degeneration (AMD) would be affected in a population of older people who regularly ate fish and seafood, since some varieties are good sources of <u>omega-3</u> <u>fatty acids</u>. A diet rich in omega-3s probably protects against advanced AMD, the leading cause of blindness in whites in the United States, according to the Age-Related Eye Disease Study (AREDS) and other recent studies. High concentrations of omega-3s have been found in the eye's retina, and evidence is mounting that the nutrient may be essential to eye health. The new research, led by Sheila K. West, PhD, was part of the Salisbury Eye Evaluation (SEE) study.

Food intake information with details on fish and shellfish consumed was collected over one year using a validated questionnaire for 2,391



participants aged 65 to 84 years who lived along Maryland's Eastern Shore. After dietary assessment was complete, participants were evaluated for AMD. Those with no AMD were classified as controls (1,942 persons), 227 had early AMD, 153 had intermediate-stage disease, and 68 had advanced AMD. In the advanced AMD group, the macular area of the retina exhibited either neovascularization (abnormal blood vessel growth and bleeding) or a condition called geographic atrophy. Both conditions can result in <u>blindness</u> or severe vision loss.

"Our study corroborates earlier findings that eating omega-3-rich fish and shellfish may protect against advanced AMD." Dr. West said. "While participants in all groups, including controls, averaged at least one serving of fish or shellfish per week, those who had advanced AMD were significantly less likely to consume high omega-3 fish and seafood," she said.

The study also looked at whether dietary zinc from crab and oyster consumption impacted advanced AMD risk, but no significant relationship was found. Zinc is also considered protective against AMD and is included in an AMD-vitamin/nutrient supplement developed from the AREDS study. Dr. West speculated that her study found no effect because the levels of zinc obtained from seafood/fish were low compared to supplement levels.

A side note: fish and shellfish were part of the normal diet of the study population, rather than added with the intention of improving health. The links between fish consumption, omega-3s and healthy lifestyles were not widely known in the early 1990s when the dietary survey was conducted. In fact, some of the study participants who consumed the most seafood were also smokers and/or overweight, two factors usually associated with AMD and other health risks.

Retinal Nerve Function May be Key to Early



Glaucoma Detection

Catching glaucoma as early as possible–before it destroys the optic nerve–is vital to preventing vision loss. Now a research team at Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, has shown that a test that measures the functionality of the eye's retinal nerve cells may be a key to early detection. Eventually, the test may also help evaluate how well glaucoma treatments are working.

The research, led by Mitra Sehi, PhD, and David Greenfield, MD, was based on the knowledge that retinal ganglion cells (RGCs) become dysfunctional as glaucoma progresses and that such changes can be measured using the pattern electroretinogram optimized for glaucoma screening (PERGLA). PERGLA measures the electrical activity of a patient's retina as he or she views an alternating pattern of black and white lines. (The retinal area in the back of the eye receives images and transmits them to the optic nerve.) Other studies had shown that abnormal changes in RGCs begin early in the glaucoma process, so PERGLA is potentially valuable as a non-invasive detection tool.

The Bascom Palmer study included 47 patients (47 eyes) in whom intraocular pressure (IOP) could not be controlled with medication and who therefore had surgery to prevent optic nerve damage. All patients had two PERGLA evaluations (as well as complete ocular exams, optic nerve assessment, and blood pressure measurement), one before surgery and one at three months post surgery. IOP and PERGLA measurements of the patients' fellow, non-glaucomatous, non-treated eyes were stable before and after surgeries. The surgeries improved fluid drainage in the eyes to reduce IOP; 34 eyes had trabeculectomy and 13 had glaucoma drainage implants.

PERGLA results showed that RGC dysfunction was reversed and IOP was reduced in all patients following surgery. The patients' central visual



field tests improved, as well. Dr. Sehi says these results should be interpreted cautiously until confirmed by larger studies. She calls for longitudinal studies to clarify the relationship between reduced IOP and increased RGC response and to further investigate PERGLA assessment of RGC dysfunction as a biomarker for glaucoma.

Provided by American Academy of Ophthalmology

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