

# Omega-3 linked to healthy eyes: meta-analysis

10/06/2008- **A high intake of omega-3 fatty acids and fish may reduce the risk of age-related macular degeneration (AMD) by up to 38 per cent, suggests a new meta-analysis.**

Pooling the data from nine studies, researchers from the University of Melbourne in Australia report that the benefits were most pronounced against late (more advanced) AMD, while eating fish twice a week was associated with a reduced risk of both early and late AMD.

The meta-analysis, which included 88,974 participants and 3,203 people with AMD, is published in the June issue of *Archives of Ophthalmology*.

Age-related macular degeneration (AMD) is the leading cause of legal blindness for people over 55 years of age in the Western world, according to AMD Alliance International.

Despite the fact that approximately 25 to 30 million people worldwide are affected by AMD, awareness of the condition is low, according to AMD Alliance International. And as the generation of Baby Boomers gets older, the Alliance expects incidence to be on the rise and triple by 2025.

AMD is a degenerative retinal disease that causes central vision loss and leaves only peripheral vision. Early detection is cited as a means of prevention so that treatment or rehabilitation can be undertaken early enough. However, links to diet have also been underscored.

And since omega-3 fatty acids, and particularly DHA (docosahexaenoic acid), play an important role in the layer of nerve cells in the retina, *"a diet rich in omega-3 fatty acids and fish, as a proxy for long-chain omega-3 fatty acid intake, has therefore been hypothesized as a means to prevent AMD,"* wrote researchers.

## Analysis details

Researchers searched seven databases to identify randomised controlled trials (RCTs) and prospective cohort, case-control, and cross-sectional studies. Only nine studies - three prospective cohort, three cross-sectional, three case-control studies - met the inclusion criteria.

Combining the results showed that a high dietary intake of omega-3 EPA was associated with a 23 per cent reduction in the risk of early AMD, whereas DHA was associated with a 30 per cent reduction. A high intake of alpha-linolenic acid (ALA) however was associated with a 49 per cent increase in risk.

"The early AMD definition in this study included vision loss and hence may be more indicative of an intermediate stage of AMD," they stated.

In terms of advanced AMD, the researchers report that a high dietary intake of omega-3 was associated with a 38 per cent reduction in risk. Consuming fish at least twice a week was linked to 24 and 33 per cent reduction in early and late AMD, respectively.

## Mechanism

*"Our findings are supported by a strong underlying biological rationale,"* wrote researchers.

Indeed, DHA plays an essential structural role in the membrane of the retina and is found in high concentrations, stated the researchers.

Moreover, *"the outer photoreceptor- cell segments of the retina are constantly shed in the normal visual cycle and deficiency of this omega-3 fatty acid may initiate AMD."*

*"There is also evidence that such long-chain omega-3 fatty acids protect against oxygenic, inflammatory, and age-associated pathology of the vascular and neural retina, which are possible pathogenic factors for AMD development,"* they added.

## The need for clinical trial confirmation

Researchers report that no randomised clinical trials (RCTs) to date have focussed on the potential of omega-3 fatty acids to reduce the incidence or risk of AMD, and therefore the results of the meta-analysis should be treated with caution.

*"As there are currently no published RCTs on the subject, we could not evaluate the wider role of omega-3 fatty acid supplementation in preventing AMD,"* they stated.

*"While our review suggests that consumption of foods rich in omega-3 fatty acids and fish intake twice or*

*more per week may play important roles in the primary prevention of AMD, in the context of the limited literature available, particularly for late AMD and conclusions from other reviews, routine recommendation of omega-3 fatty acid and fish intake for AMD prevention is not warranted until additional information from prospective studies and RCTs emerges," they concluded.*