Reference:

Effects of Dietary Supplementation with Fish Oil on Dry Eye Syndrome Subjects: Randomized Controlled Trial


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Summary:

Dry eye disease (dry eye syndrome, DES) is a very common condition affecting aprox. 6% of the population and up to 35% of the elderly. Contributing factors include the extensive use of computer viewing plus smoky and dusty environments. It is an inflammatory condition which occurs when the production of tears is inadequate for the ocular surface leading to discomfort, stinging, burning sensation, and visual disturbance. The purpose of the present study was to determine if fish oil (EPA/DHA) supplementation could benefit DES when added to usual treatment.

In this randomized controlled trial, 27 patients (average age = 52 years) with DES were assigned to either fish oil supplementation (n=15) or placebo lacking EPA/DHA (n=12). Those on fish oil capsules ingested 1245 mg of EPA plus 540 mg DHA daily (EPA/DHA = 1785 mg/day) for a period of 12 weeks. Measurements of subjective symptoms (eye pain, dry sensation) plus tear function tests and ocular surface vital staining were performed at the beginning and every 4 weeks thereafter. A statistically-significant improvement in the VAS (visual analog scale) score of eye pain was found after 12 weeks in the group supplemented with fish oil as compared to those receiving placebo. Significant improvements in other parameters (tear stability measured by the tear film break-up time and the rose Bengal staining score) were seen with fish oil supplementation. No drop-outs or side effects were found due to fish oil supplementation. The authors concluded that ‘We believe fish oil supplementation is a clinically valuable additional treatment for dry eye patients’.
Dr. Holub's Comments:

There are a number of mechanisms by which fish oil containing EPA/DHA omega-3 can benefit DES. Inflammation of the cornea and ocular surface is mediated in part by infiltrating neutrophils (white cells) which produce pro-inflammatory products (including leukotriene B4) from the long-chain omega-6 fatty acid (arachidonic acid, AA) and stimulate mucin secretion. EPA/DHA suppress AA levels in the neutrophils and dampen leukotriene B4 production. Also, ‘resolvins’ are anti-inflammatory products formed from EPA/DHA which serve to resolve inflammatory processes and offset the effects of leukotriene B4. It is noted that the levels of EPA/DHA given in this study (1785 mg/day for 12 weeks) are well above typical dietary intakes in North America (approx. 125-150 mg/day) while not above intakes that have been deemed as generally safe via supplementation for the US population.