

Essential fatty acids don't help dry eye—or do they?



"Omega-3s from fish oil supplements no better than placebo for dry eye . . . Despite insufficient evidence establishing the effectiveness of omega-3s, clinicians and their patients have been inclined to try the supplements for a variety of conditions with inflammatory components, including dry eye . . . The results of the DREAM study do not support use of omega-3 supplements for patients with moderate to severe dry eye disease." –National Institutes of Health press release, April 13, 2018

The press release goes on to summarize the results of the recent DREAM (Dry Eye Assessment and Management) trial, published in the *New England Journal of Medicine* this spring: 535 individuals with at least a six month history of dry eye were randomized to receive fish oil (5 capsules per day delivering 2000 mg of EPA and 1000 mg of DHA) vs. olive oil placebo caps. After 12 months, it was found that there was no statistically significant difference between the groups in terms of subjective symptoms of eye dryness or objective measures of tear production or corneal inflammation.

What's wrong with this picture? Have consumers and clinicians been duped into adopting nutritional therapy of dry eye? Hint: If you ask the wrong question, you'll get the wrong answer.

But first, what is dry eye, referred to medically as xerophthalmia? It encompasses a variety of complaints, like a gritty feeling, as if there's something in your eye. There may be itching redness, blurry vision, and/or light sensitivity.

Paradoxically, dry eye sometimes creates too many tears, a condition called reflex tearing. This occurs when a lack of moisture sends a signal to your involuntary nervous system to mobilize tear production.

Tears aren't just salty water; the eye surface requires oils for lubrication, mucous for even distribution, and antibodies and special proteins to prevent infection.

Aging is associated with decreased tear production, as is menopause. Dehydration may also play a role, and air pollution and environmental allergens figure prominently. A relatively new contributor to dry eye is screen time, which reduces natural blinking.

Occasionally, improperly performed blepharoplasty can result in lagophthalmos, or inability to close the eyes completely, especially during sleep.

Certain medications contribute to dry eye, including antihistamines, decongestants, beta-blockers, and thiazide diuretics. Paradoxically, hormone replacement therapy in women can make menopausal dry eye worse. Most anti-depressants—and many

antipsychotic drugs—produce anti-cholinergic side effects, which include drying of mucus membranes. Ibuprofen can cause dry eye in addition to blurred vision. Accutane, an acne medication, is notorious for causing dry eye. So, too, can many GI meds like Prevacid, Nexium, Zantac and Tagamet.

Many medical conditions count dry eye among their symptoms. Rheumatological disorders, particularly Sjogren's Syndrome, are frequently associated with xerophthalmia.

Standard medical treatment for dry eye starts with artificial tears, but quickly advances to a powerful immunosuppressive eye drop—Restasis. Cyclosporine is the active ingredient in Restasis, the same drug used in an oral form to prevent organ transplant rejection. Restasis manufacturer Allergan reported that sales of the drug increased 3.4% in Q1-2017 totaling \$308.8 million.

Restasis has captured 75% of the dry eye market with durable sales despite the entry in 2016 of a new xerophthalmia drug, Xiidra. Restasis is pricey, at over \$500 with discount coupon for 60 single-dose vials.

Are there no nutritional alternatives to these expensive drugs? Does the recent DREAM study sound the death knell for essential fatty acids for dry eye?

Not if you ask the folks at GOED, a trade association for manufacturers of Omega-3 products. They claim that the results of the DREAM trial have been "overstated." While conceding that DREAM employed a reasonably high dose of fish oil supplements over a sufficiently long duration to yield meaningful results, GOED argues that the benefits of Omega-3 supplementation may have been obscured by the fact that a high percentage of DREAM subjects were taking Restasis (38%), artificial tears (79%) or other therapies.

GOED concludes: "Additional research is needed to determine the effectiveness of omega-3s as *monotherapy* for dry eye disease."

But maybe they're barking up the wrong tree. In my opinion, Omega-3 monotherapy was never the fix for dry eyes. I've been using *combinations* of Omega-3s and Omega-6s—specifically gamma-linolenic acid (GLA) from primrose, borage or black currant seed—with generally good results in my patients with dry eye.

Indeed, many reviews suggest it's the synergy between EPA, DHA, and GLA that notch gains in dry eye. Multiple trials looked at the effect of oral supplementation of omega-3 and omega-6 for the treatment of dry eye syndrome. These include studies that indicate that low dietary intake of Omega 3s in women is associated with dry eye; successful trials of GLA for Sjogren's Syndrome dry eye symptoms; and studies that demonstrate the efficacy of Omega-3/Omega-6 medical foods on tear production.

It's thought that the combination of EPA, DHA, and GLA is required for maximal impact on prostaglandin-mediated inflammation of the corneal surface.

The authors of an authoritative review conclude:

"A clear answer exists to our concern: 'Essential Fatty Acids in the treatment of Dry Eye Syndrome: A myth or reality?', as most of the studies suggest a beneficial role of omega-3 and omega-6 supplement in reducing inflammation and improving DES symptoms. We therefore find it a reasonable practice to encourage higher consumption of foods rich with those EFAs initially, followed by prescribing oral supplements in patients not satisfied with topical medications alone. Although it should be kept in mind that these supplements need some time to work and commitment from patients to

achieve their desired goal. More studies are required in order to consider these supplements as part of an established protocol to treat DES."

(A legacy product that has long harnessed the benefits of EFAs for dry eyes is "Moisture-Eyes" from Carlson Labs, **available in my Fullscript dispensary**. It contains EPA and DHA; GLA from borage oil; the antioxidant vitamins A, C, and E; and the mineral zinc.)

"Case-closed" on nutritional supplementation for dry eye? Far from it.