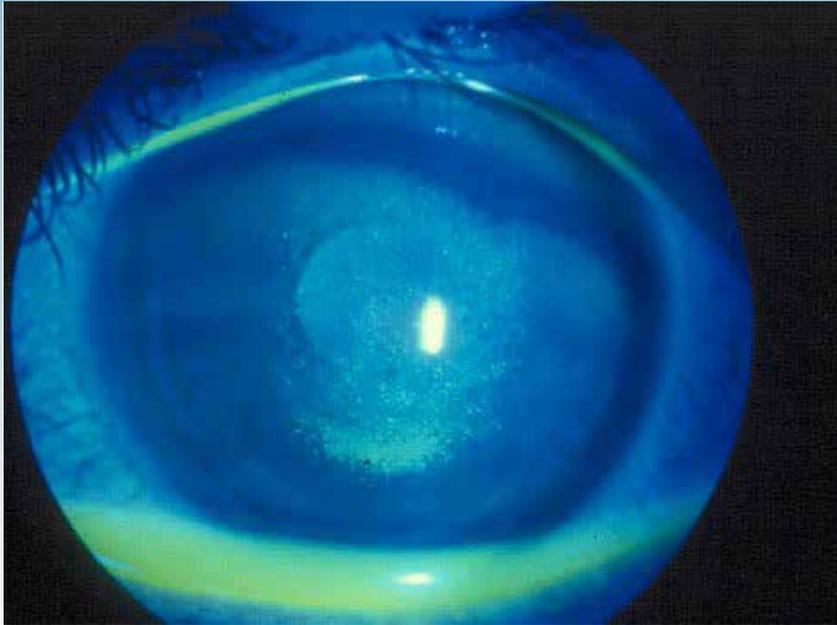


A more modern fish story

by Maxine Lipner EyeWorld Senior Contributing Writer



Dry eye as noted with fluorescein staining

Source: Eric Donnenfeld, MD

Nutrition and dry eye management in the refractive zone

For patients planning to undergo LASIK or PRK, a good ocular surface can be key. However, the trouble for many is dry eye, with some patients plagued by this even before they enter the office, according to **Eric D. Donnenfeld, MD**, clinical professor of ophthalmology, New York University Medical Center. “There’s an epidemic of dry eye,” he said. “A lot of this has to do with changes in our diet.” While 100 years ago the ratio of consumption of omega-3s to omega-6s was 1 to 1, today it is 1 to 50, he said.

The literature substantiates the idea that nutrition plays a significant role in managing dry eye. Dr. Donnenfeld cited the October 2005 Harvard study published in the *American Journal of Clinical Nutrition* involving approximately 40,000 women that showed a strong link between nutrition and dry eye. “They asked a simple question: ‘How much tuna fish do you ingest?’” Dr. Donnenfeld said. Investigators found when patients consumed 2–4 servings of tuna fish a week, the risk of dry eye was reduced by 18%, and when they consumed 5–6 servings, it was reduced by 66%.

Ins and outs of omega-3

To help stave off dry eye in LASIK and PRK patients before they undergo surgery, Dr. Donnenfeld stressed the importance of consuming foods rich in omega-3. “It doesn’t have to be tuna, it could be sardines,” he said. However, not all fish are equal. One of the concerns is that a lot of the fish now are farm raised, and these fish are fed corn high in omega-6 rather than seaweed or other natural nutrition, which is rich in omega-3. “The fish we’re eating now is significantly nutritionally compromised,” he said, adding that it’s important to consume wild rather than farm-raised fish for this reason.

The same thing applies to omega-3 supplementation. “Not all omega-3 supplements are the same,” Dr. Donnenfeld said. The problem with omega-3s is that they are high in mercury and other carcinogens. They need to be cleaned by adding alcohol, he explained, but this alters the natural structure. “When you add alcohol they’re transformed from a natural triglyceride found in nature to an ethyl ester, which is a different molecule,” he said. “One of the basic principles of nutrition is if a substance is not found in nature, it’s not going to have nutritional value.” The majority of omega-3 supplements in the U.S. have alcohol added, he said.

“Almost all of the omega-3s that are consumed are ethyl esters,

which is why patients taking fish oil complain of burping, gas, and diarrhea; the body is not metabolizing it well,” he explained. A few companies take the extra step to transform the oil back to its natural triglyceride form. These include PRN (Physician Recommended Nutraceuticals/Alphaeon Corporation, Irvine, Calif.), Nordic Naturals (Watsonville, Calif.), and Carlson Labs (Arlington Heights, Ill.). “They get 2 to 3 times better absorption than the ethyl esters,” he said. This is the form that he recommends to his patients.

Cynthia Matossian, MD, Matossian Eye Associates, Doylestown, Pa., also urges her patients to use the re-esterified version, even though the cost is greater. The re-esterified triglyceride omega-3 is more expensive than the ethyl ester form, but it doesn’t have the side effects because people have the enzymes to digest it.

Priming refractive patients

For patients slated to undergo LASIK or PRK who have some degree of dry eye, Dr. Donnenfeld recommends beginning omega-3 supplementation, and the sooner, the better. However, he finds you can see some effect after about 2 weeks. “Two weeks beforehand would be a good time to start,” he said. “But it depends on how dry the eyes are to begin with.” If a prospective refractive surgery patient has dry eye initially, he will recommend waiting until this improves before the patient has the refractive procedure. He also suggests putting such patients on Restasis (cyclosporine, Allergan, Irvine, Calif.) and topical steroids.

After patients have undergone refractive surgery, Dr. Donnenfeld recommends they take 4 re-esterified omega-3 pills each day. “This helps improve the ocular surface significantly.”

Likewise, Dr. Matossian recommends patients take 4 omega-3 capsules that have been re-esterified; however, she may modify this. “I have found when I recommend 4 capsules a day to my patients, I get pushback, so I start them on 2 a day.” This is more acceptable to most patients, she finds. In 4 months she brings patients back to see how they’re doing.

When the patients return, she performs a series of exams such as a tear osmolarity test (TearLab, San

Diego), InflammDry (Rapid Pathogen Screening, Sarasota, Fla.), and lissamine green staining of the conjunctiva. Depending on the results, Dr. Matossian will sometimes bump patients up to 4 omega-3 pills per day. “If there is again some pushback, I recommend 1 teaspoon of the liquid version, which some people find easier to take than swallowing larger capsules,” she said, adding that 1 teaspoon of the concentrated PRN omega liquid equals 4 capsules.

If she sees at this point that the patient’s ocular surface is still not doing well, she recommends an OmegaQuant (Sioux Falls, S.D.) finger stick blood test in which a drop of blood is sent to a laboratory and the systemic level of omega-3 is measured. If it’s substantially sub-therapeutic, she lets patients know they have to raise the amount that they’re taking. This also offers insight into what may be going on. In sub-therapeutic cases, it shows either the patient is not taking the omega-3 as regularly as they are claiming or perhaps they’ve switched to a non-re-esterified brand.

In addition to omega-3 supplements, flax seed is an option patients sometimes ask about, she said. “But studies have shown flax seed is not as readily absorbed through the human GI tract and is not as effective as fish-based or marine-based omega-3.”

A change of diet may be helpful, with tuna, sardines, and other fish rich in omega-3 recommended. But patients have to be careful because the amount of fish in the diet that would need to be consumed to get the minimum omega-3 level is incredibly high, Dr. Matossian said, adding that patients then have to worry about mercury levels and PCBs.

However, Dr. Matossian finds patients are more interested in taking a natural approach and are becoming more aware of the nutritional benefits of omega-3. **EW**

Editors’ note: Drs. Donnenfeld and Matossian have financial interests with Allergan, PRN, and TearLab.

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