

NUTRITIONAL TREATMENT OF DRY EYE IN LASIK PATIENTS

Supplemental essential fatty acids are of significant benefit for overall systemic health and reducing inflammation.

BY LEWIS R. GRODEN, MD



Dry eye disease (DED) is an increasingly prevalent condition that can affect every aspect of a person's life. Caused when tear stability can no longer be maintained due to an abnormality of the integrated lacrimal functional unit,¹ DED causes ocular irritation, burning and discomfort,² and it can also affect quality of vision even in those who have not had refractive

surgery. DED is generally associated with inflammation, which aggravates symptoms and alters the accuracy of procedures such as LASIK.³ As ophthalmologists, our goals for refractive surgery are to promote healing, reduce undue inflammation, and achieve quality vision for our patients. Optimizing the ocular surface prior to surgery is a key to more favorable outcomes.

Thankfully, our options for treating DED have expanded greatly in the past few years. Although many of these strategies are effective, they may not be suitable for every patient. Nutrition, a prime component of DED care,⁴ is beneficial for every patient and should be the foundation of treatment. Taking the time to understand the research regarding optimal formulations and their precise impact on DED is worthwhile, because the vast majority of patients can benefit from this natural remedy without harmful or uncomfortable side effects.

DECIPHERING NUTRITIONAL SUPPLEMENTATION

Often, a simple treatment is all that is needed to build a healthy systemic foundation. Along with an overall healthier lifestyle and diet, supplemental essential fatty acids have been shown to be significantly beneficial for overall systemic health and reducing inflammation.⁵ Studies also provide evidence that nutraceuticals can improve the quality of tears.^{6,7} The omega-3 fatty acids from fish oils are perhaps what first come to mind, but omega-6 gamma-linolenic acid (GLA) boasts more clinical evidence that demonstrates efficacy in DED patients. Studies reveal GLA's anti-inflammatory benefit in patients with Sjögren syndrome,⁸ those who have undergone PRK,⁹ and those with DED.¹⁰

Although proinflammatory omega-6 fatty acids are abundant in the typical Western diet, GLA is found in just a few plant-based oils such as black currant, evening primrose, and borage. Thus, it cannot be obtained in a meaningful way through diet alone. GLA is unique in that it encourages the formation of the prostaglandin PGE1, a known anti-inflammatory. When GLA is administered in conjunction with eicosapentaenoic acid/docosahexaenoic acid, it has a synergistic effect of decreasing the production of proinflammatory arachidonic acid and prostaglandin E2.^{11,12}

My supplement of choice, HydroEye (ScienceBased Health), includes a combination of GLA and eicosapentaenoic acid that wages a double-edged assault by suppressing proinflammatory mediators while stimulating anti-inflammatory factors. This mechanism of action has been validated in a randomized placebo-controlled trial in which patients who took two softgels of the supplement twice daily experienced an improvement in Ocular Surface Disease Index or OSDI scores, a reduction of inflammatory biomarkers, and better corneal surface smoothness compared with patients who received placebo.¹³

Along with the health benefits, higher-quality supplements typically have no side effects. Some lower-grade fish oils are accompanied by unpleasant eructations, which is not the case with HydroEye and other professional-grade supplements. There is also no burning sensation that patients





AT A GLANCE

- Nutraceuticals can improve the quality of tears. Clinical evidence supports the efficacy of omega-6 gamma-linolenic acid in patients with dry eye disease.
- HydroEye includes a combination of gamma-linolenic acid and eicosapentaenoic acid that wages a double-edged assault by suppressing proinflammatory mediators while stimulating anti-inflammatory factors.
- A healthy ocular surface is essential to a successful refractive surgery outcome. Surgeons must therefore ensure any existing issues have been addressed before the procedure.

may experience with some prescription drops or over-the-counter tears that contain preservatives.

FRONT-LINE PROTOCOL

A healthy ocular surface is essential to a successful refractive surgery outcome. We must therefore address any existing issues before the procedure. To this end, in my practice, all patients presenting for refractive surgery are evaluated for DED at the time of their initial workup. Administering the OSDI questionnaire to document existing concerns allows my staff and me to address specific risks, and it helps us to determine what problems we may expect after the procedure. In addition to performing a careful ocular examination, we measure tears using either a Schirmer test or osmolarity testing. These results provide objective measurements of tear quality and help us determine who should and should not undergo LASIK.

For patients with a healthy ocular surface or only mild DED, we recommend an omega fatty acid supplement. We sell our preferred supplement in our office. For patients who prefer to get their supplements elsewhere, we can recommend a few other pharmaceutical-grade supplements. For patients in whom the preoperative examination reveals more significant dryness, we prescribe cyclosporine ophthalmic emulsion 0.05% (Restasis; Allergan) or lifitegrast ophthalmic solution 5% (Xiidra; Shire) and other therapies as needed to supplement ocular nutrition.

CONCLUSION

In our practice, most patients adhere well to prescribed ocular nutrition. Because LASIK surgery is paid for out of pocket, patients are motivated to optimize their results in any way possible. Nutritional supplements are not a miracle:

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some patients will have better responses than others, and improvement does not occur overnight. Omega fatty acid supplements, however, can vastly improve symptoms not only for DED but also throughout the body.¹⁴⁻¹⁶

With a healthier system and ocular surface come better surgical outcomes, improved vision, and happier patients. ■

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