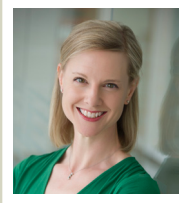


Contact Lens Update

CLINICAL INSIGHTS BASED IN CURRENT RESEARCH

Canadian Dry Eye Summit: On the subject of nutrition

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Karen Walsh is a Clinical Scientist at the Centre for Ocular Research & Education, (CORE) with additional responsibilities focussing on the educational programmes provided by the centre. She has previously worked as a Professional Affairs Manager in the contact lens industry, and in practice in the UK. She holds a post graduate diploma in Clinical Optometry from City University, London UK, and is a Fellow of the International Association of Contact Lens Educators.

Recommendations about nutrition are included in step 1 of the dry eye treatment algorithm. It suggests that patients should be educated regarding potential dietary modifications, and this may include oral essential fatty acid supplementation.¹ Given this recommendation, the session delivered by Dr Laurie Capogna (Private Practice, Niagara Falls, Canada) and Dr Theresa Jahn (Nature's Way, Canada) provided an extremely useful summary of this subject area.

They began with an overview of the relevant key nutrients under consideration, and a reminder that an 'essential' nutrient is one that needs to be ingested as it cannot be synthesised by the body. Polyunsaturated fatty acids are an example of this, and split into two types: omega-3s and omega-6s. Both eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are omega-3s, and have different roles in the body. DHA is more relevant for development and cognitive health, whereas EPA has more of an anti-inflammatory role. An example of an omega-6 is gamma linolenic acid (GLA), which, when in the presence of EPA/DHA, has also been shown to have anti-inflammatory properties effective in dry eye disease.

The by-products of fatty acids, called eicosanoids, can be either anti- or pro-inflammatory.² Enzymes involved in these conversions are active on both omega-3 and omega-6 fatty acids, but have a preference for omega-3 conversion, providing enough omega-3s are available. Omega-3 conversion promotes the anti-inflammatory eicosanoids created from EPA and DHA. When too high a proportion of omega-6 is present, conversion into longer chain molecules results in inflated numbers of pro-inflammatory by-products.² This illustrates the importance of achieving a better balance of omega-3 to omega-6 in the diet, which is something a modern western diet does not typically promote.³

While there is no agreed daily allowance for omega-3s, Dr Jahn illustrated the challenge of eating enough to ingest 1,000mg of EPA and DHA per day. This would equate to 3.8 cans of tuna, or 15 ounces of haddock a day. When put like this, for those patients wanting to increase their daily intake, the option of getting the same 1,000mg dose from just one teaspoon of liquid fish oil becomes attractive. Differences in the form of omega-3 supplements were also discussed, sharing how the natural triglyceride form, and the processed ethyl ester form, are absorbed differently by the body. While both versions substantially raise the amount of omega-3 present compared to placebo, the natural triglyceride form is absorbed at significantly higher levels than ethyl ester versions.⁴

Efficacy of omega-3 supplementation in dry eye disease was covered, contrasting the results of the DREAM study where the group receiving omega-3s did not have significantly better outcomes after one year compared to the olive-oil taking placebo,⁵ with the conclusions of a recent meta-analysis of seventeen studies.⁶ The meta-analysis of data from more than three thousand subjects found that dry eye symptoms and signs are significantly improved with omega-3 supplementation, and that omega-3s may be an effective treatment for dry eye disease.⁶

To end the talk, Dr Capogna shared some tips on how to implement nutrition advice and supplements into optometric practice. Patients can complete a food journal to better understand their baseline diet, they can be educated on making general changes to their diet, decreasing their intake of omega-6s by reducing consumption of processed foods and vegetable oils, and increasing their exposure to omega-3 by eating more fish, green leafy vegetables, and walnuts. Salmon, arctic char, tuna, sardines and mackerel are all good sources of omega-3s. However, the speakers also discussed the importance of correct choices to avoid ingesting too many contaminants. In general, they said, small fish, which are naturally at the lower end of the food chain, tend to accumulate lower amounts of mercury than large fish. Ultimately in practice, all dry eye patients can be questioned about their diet and any known allergies to fish, educated on the importance of balancing their ratio of omega-3 and omega-6s, and, when required, given the recommendation to supplement their diet with omega-3s with either a supplement, food source (or, most likely) a combination of both.

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