

The Use of Omega-3 in Dry Eye



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Dr. Matt Birnholz:

Dry eye is the number one reason patient's go to see their eye doctor. It can be very painful and is difficult to treat. Today we'll talk about some new ways to tackle dry eye. I'm your host, Dr. Matt Birnholz. Joining me today is Dr. Eric Donnenfeld. Dr. Donnenfeld is in private practice at Ophthalmic Consultants of Long Island. And Clinical Professor of Ophthalmology at New York University. Dr. Donnenfeld, welcome to the program.



Dr. Eric Donnenfeld:

Thanks, Matt. It's good to be here today.



Dr. Matt Birnholz:

Dr. Donnenfeld, before we begin, I think congratulations are in order for your recent appointment as President of the American Society of Cataract and Refractive Surgeons, or ASCRS. What are some of the things that you hope to accomplish in your role as president?



Dr. Eric Donnenfeld:

Well, Matt, the American Society of Cataract and Refractive Surgeons is an extraordinary group. There are almost 10 thousand surgeons who belong. What I hope as president of the society is to really preach education. We want to increase the training and learning curve for all ophthalmologists who do cataract and refractive surgery. One of my major initiatives is we want to talk about the holistic approach to ocular surface disease and how improving dry eye is something that makes every ophthalmologist a better surgeon because vision starts with the tear film in the front of the eye. As a surgeon, you can't get good cataract or refractive results unless you really maximize the ocular surface.



Dr. Matt Birnholz:

That's an excellent introduction and background to your role in dry eye. Why don't we start with giving some scope about the problem we're addressing? How common is dry eye and what are the major concerns for patients with this condition?



Dr. Eric Donnenfeld:

Well, Matt, dry eye is the number one reason why patients seek an eye consultation. According to Medicare data, 37 percent of visits to an eye doctor are for dry eye disease. The problem is that dry eye disease is extraordinarily common but it's becoming epidemic and it's increasing in scope, many times more common today than it was several years ago.

Host



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Program Description

Dry eye is the number one reason why patients visit their eye doctor. In the US, an estimated 3.2 million women age 50 and over, and 1.68 million men age 50 and over are affected by dry eye syndrome. Join Dr. Eric Donnenfeld, President of the American Society of Cataract and Refractive Surgeons, as he discusses ocular surface disease and how second generation Omega-3 products can be incorporated into patient management.

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The reason for this is we have an aging population but it's also nutritionally based. We've learned over time that changes in nutrition that began 50 years ago are now causing a significant impact on dry eye disease in many of our patients. This is having a profound effect upon their quality of life. So, this is an extraordinarily common problem. It's a national healthcare problem and it's something that we need to address. I think educational seminars like this are very important.

"Dry eye is the **number one reason** why patients seek an eye consultation."



Dr. Matt Birnholz:

This is where I think a number of our listeners will be interested to hear about some new data that was just presented regarding omega-3 fish oils in particular. So, give us an overview of the role omega-3 fish oils play in ocular health and dry eye treatment.



Dr. Eric Donnenfeld:

Well, Matt, omega-3s are really the fulcrum of managing dry eye. It all starts with nutrition and it all starts with the ocular surface. What I've come to realize over the last decade is just how really important omega-3 therapy is. Omega-3 therapy goes well beyond the ocular surface. This is important for a variety of different diseases. There's so much that omega-3 helps, including arthritis, Alzheimer's disease, skin disorders, your hair, macular degeneration. There are just a variety of diseases that are affected by nutrition. By using omega-3, not only do you help the patient's ocular surface you help a number of other potential diseases as well.

Now, there's a wealth of literature that looks at omega-3 therapy and nutrition. It goes back for over a decade where we've learned so much about this. I think it started to impress me with some work by Jeff Gilbard who looked at the Framingham Study and looked at the number of tuna fish sandwiches that people ingested and found that women who ingested a significant amount of tuna fish had dramatically and statistically significant reduction in dry eye. This was in thousands and thousands of patients. After that, there have been just a slew of papers that have been presented, published in leading journals that look at omega-3 ingestion and how it impacts the ocular surface.

There have been some excellent studies that have been done. One of my favorite new studies was a study that just came out by Greg Smith, presented his work at ASCRS. For the first time, to my knowledge, showed that by ingesting omega-3 that you could actually get an increase in omega-3 levels in the meibomian gland secretion. So, he took patients, measured their omega-3 in the meibomian gland secretions by squeezing their lid margin, sampled the meibum and then came back after they were treated. These patients were treated with an oral omega-3 called PRN, that's a second generation omega-3. We'll talk a little bit about that later on. With the second generation omega-3 was able to get nearly a fivefold increase in omega-3 in about two-thirds of the patients.

In addition, he was able to show that arachidonic acid decreased in patients who received the quality second generation omega-3 PRN. So, nutrition plays a very significant role.

We're doing a study right now looking at the lipid layer in patients who are receiving omega-3 therapy versus olive oil versus a first generation omega-3. There are some very significant differences between first generation and second generation omega-3s. What we've found so far is that the patients, again, who have received the PRN second generation omega-3 have a significant improvement in their lipid layer and quality of vision.

Probably the most significant study that I believe everyone in Ophthalmology should be familiar with is the DEWs study, the Dry Eye Workshop. The Dry Eye Workshop and the Meibomian Gland Workshop, both of these major studies listed omega-3 therapy as a primary treatment for dry eye disease, whether it be from meibomian gland abnormalities or from aqueous secretion abnormalities. You have to remember that dry eye is just not one disease. Dry eye is most commonly a combination of aqueous deficiency and meibomian gland abnormalities. A very important paper by Michael Lemp recently showed that almost 90 percent of patients who have dry eye disease

have mixed mechanism disease of aqueous deficiency and meibomian gland abnormalities so that if you treat dry eye you need to treat both aspects.

One of the beauties of using oral omega-3 therapy is that you treat both aspects. You treat the aqueous deficiency and the meibomian gland abnormalities. So, the studies are extraordinary. They're well-documented, they're well-written and I think it really points to the fact that if you're not using omega-3 therapy I don't think you're doing the right thing for your patients. I've been speaking about omega-3s now for a decade. When I first started talking about this I would always ask the ophthalmologists in the audience, how many of you now take omega-3 therapy yourselves? When I started, there'd be one or two hands that would go up. Now when I speak to a room of a thousand people, well over half of the ophthalmologists I know are taking oral omega-3 therapy themselves. So, this is becoming the standard of care in our community.



Dr. Matt Birnholz:

It's interesting when you mention the healthcare professional perspectives themselves, because when most healthcare professionals tend to think of omega-3 fish oils their first and last concerns are usually just the DHA and EPA ratios. But clearly, from everything that you've just alluded to there's far more to it than that. How do we distinguish which omega-3 fish oils are best for treating dry eye?



Dr. Eric Donnenfeld:

That's probably the most important question we're going to be speaking about today, Matt. That is that there is a profound and important difference between omega-3 therapies.

What I call the first generation omega-3s are omega-3s that either provide safety or provide efficacy but not both. What I mean by that is that the first generation omega-3s are omega-3s that have not been treated to get rid of the contaminants that are found in fish oil, such as mercury. So, they give you a good quality omega-3 but the patient takes risks because they're ingesting all of the contaminants that are found in fish oils. The solution that was done in the past with this is that the providers of these nutritional supplements would add alcohol to the omega-3. This would very simply precipitate out all the contaminants and make it safe to ingest.

The problem with that is that when you add alcohol to an omega-3 it converts the normal triglyceride which is found in nature and easily absorbed to a new substance not found in nature called an ethyl ester. The ethyl ester form of omega-3 is what almost every one of our patients consumes right now at home. This is what's found in all the leading stores and it's kind of ubiquitous. It's interesting that these omega-3s are not used in Europe but are used in the United States because they're inexpensive, they're easy to use. The problem is, is that you're not getting a good omega-3.

The analogy that I make is that this is similar to eating white bread. If you take great bread, brown bread with all nutrition in it, you're getting great vitamins, you're getting great nutrition. But when you bleach it out you don't get the nutrition. The same thing happens with fish oil. When you consume the conventional fish oil that's found now that's in ethyl ester form you don't get a good absorption. The symptoms are that these patients will get gassy, they'll get burp(y), they'll complain of GI distress. That's a problem but the bigger problem is you don't get good absorption. When you don't get good absorption you don't get the omega-3 index high enough to provide nutritional support for the ocular surface.

You would have to ingest a dozen of these conventional pills a day to get the level of omega-3 that you could achieve with just four pills of a second generation omega-3. The second generation omega-3, which is what we really should be recommending to all of our patients, are omega-3s where alcohol has been added to precipitate all the contaminants out. This makes it safe. Then it's re-esterified back to a triglyceride so you get the natural triglyceride form, which can be easily absorbed so you get the great efficacy as well. With the second generation omega-3 you get safety and you get efficacy.

Now, there are a couple of omega-3s that are second generation that are available in the store. The one that I'm

familiar with is Nordic Natural. It's a very nice product. The one that I recommend in my practice is I recommend a brand called PRN. The reason that I recommend PRN is that it's the safest, most efficacious omega-3. It's a second generation omega-3 that's been re-esterified so it's a triglyceride form and it's less expensive for the patient because it's available online or through an 800 number. I simply give my patients a form to fill out and we then contact the company. It's effortless. There's really no work done on our part.

The patient is then given a nutritional counselor who can speak to them about their nutritional habits and they provide this extra level of care to the patients that I appreciate and I think makes the impact much more significant. The beauty is then that the patient can order consecutively over time and it's delivered right to their home. So, it's less expensive, you get the nutritional counselor. Most importantly, you also get the second generation omega-3, which is the re-esterified triglyceride.

So, all omega-3s are not the same. I read about this and I looked into this and I had a significant interest. But the person who really changed my impact upon this was a very famous doctor. Dr. Dierberg who's from Denmark. I had the good fortune of sitting in a small lecture and listening to him speak and then sitting next to him and asking him questions. For those of you who aren't familiar with Dierberg, you should be. If you remember back in the 1960s there was a Danish physician who went up and studied the Eskimo diet and came back with the message that because of their high omega-3 intake they had almost no cardiovascular disease. They had lower cholesterol, they had no heart disease in the Eskimo population because they ingested omega-3s. He's written hundreds of articles published in journals like Nature and British Journal, Lancet, Science, incredible journals. All his articles have been published.

One of the most recent publications he published was the bioavailability of omega-3s. What he looked at was the difference between the first generation omega-3s that have been converted to ethyl esters versus the re-esterified. He found a very statistically significant difference in omega-3 absorption and patients who received the second generation omega-3. Again, supporting the premise that if you're going to ingest omega-3s, ingest the right one.



Dr. Matt Birnholz:

For our listeners, if you're just tuning in, you're listening to ReachMD, the channel for medical professionals. I'm Dr. Matt Birnholz, your host. I'm speaking with Dr. Eric Donnenfeld. We're talking about omega-3 and the use of omega-3 for dry eye. Dr. Donnenfeld, when you focus back on dry eye disease, how effective is this treatment approach for patients compared to other options?



Dr. Eric Donnenfeld:

As we've discussed today, Matt, I am a firm believer that omega-3 ingestion and using a quality omega-3 is really the most important thing we can do for our patients on a regular basis. As a healthcare professional, as someone who cares about my patients, I think it's incumbent upon me to educate patients about this. It's just as important as getting people to stop smoking or to limit alcohol ingestion. Omega-3 ingestion has that same level of importance to the general health of our patients. It goes well beyond the eye itself. But as an ophthalmologist, this is something that has made an enormous difference in my patients. I've managed patients now for decades who have had severe dry eye where we've put them on immunosuppressive therapy, we've used tears, we've used all the tricks and all the armamentarium we have available to us. But until I went to a second generation omega-3, nothing was really working well. This has made a difference in so many patients' lives.

"I am a firm believer that omega-3 ingestion and using a quality omega-3 is really **the most important thing we can do for our patients** on a regular basis."



Dr. Matt Birnholz:

Well, I think that leads back to access to treatment. I know you spoke about that but we should reiterate this comment. I mean if we're looking for second generation omega-3 fish oils in particular, should healthcare practices write prescriptions or would patients be expected to refer to over the counter products?



Dr. Eric Donnenfeld:

Well, omega-3 therapy is now available over the counter but there is also some prescription forms like Lovaza. Lovaza is used for heart disease. One of the interesting aspects of this is that it is a first generation omega-3. It's an omega-3 that has had alcohol added to it that converts it to the ethyl ester form, so you don't get nearly as good absorption. It's extremely expensive and it's better that not taking omega-3. But the over the counter omega-3s that have high levels of absorbable triglyceride omega-3 are certainly superior. According to a number of articles and particularly the article by Dierberg, who is the father of oral nutritional therapy. For that reason, I would recommend an over the counter product. I mentioned before a couple of brands. There's Nordic Natural available in stores, which I find to be very good. I prefer the PRN formula because it's less expensive and you get the nutritional counselors that maintain the importance of omega-3 therapy by talking to our patients and making certain that they continue their treatment.



Dr. Matt Birnholz:

Dr. Donnenfeld, before we wrap up this discussion, are there any parting comments you would like to add or reiterate with respect to dry eye disease and its treatment?



Dr. Eric Donnenfeld:

The take home message today is fairly clear. That is that dry eye is epidemic in the United States. It affects our patients in numerous ways, it reduces their quality of life and it's a progressive disease. Primary therapy is nutrition. This is the most important thing we can do for our patients' ocular surface. Almost every patient who comes into our practice will have some aspect of dry eye disease. It may not be their primary complaint but it's one of their complaints and it's something that we as physicians need to recognize. By taking a holistic approach to caring about patients and discussing the importance of nutritional supplements, I think we can have a profound effect upon our patients. That's what it's all about.

As a surgeon, this is the most important thing that I do in my general care of my surgical patients, whether it be corneal transplant patients, cataracts surgery, Lasik or PRK. By improving the ocular surface I improve my surgical results. That's what I'm looking for and that's what my patients are looking for.



Dr. Matt Birnholz:

Dr. Donnenfeld, I feel we've only started the discussion but we're approaching the end of our time. I want to thank you again for your time, for helping us understand more about the role of second generation omega-3s in treating dry eye.



Dr. Eric Donnenfeld:

It's been my pleasure, Matt. Thank you for the opportunity.

[Closing callout]

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