

Healthy Vision for a Lifetime

KEY WORDS

glaucoma, eyesight, vision, omega-3, DHA, EPA, astaxanthin, beta-carotene, anthocyanins, vitamin B6, pyridoxal-5-phosphate, magnesium, eye strain, macular degeneration, MD, visual acuity

Our eyes are our window to the world. They allow us to see a rainbow, wish on a falling star, delight in our children's faces, paint masterpieces, and fly rockets to the moon. And while many people live wonderful, worthwhile lives without vision, most of us can't imagine trying to function without our eyesight.

According to the organization *Prevent Blindness America*, in people over the age of forty: 44 million have a refractive problem, 4.5 million have diabetic retinopathy, 22 million have cataract, 2.3 million have glaucoma and 2.1 million have macular degeneration. Those are some staggering numbers that may lead people to believe that they are powerless to prevent changes to their vision and that aging only leads to problems with visual acuity. You may be surprised to learn that this is not so! There are nutrient formulas that can make a *tremendous* difference in preserving your eyesight, or even reversing some problems that have already occurred. In this week's *Terry Talks Nutrition*, I am going to share with you my protocol for protecting and preserving your precious eyes!

The Problem

Our eyesight is under assault all the time. Millions of people are experiencing eye strain, eye fatigue and the progression of nearsightedness. It is a sign of the times due to the rapid rise in the use of computers, smart phones and the recreational use of video games and ever-larger television screens. Our eyes are being asked to focus on a specific area for a long period of time like never before in history. This highly concentrated eye strain takes a toll. Over time, the muscles in the eye can gradually "retrain" into true nearsightedness.

But aside from the simple daily grind of looking at computer monitors or working outdoors in the bright sun, to more "hidden" causes like diabetic neuropathy, macular degeneration, or glaucoma, there is much we typically take for granted when it comes to the gift of vision. Our eyes are incredibly complex and delicate systems, at risk of oxidative stress and inflammation like all of the systems in the body.

And even with the healthiest eyes, we expect *some* changes in our vision as we get older. After all, few of us know anyone over the age of 65 who doesn't wear corrective lenses. But serious issues don't have to be inevitable. While genetic and environmental factors play

a part in how well we see the world, changes in our nutrient intake can make a big difference.

Omega-3 Fatty Acids

For instance, glaucoma has a number of risk factors. One of them is a buildup of pressure inside the eyes, called "increased ocular pressure", or simply "IOP". In the United States and Western Europe, IOP is commonly associated with aging. (Interestingly, it is *not* as prevalent in Japan – in fact, the opposite condition tends to be the norm.) But the important thing about IOP is that it *could* be due to our typical dietary habits, which generally don't include enough omega-3 fatty acids.

This increase in pressure happens because the balance between the production of aqueous humor (the nutrient fluid inside the eyes) and its outflow (getting rid of waste products, just like our other processes inside the body) is out of synch. The 'pump' action of the cell membranes that normally control the process is defective, due in part, to a deficiency in omega-3s, which keep cellular membranes (including the actions of the "ionic pumps" in order. As a result, the pressure of aqueous humor builds up in the eyes, causing this increased pressure.

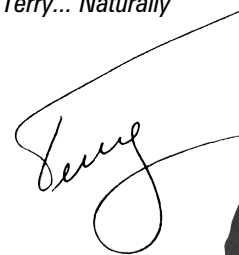
A scientific study conducted over the course of 40 weeks tested the aqueous outflow – the relief of pressure – on two groups; one with an omega-3 enriched diet, and one with an omega-3 deficient diet. At the end of 40 weeks, the omega-3 group showed a 13% decline in IOP, and a very large jump in aqueous outflow – 56%! The researchers also noted a **3 times increase** in DHA inside the ciliary body, the tissue inside the eyes that produces aqueous humor, holds the lens in place, and contains the ciliary muscle that expands and contracts to help us focus.

Age-related macular degeneration (AMD) is the main cause of blindness for people age 60 and older. As the name indicates, it affects the macula – tissue at the center of the eye that lets us see fine detail. Eventually, as the retinal tissue breaks down, vision gets more and more blurred. While you'd think that AMD would be noticeable right away, that's not always the case. If it occurs in only one eye, it can be some time before it's caught – and that's only if you visit an eye doctor regularly.

Because omega-3 fatty acids are so good at supporting the structure of blood vessels, including the "microvascular" (very small blood vessels) system of the eyes, researchers have considered them to be an excellent addition to the diet.

In the Age-Related Eye Disease Study, (AREDS), a large phase 3 clinical trial, the intake of omega-3 fatty acids, specifically EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) was found to reduce the inflammation in the small blood vessels in the retina. While not the only cause of AMD, inflammation, as it is with so many other diseases, is a strong factor here. After

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tallying the results of this 12-year study involving 1800 participants, those with the highest intake of omega-3 fatty acids were 30% less likely to develop AMD. That's a pretty remarkable outcome for such a small change in a daily regimen.

It may surprise you that fish oil is *not* the best way to get omega 3 fatty acids like EPA and DHA from fish. Fish oil, whether in the form of capsules or liquid, requires large amounts to be effective. And for some, eating fish 3 days a week isn't a realistic expectation. Between the inconvenience, impurities and the taste/burping of fish oils, it's understandable why people don't stick to their fish oil regimen.

There's a better way to get the EPA and DHA you need. It's a convenient form – one to two tablets daily – and extremely bioavailable – about 50 times more absorbable than fish oil!

This form of omega-3s is not a fish oil, but rather a whole food salmon omega-3 EPA/DHA extract, naturally bound to salmon phospholipids – the efficient carriers of EPA and DHA. Fish *oils* rely on *triglycerides* to transport these fatty acids into the cells, and they are not very efficient – that's why you need to take so much fish oil. Of course, the other problems with fish oil are that it tends to go rancid easily, and unfortunately, there are real concerns about safety. Not so with a more advanced form.

The advanced process for removing omega 3s attached to phospholipids from salmon is a gentle process that uses only cold water and enzymes. It's as close as you can get to eating fish! Because this form is also more stable than fish oils, this tablet remains stable at room temperature. Plus, the main 'turn-offs' with fish oils – gastric upset and fish burps – are absent in the salmon omega 3 phospholipid supplement. This is the only form I recommend, and the one I urge you to use. It's much

More...

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easier to fit into your daily regimen and will provide benefits beyond healthy vision, supporting your heart and mind, and reducing inflammation throughout your body.

Look for this formula at your local health food store:

Phospholipid Peptide Complex 292mg

Containing Phospholipids, Omega-3 [DHA (docosahexaenoic) and EPA (eicosapentaenoic)] and hydrolyzed peptides extracted from Atlantic Salmon (*Salmo salar*), in a balanced ratio as found naturally in salmon; not chemically altered or spiked with DHA/EPA

Vibrant Ingredients for Better Vision

The natural free-radical fighting power of fruits and vegetables is amazing. You know that every time you notice a bright orange carrot, a vibrant blueberry, or the deep, rich pigment of black currants, you're not just seeing their attractive color, but their powerful benefits, too. Components of these foods, including carotenoids like beta-carotene, lutein, and astaxanthin or bioflavonoids like proanthocyanidins and anthocyanins have been found to have antioxidant capabilities 20 times more powerful than vitamin C, and 50 times more potent than vitamin E! That's important because oxidative damage is linked to eye problems like cataracts and macular degeneration, and one way to prevent or arrest oxidative damage is using antioxidants.

Beta-carotene is probably one of the most well-known carotenoids. It is an excellent form of pro-vitamin A, and helps protect the retina of the eye from oxidative damage. Lutein is naturally found in the macula, and prevents the detrimental effects of ultra-violet radiation.

Astaxanthin is another carotenoid that protects the retina and can help fight macular degeneration by fighting free radicals, but works in a slightly different way, too. One of the forms of age-related macular degeneration is called the "wet" form, and occurs when new blood vessels form to supply nutrients to the eye (called "choroidal neovascularization") are inflamed and burst, damaging the sensitive tissue. One of the triggers for this process is inflammation, and research shows that astaxanthin has anti-inflammatory effects that prevent the creation of these excess weaker blood vessels.

One of the best dietary sources of astaxanthin is *Haematococcus pluvialis*, a freshwater form of green microalgae. Astaxanthin helps them harvest light, working with chlorophyll to create food energy. And, as it does for us, astaxanthin helps protect the microalgae from the damaging effects of ultraviolet light and free radicals.

Anthocyanins are bioflavonoids that give fruits and berries their rich colors. They are some of the most

beneficial components on the planet and may be one of the best medicines nature has to offer. Like carotenoids, they are especially active in the retinas of the eyes.

Of all the berries that have been researched, one outstanding spectrum of nutrients is the black currant. Besides anthocyanins, black currants contain vitamins, minerals, polyphenols, and proanthocyanidins. These compounds have a strong antioxidant effect in the body and help protect cells from damage.

For example, in a placebo controlled double-blind crossover study, participants worked at a computer for two hours. The study showed the ability of black currant anthocyanins to improve visual acuity. Those taking the placebo experienced false nearsightedness while those taking the black currant supplement maintained their normal eyesight. The significance of the study was excellent and strongly demonstrated the protective effects of black currant extracts. Based on this study, one researcher's comment was that further studies may show that black currant extract may also prevent cataracts and age related macular degeneration. In addition, participants supplemented with black currant extracts did not experience eye fatigue nor did they experience the stiffness of the back and neck ordinarily associated with working at the computer. These benefits are related to the improvement in circulation due to the intake of anthocyanins.

Fruits and vegetables have so many amazing nutrients that you could easily consider them more complex than anything we could ever formulate. However, it can be difficult to get all of these healthy ingredients into one day, so a potent mix of compounds in supplement form is a good addition. Definitely keep eating fruits and vegetables – I'd just recommend boosting their ability with some highly concentrated versions of some of their best components.

Look for this formula at your local health food store:

Proprietary Complex 320 mg

Containing Natural Astaxanthin Complex from the microalgae (*Haematococcus pluvialis*) standardized to contain 2% natural astaxanthin and other carotenoids (lutein, canthaxanthin, and β -carotene), Black Currant (*Ribes nigrum*) Extract standardized to contain >25% Anthocyanins

P-5-P Vitamin B6 and Magnesium

Vitamin B6 is pretty well recognized for its support of nerves and muscles, healthy blood pressure, and energy levels. The best form of vitamin B6 is pyridoxal-5-phosphate (P-5-P), which is the bioactive form, and doesn't require conversion by the liver. Because it can work faster and more efficiently, P-5-P is involved in more reactions than other forms of vitamin B, which is

an important thing to consider when you're looking for a supplement.

While omega-3 fatty acids, specifically EPA and DHA, are important to the health of the eyes, not all omega-3 sources contain these fatty acids in readily available form. For example, your body needs to convert the fatty acids from walnuts and flaxseed into EPA and DHA in the body. Vitamin B6 – more useful when it's more bioavailable – helps metabolize these plant-based nutrients into the forms you need most.

More directly related to vision loss, there is research that shows that P-5-P may help protect retinal neurons – the nerve tissue that sends signals from the retina to the brain – from ischemic optic neuropathy, due to a lack of blood flow to the optic nerve. In a scientific study, P-5-P was found to protect the layer of nerve cells that attaches to the optic disk at the back of the eye from ischemic damage.

The trace mineral magnesium is involved with almost every energy-related process in the body, and it vital to the health of our blood vessels and nerves. Magnesium is also important in "activating" P-5-P, so they are a perfect combination. In a recent clinical study, participants with normal tensile glaucoma (not associated with increased pressure) took 300 mg of oral magnesium for 1 month. What's interesting about this study is that magnesium supplementation offered improvement in the visual field and the patients and researchers in this study noticed an improvement in vision.

One thing I'd ask you to keep in mind is that not all magnesium supplements are the same. Many formulations of magnesium can cause loose stools and aren't as easily used by the body. A form like magnesium glycinate chelate is truly one of the best. It works very well with P-5-P, and helps it absorb in the body as well. I'd recommend a combined supplement of those two ingredients for excellent support of eye health.

Look for this formula at your local health food store:

Vitamin B6 (from pyridoxal-5-phosphate) 30 mg

Magnesium (as magnesium glycinate chelate) 100 mg

Keep Your Healthy Vision For A Lifetime!

The supplemental ingredients I've outlined here are a great addition to your regimen for a variety of reasons, and they can help you keep your vision healthy and strong. However, our vision is a precious gift. If you have any concerns about your eyesight, I urge you to consult a professional. After all, there's a lot of beauty to see and experience in this world of ours. **TN**