

Vision

Preserving Clear Vision

When seniors are asked what they fear most, one of the most frequently cited concerns is going blind or having a major loss of vision. Elderly people encounter staggeringly high rates of cataract, glaucoma and macular degeneration.

The good news is that aging of the eye is no longer inevitable. Scientific studies conclusively show that the risk can be mitigated via lifestyle and nutritional modifications. While major advances have been made in treating ocular disorders, there are still technological gaps that cause many to lose their precious vision. This article reviews the published literature and reveals new studies showing that common signs of aging of the eye are largely preventable.

The following vision issues are summarized below, followed by a summary and recommendation. These links are to the full articles: [Aging of the Lens](#), [Aging of the Macula](#), [Dry Eye](#), and [Diabetic Retinopathy](#).

Aging of the Lens

A great deal is known today about the causes of aging of the lens, and significant progress has been made in the search for inexpensive, non-invasive, low-risk methods to halt cataractogenesis and maintain a clear lens. Such a preventative therapy could help many aging people delay or avoid surgery altogether.

Nutrients that have been shown effective at maintaining a clear lens include lutein and zeaxanthin, carnosine, glutathione, taurine and cysteine; the antioxidant vitamins C, A and E; and vitamin B2 (riboflavin). For a full discussion of [aging of the lens and how each of these nutrients helps protect against loss of vision, click here](#).

Aging of the Macula

The macula is the central and most vital area of the retina. It records images and sends them via the optic nerve from the eye to the brain. The macula is responsible for focusing central vision that is needed for seeing fine detail, reading, driving and recognizing facial features.

Age-related macular degeneration is the leading cause of blindness in people over the age of 55, affecting more than 10 million Americans. It is a condition in which the central portion of the retina (the macula) deteriorates. There is little that can be done within conventional medical treatment protocols to restore lost eyesight.

Lutein and zeaxanthin, the primary carotenoids concentrated in the macula, counter the free-radical forming action of light and oxygen. Macular pigment density can be increased by consuming foods and supplements that are rich in lutein and zeaxanthin.⁵⁰⁻⁵³ Consuming lutein ester can increase macular pigment density in patients with early ARMD, so even people with diseased macula can accumulate lutein and possibly zeaxanthin.⁵³ The Baltimore Longitudinal Study of Aging, as well as the Age Related Eye Disease Study (AREDS) have found that an antioxidant combination of Vitamin E, carotene and Vitamin C were protective.

Inflammation, as measured by c-reactive protein has been implicated in macular degeneration. In a follow-up to the AREDS study, those whose CRP levels were in the highest quartile, had a 65 percent increased risk of macular degeneration compared to those in the lowest one-fourth of participants. In another study, Omega-3 fatty acid, specifically, DHA, from fish, actually reduced the AMD risk by 30%. Omega-3 fish oil and Neptune Krill oil have anti-inflammatory properties as shown on [this inflammation chart](#).

For a full discussion on [aging of the macula](#), click here.

Dry Eye

A problem that affects people as they age is the onset of dry eye symptoms. This disorder is one of the leading causes for visits to the optometrist and ophthalmologist. Dry eye can be a very uncomfortable condition but generally does not lead to serious eye complications. One of the best treatments for dry eye symptoms is a good soothing eye drop.

Most eye doctors that are oriented toward prevention will recommend an eye drop containing the lubricant glycerin and/or carboxymethylcellulose sodium plus other nutrients such as vitamin E, vitamin A, carnosine or glutathione. Omega-3 fish oil taken orally may also assist in reducing dry eye. Further [dry eye information](#) is here.

Diabetic Retinopathy

One of the leading complications associated with diabetes is blindness or other eye diseases stemming from vascular damage to the eyes caused by high blood sugar. Diligently controlling blood sugar is a major means of preventing or at least slowing the onset and progression of diabetic retinopathy. Click here for a more complete discussion on [diabetic retinopathy](#).

Preventing Aging of the Eye

Young eyes contain high concentrations of natural antioxidants that protect against cataract, macular degeneration and other ocular disorders. In the aged eye, synthesis of natural antioxidants such as lutein, zeaxanthin, and glutathione is reduced, resulting in excessive free radical damage.

According to one published report, "nutritional intervention to enhance the glutathione antioxidant capacity... may provide an effective way to prevent normal aging of the macula."

Another problem with aging eyes is protein degradation and the formation of advanced glycation end products. Aged eyes fail to break down and remove old proteins, which results in the accumulation of non-functioning protein crosslinks. The resulting accumulation of damaged proteins leads to normal aging of the eyes.

Antioxidant supplements such as Maximum Vitality® have been shown to provide considerable protection against normal macular aging. Unfortunately, aging diminishes circulation to the eye, thereby denying the eyes the full benefits of orally ingested antioxidant and anti-glycating agents.

The good news is that topical eye drop preparations are now available to provide some of the most important nutrients directly into the eye.

Summary and Recommendation

If people live long enough, severe visual impairment or blindness is almost inevitable. Poor vision from cataracts affects 80% of people 75 years of age and older. Taking care of your vision while you are young may delay or prevent this impairment.

The eyes are particularly vulnerable to the effects of aging. Degenerative changes in the eye often begin in middle age. By age 70, a significant percentage of people suffer from aging of the macula and lens of the eye.

A review of the published scientific literature shows that common ocular disorders can be prevented with lifestyle modifications such as following a low glycemic diet, wearing UV blocking sunglasses, avoiding excess saturated fat and not smoking.

A compelling body of evidence indicates that orally ingested antioxidants (such as zeaxanthin, lutein and vitamins) and anti-glycating agents (such as n-acetyl-carnosine and alpha-lipoic acid) help to prevent and treat the aging eye. Visual Optimizer™ used in conjunction with Maximum Vitality® multivitamin provide substantial amounts of all of these important eye nutrients.

Scientific studies indicate that topical application of certain nutrients may be helpful in the prevention and treatment of common senile eye disorders. In response to these published reports, eye drop solutions have been developed that contain specially designed antioxidants, lubricants and anti-glycating agents. Visual Ocuity™ is the newest of these topical eye drop preparations, developed based upon the latest scientific research.

Age Related Macular Degeneration

Macular Degeneration

The macula is the central and most vital area of the retina. It records images and sends them via the optic nerve from the eye to the brain. The macula is responsible for focusing central vision that is needed for seeing fine detail, reading, driving and recognizing facial features.

Age-related macular degeneration is the leading cause of blindness in people over the age of 55, affecting more than 10 million Americans. It is a condition in which the central portion of the retina (the macula) deteriorates. It is equally common in men and women and more common in whites than blacks. The cause is unknown, but the condition tends to run in some families. Macular degeneration affects more Americans than cataracts and glaucoma combined. There are two forms of macular degeneration: atrophic (dry) and exudative (wet). Approximately 85% to 90% of the cases are the dry type. Both forms of the disease may affect both eyes simultaneously. Vision can become severely impaired, with central vision rather than peripheral vision affected. The ability to see color is generally not affected, and total blindness from the condition is rare, but functional vision is very often lost.

There is little that can be done within conventional medical treatment protocols to restore lost eyesight with either form of the disease. Leading researchers, however, are documenting the benefits of a more holistic approach in the treatment of macular degeneration. Patients are being encouraged to increase physical fitness, improve nutrition (including a reduction in saturated fats), abstain from smoking and protect their eyes from sunlight. Dietary supplementation of trace elements, antioxidants and vitamins is recommended for improving overall metabolic and vascular functioning. Early screening and patient education offer the most hope for reducing the debilitating effects of the disease.

Exposures to sunlight and photochemical damage have been suspected factors in macular degeneration, as well as decreased antioxidant activity responsible for damage control.

AREDS Study

The AREDS study demonstrated that moderate doses of older formulations of Vitamin C, E, beta carotene, zinc and copper may reduce the progression of AMD by 25%. Almost comparable effective dosages may now be found in a robust multivitamin, such as Maximum Vitality[®]. The dosage used in the AREDS study was 452 mg Vitamin C, 400 IU synthetic (dl-alpha tocopherol) Vitamin E, 15 mg beta carotene, 69.6 mg zinc, and 1.6 mg copper. There was huge variability in the AREDS study, as almost two-thirds of participants used a multivitamin in addition to the study dosage.

AREDS Maximum Vitality[®] Comments

Vitamin C 452 mg 500 mg

Vitamin E 400 IU 200 IU 200 IU natural is roughly equivalent to 400 IU synthetic. In addition, Maximum Vitality includes all 8 isomers of vitamin E (alpha, beta, gamma, & delta tocopherols and tocotrienols)

Beta Carotene 15 mg 10,000 IU

Zinc 69.6 mg 15 mg not equivalent volume, but more bioactive

Copper 1.6 mg 1 mg more bioactive form

Glutathione

An age-dependent drop in glutathione blood status and a significantly lower level of glutathione has been found in older individuals compared to younger ones. Moreover, an increase of oxidized glutathione by-product over time suggests more oxidation and the incumbent higher risk of age-related eye diseases.³⁰ In the early stages of macular degeneration, glutathione has been found to protect retinal pigment epithelial cells from dying.⁴¹

Glutathione, which is particularly concentrated in the lens, has been shown to have a hydroxyl radical-scavenging function in lens epithelial cells.¹⁹

Lutein and Zeaxanthin

Lutein and zeaxanthin, the primary carotenoids concentrated in the macula, counter the free-radical forming action of light and oxygen. It's been suggested that macular pigment protects the retina via a dual role that includes scavenging for free radicals and filtering out blue light, which can cause photochemical damage. Some studies have also suggested a link between dietary carotenoid intake and macular pigment density. In fact, eyes with age related maculopathy have revealed significantly lower carotenoid levels in the macula and retina than healthy eyes. Earlier studies had shown that eating dark leafy vegetables was associated with a 43% lower risk of macular degeneration.⁴²

Macular pigment density can be increased by consuming foods and supplements that are rich in lutein and zeaxanthin.⁵⁰⁻⁵³ Consuming lutein ester can increase macular pigment density in patients with early ARMD, so even people with diseased macula can accumulate lutein and possibly zeaxanthin.⁵³

Antioxidants

Other studies have been examining how antioxidant status relates to the risk of age-related macular degeneration. The Baltimore Longitudinal Study of Aging, for instance, found that tocopherol, and an antioxidant combination of tocopherol, carotene and ascorbate were protective. Researchers have also been looking at the potentially therapeutic role of individual compounds. For example, a study from Sete, France of 2584 inhabitants showed that higher plasma levels of alpha-tocopherol were inversely related to macular degeneration development and progression.⁴³

The Age-Related Eye Disease Study Research Group⁴³ has shown a protective effect against macular degeneration when higher doses of antioxidants and minerals are taken on a regular basis. The same can be said for cataracts as there is now ample evidence that indicate cataracts have in fact a nutritional connection. It, therefore, appears that prevention is the best solution to postponing or avoiding macular degeneration and cataract surgery. Most eye care professionals to date have told patients affected by these conditions that no treatment exists for macular degeneration and that surgery is the only treatment for cataracts. Emerging research, however, provides new hope for many of these individuals.

Inflammation, C-reactive Protein and Omega-3 Fish Oil

Inflammation, as measured by c-reactive protein has been implicated in macular degeneration. In a study published in the February 2004 issue of the Journal of the American Medical Association, researchers studied 930 participants in the AREDS study at two sites. C-reactive protein levels were significantly higher in the group diagnosed with advanced macular degeneration than in those in whom the disease was absent. Analysis of the results found CRP levels to be significantly associated with the presence of both intermediate and advanced stages of AMD. Those whose CRP levels were in the highest one-fourth had a 65 percent increased risk of macular degeneration compared to those in the lowest one-fourth of participants.⁴⁷

In an earlier study published in the American Journal of Clinical Nutrition, investigators questioned 72,000 study participants about their diets and calculated the types of fat and total fat they ate. Those who ate more fat overall increased their risk of AMD, while those who ate fish reduced their risk of developing the eye disease. Omega-3 fatty acid, specifically, DHA, from fish, actually reduced the AMD risk by 30%. Omega-3 fish oil has anti-inflammatory properties as shown on this inflammation chart.⁴⁶

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