

By David M. Brady, ND, DC, CCN, DACBN, IFMCP, FACN and Caitlin Higgins, MS, CNS, LDN

THIS INFORMATION IS PROVIDED AS A MEDICAL AND SCIENTIFIC EDUCATIONAL RESOURCE FOR THE USE OF PHYSICIANS AND OTHER LICENSED HEALTH-CARE PRACTITIONERS ("PRACTITIONERS"). THIS INFORMATION IS INTENDED FOR PRACTITIONERS TO USE AS A BASIS FOR DETERMINING WHETHER TO RECOMMEND THESE PRODUCTS TO THEIR PATIENTS. ALL RECOMMENDATIONS REGARDING PROTOCOLS, DOSING, PRESCRIBING AND/OR USAGE INSTRUCTIONS SHOULD BE TAILORED TO THE INDIVIDUAL NEEDS OF THE PATIENT CONSIDERING THEIR MEDICAL HISTORY AND CONCOMITANT THERAPIES. THIS INFORMATION IS NOT INTENDED FOR USE BY CONSUMERS.

OcuForce™ is a comprehensive formulation containing an array of ideal ocular-supportive nutrients and antioxidants, including macular carotenoids, bilberry, *Ginkgo*, turmeric, quercetin, taurine, N-acetyl-cysteine, and alpha lipoic acid to promote normal eye health and function.* This formula also includes B vitamins, vitamin C, vitamin E isomers (as DeltaGold® delta- and gamma-tocotrienols), and zinc to support the body's antioxidant status and a healthy inflammatory response.* This product contains only natural carotenoids, as they provide far superior benefits than synthetic forms with a total of 960 mcg RAE of vitamin A.

Exposure to toxins, ultraviolet light from the sun, and free radicals significantly influence eye health and gradually, with time, may cause damage. The simple act of letting light pass through the eye and hit the retina increases the exposure of eye tissue to a range of different light-generated free radicals. The natural aging process results in detrimental changes to the eyes, which increases susceptibility to oxidative damage. Age-related macular degeneration (AMD) is the leading cause of irreversible vision loss in people 50 years of age and older within the industrialized world.¹ Decreased antioxidant potential and increased oxidative stress are linked to the progression of glaucoma.² For these reasons, it is essential to optimize the intake of eye-nourishing nutrients, especially during the aging process.

OcuForce™ may be beneficial to support the treatment of*:

- Macular degeneration
- Glaucoma
- Cataracts
- Poor night vision
- Retinopathy
- Visual decline
- Ocular fatigue
- Dry eye disease

Supplement Facts

Serving Size 2 capsules
Servings Per Container 30

Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Vitamin A (from Retinyl Palmitate and Mixed Carotenoids from Palm Tree Fruit)	960 mcg RAE 107%	N-Acetyl-L-Cysteine (NAC)	200 mg *
Vitamin C (as Ascorbic Acid)	100 mg 111%	Quercetin	100 mg *
Thiamin (Vitamin B-1) (as Thiamin HCl and Benfotiamine)	10 mg 833%	Bilberry Extract (<i>Vaccinium myrtillus</i>)(fruit) [standardized to contain 25% anthocyanidins]	100 mg *
Riboflavin (Vitamin B-2) (as Riboflavin and Riboflavin-5-Phosphate)	20 mg 1538%	Ginkgo Extract (<i>Ginkgo biloba</i>)(leaf) [standardized to contain 24% ginkgo flavonoglycosides and 6% terpene lactones]	60 mg *
Niacin (Vitamin B-3)(as Niacinamide)	10 mg NE 63%	Vitamin E Isomers (as DeltaGold® delta and gamma tocotrienols)	50 mg *
Vitamin B-6 (as Pyridoxine HCl)	10 mg 588%	Alpha Lipoic Acid	50 mg *
Folate (as Quatrefolic® (5S)-5-methyltetrahydrofolate, glucosamine salt)	680 mcg DFE 170%	Turmeric (<i>Curcuma longa</i>)(root) [standardized to contain 95% curcuminoids]	50 mg *
Vitamin B-12 (as Methylcobalamin (MecobalActive®))	100 mcg 4167%	Lutein (from Marigold Extract [Lutemax® 2020])	10 mg *
Zinc (as Zinc Bisglycinate Chelate)	15 mg 136%	Zeaxanthin Isomers (from Marigold Extract [Lutemax® 2020])	2 mg *
Selenium (as Selenium Glycinate Complex)	50 mcg 91%		
Taurine	200 mg *		

*Daily Value not established.

Other Ingredients: Cellulose (capsule), dicalcium phosphate, microcrystalline cellulose, sunflower lecithin, vegetable stearate, silicon dioxide.

Ingredient Highlights

Macular Carotenoids: Lutein and Zeaxanthin

Lutein and its isomer, zeaxanthin, are yellow carotenoid pigments — and potent antioxidants — found in high levels in foods such as egg yolks, dark green leafy vegetables (e.g., spinach, kale, parsley), corn, and broccoli help protect the retinas from the constant, ongoing free radical damage.^{3,4} The lutein and zeaxanthin isomers used in OcuForce™ are provided as Lutemax® 2020, a verified non-GMO and Food and Drug Administration (FDA) acknowledged, GRAS-certified carotenoid extract naturally derived from marigold flowers, which provides all three macular carotenoids — lutein and enhanced levels of both zeaxanthin isomers (RR and RS [meso]-zeaxanthin) — at the same 5:1 ratio naturally found in the diet. Evidence suggests that 6 mg per day is a beneficial dose of lutein, but the average dietary intake in the U.S. is only 1 to 2 mg per day.³ A single intake of the two-capsule serving of OcuForce™ provides 10 mg of lutein and 2 mg of zeaxanthin in an enhanced microencapsulated form for superior stability, absorption, and bioavailability.

Macular carotenoid-rich foods and supplements may increase macular pigment optical density (MPOD), which research shows is associated with prevention and/or slowing of the progression of AMD.^{1,5} Of all the carotenoids found in nature, only lutein and zeaxanthin (and their metabolites) are located in the macula (where they are found in the highest concentration within the human body) as they can cross the blood-ocular barrier.^{6,7} Lutein supplementation has been shown to improve visual and retinal function in AMD patients and in healthy subjects.⁵ Lutein is concentrated in the lens and retina where it helps to absorb blue light and limit the amount of blue light that reaches the underlying structures involved in vision, thereby protecting against light-induced oxidative damage that occurs in the pathology of AMD.⁸

In healthy young adults with high screen time exposure, 6 months of macular carotenoid supplementation significantly improved macular pigment ocular density (MPOD) of all visual performance measures, sleep quality, eye strain, visual fatigue, and frequent headaches.⁹ Results from a double-blind, placebo-controlled trial showed that 12-month supplementation with 10 mg of lutein and 2 mg of total zeaxanthin significantly improved repeated-exposure photostress recovery, disability glare thresholds, and MPOD from baseline compared to a placebo.¹⁰

In the Lutein Antioxidant Supplementation Trial (LAST), 90 patients with the dry form of AMD were evaluated for changes in visual functions while taking a proprietary supplement mixture.¹¹ Researchers recorded an actual improvement in key visual functions among patients with AMD. Patients taking the experimental antioxidant mix experienced significant improvements in glare recovery, contrast sensitivity, and visual acuity when compared to a placebo.¹¹ Additionally, patients experienced a 50% increase in MPOD when compared to those taking a placebo.¹¹ The study also demonstrated that 10 mg of lutein supplementation, along with vitamin C, vitamin E, and other antioxidants, reduced symptom severity and the pathology of dry AMD.¹¹ In the Age-Related Eye Disease studies, supplementation with vitamins C and E, β -carotene, zinc, lutein, and zeaxanthin reduced the risk of advanced AMD by 25%.^{8,11,12}

Bilberry

The bilberry extract used in OcuForce™ is a standardized extract containing 25% anthocyanidins. According to research, anthocyanosides, which have antioxidant activity, have a stabilizing effect on collagen, prevent capillary fragility, and improve microcirculation, as they have a particular affinity for eye and vascular tissue.^{13,14} Clinical evidence shows that bilberry helps with glaucoma, cataracts, retinopathy, diabetes mellitus, and dry eye disease.¹³⁻¹⁶ In addition, a significant visual acuity recovery has been shown in children and healthy middle-aged adults with myopia, suggesting that long-term intake of bilberry extract may be useful in preventing advancement to axial myopia and slowing the progression of various eye disorders, including high myopia, impaired night vision, AMD, and diabetic and hypertensive retinopathies.¹⁷⁻¹⁹ The beneficial effects of bilberry are associated with the antioxidant activity of its anthocyanins and their ability to increase blood supply to the retina and to inhibit retinoic phosphodiesterases, the enzymes responsible for the decay of visual impulses.¹⁴

Folate and Vitamin B12

Both folate and vitamin B12 are included in this formula to support proper homocysteine metabolism. Hyperhomocysteinemia (HHcy) is linked to the development of age-related and ocular diseases, including diabetic retinopathy (DR), AMD, Alzheimer's disease (AD), cataract, optic atrophy, retinal vessel atherosclerosis, and glaucoma maculopathy.^{20,21} The formation of homocysteine thiolactone in HHcy has stronger cytotoxicity and pro-inflammatory properties that can induce optic nerve damage and lens opacification.²¹

In an animal model, excess homocysteine levels caused inflammation in the retina and the brain. This led researchers to suggest that eliminating HHcy and reducing inflammation (by supporting optimal vitamin B12, folate, and vitamin B6 status) may attenuate damage in DR, AMD, and AD.^{20,21}

Ginkgo Biloba

In human clinical trials, *ginkgo biloba* has been shown to slow the progression of visual field damage and improve ocular blood flow and visual function in patients with normal-tension glaucoma (NTG).¹⁹

Zinc (as Zinc Bisglycinate Chelate)

The retina-choroid complex has a remarkably high concentration of zinc compared with other tissues in the body, with the highest amount residing in the retinal pigment epithelium followed by the retina.²² Considering the critical role of zinc with immune system health, its concentration and distribution greatly impacts the levels of inflammation and immunity within the eye.²² A meta-analysis showed that zinc had ideal effects on dry AMD (DAMD) and also exhibited significantly better effects on best-corrected visual acuity (BCVA) improvements for middle- to advanced-stage patients compared to early-stage patients and compared to drugs.²³ DAMD patients accumulate more active oxygen in the retina, which creates more free radicals and oxidative stress within the eye, suggesting zinc and other antioxidants, such as N-acetyl-cysteine (another nutrient in this formula), may be effective treatments for these conditions.²³

Recommended Use: Take two capsules per day with meals or as directed by your health-care practitioner.

This product may be combined with any of the Designs for Health® OmegAvail™ fish oil products, Astaxanthin, or XanthOmega™ Krill Oil for enhanced support of eye health.*

For a list of references cited in this document, please visit:

<http://www.designsforhealth.com/techsheet-references/ocuforce-references.pdf>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities. Individual monitoring, including liver function tests, may be appropriate.

Quatrefolic® is a registered trademark of Gnosis S.p.A., U.S. Patent No. 7,947,662.

MecobalActive® is a registered trademark of HEALTHTECH BIO ACTIVES, S.L.U.

DeltaGold® is a registered trademark of American River Nutrition, LLC and protected by US Patent Numbers 6,350,453 and 8,586,109.

Lutemax® 2020 is a registered trademark of OmniActive Health Technologies, Ltd.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.