

# MacularProtect Complete<sup>®</sup> Capsules

## Description

MacularProtect Complete combines a broad array of vitamins, minerals and antioxidants to provide powerful protection for macular and whole body health. Based on the AREDS and AREDS2 clinical trials and other advanced research, MacularProtect Complete works to protect the macula, the area of the retina where the sharpest central vision occurs. It also features a comprehensive multinutrient component reflecting the latest research on nutrition's role in overall body health. Beta-carotene free, it is appropriate for both smokers and non-smokers.

## MacularProtect Complete Highlights

- ▶ Convenient, all-in-one formula combines high-potency antioxidant protection with full multivitamin and mineral coverage
- ▶ Powerful support for individuals concerned about preserving their eyesight and maintaining overall body health
- ▶ Contains vitamins C and E, zinc and copper at levels found to support eye health in the AREDS clinical trial
- ▶ Provides 10 mg lutein and 2 mg zeaxanthin, reflecting AREDS2 levels
- ▶ **New!** Improved formula with olive leaf extract and more trans-resveratrol
- ▶ Features a diverse array of bioflavonoids and antioxidants in addition to essential vitamins and minerals
- ▶ Manufactured in NSF<sup>®</sup>-certified facilities from finest quality, bioavailable ingredients



*Also available as a tasty drink mix!*

## AREDS & AREDS 2 Results

The AREDS clinical trial reported that high-risk AMD patients taking antioxidants and zinc improved their chance of retaining their macular health status by 25% and preserving their vision by 19%<sup>1</sup>. The second AREDS trial (AREDS2) tested whether supplemental lutein and zeaxanthin (and/or marine omega-3s) taken with the AREDS formula could reduce risk of progression to advanced AMD by an additional 25% compared to taking the AREDS supplement alone.

Though lutein and zeaxanthin did not meet that 25% threshold, analyses showed these nutrients do offer a measure of protection<sup>2</sup>. The National Eye Institute now

recommends the original AREDS formula, with lutein and zeaxanthin replacing beta-carotene, as the new standard of care for those with at least intermediate AMD.

## Importance of Multinutrients

Staying healthy as we age is as important as preserving eyesight. Most experts now recommend a daily multivitamin for all adults. A USDA study confirms people over 50 who use multivitamins generally meet recommended intakes of nutrients, while many non-users do not<sup>3</sup>.

Multi-vitamin and mineral supplements have been shown to play a pivotal role in helping to maintain health and improve quality of life. In the Physicians Health Study II, cancer occurrence was lower in men taking a multi daily versus a placebo<sup>4</sup>. In AREDS, multi use was linked with a lower risk of developing any type of cataract, or of cataract progressing<sup>5</sup>. In addition, several randomized trials found that daily multi use improved measures of mental function in older individuals<sup>6,7</sup>. Other studies underscore the need for better intakes of nutrients like vitamin D to support bone, and possibly cardiovascular health<sup>8,9</sup>.

MacularProtect Complete offers a full range of essential vitamins and minerals, including important trace elements. It also contributes diverse, healthful antioxidants such as lycopene, flavonoids, alpha lipoic acid, n-acetylcysteine and taurine that help neutralize free radicals and protect cells.

## Rationale for Key Ingredients

### Vitamin A (150 mcg RAE)

Vitamin A is essential for protecting night vision and is vital for corneal health. It also works with zinc and the amino acid taurine to support function of eye structures such as retinal photoreceptors. The formula contributes a conservative level (as retinyl palmitate) to ensure adequate body stores.

### Vitamin C (750 mg)

Vitamin C is a water-soluble antioxidant that is concentrated in ocular tissues where it deactivates free radicals. Free radicals are the highly reactive compounds produced through the body's use of oxygen and generated by outside sources such as UV light. Oxidative damage to the retina is believed to be a risk factor for macular degeneration<sup>10</sup>. Vitamin C also aids in the recycling of other antioxidants such as vitamin E. Evidence indicates that vitamin C and E requirements are higher in smokers – a group at higher risk for AMD<sup>11,12</sup>. MacularProtect Complete supplies the form and level of vitamin C used in AREDS, plus an additional 250 mg.

### Vitamin E (321 mg)

Fat-soluble vitamin E is the major chain-breaking antioxidant present in retinal and macular membranes. As a first line of defense against fatty acid peroxidation, vitamin E helps protect cell membranes against free radical attack. MacularProtect Complete uses natural source vitamin E rather than synthetic, as research shows that natural source offers superior bioavailability and is better retained in tissues<sup>13</sup>. It also delivers broad spectrum vitamin E from alpha to gamma tocopherol, that together play a health-protective role<sup>14</sup>. The formula includes 321 mg of vitamin E, the level used in AREDS.

### Zinc (80 mg)

Zinc is an essential mineral that is selectively concentrated in the eye.

It is found in the retina, choroid, ciliary body, iris, optic nerve, sclera, cornea, and lens. Within these ocular structures zinc is believed to interact with vitamin A and taurine to modify photoreceptor membranes, to help regulate the light-rhodopsin reaction, to influence nerve transmission, and to serve as an antioxidant<sup>15</sup>. MacularProtect Complete provides the same form and level provided to AREDS participants.



MacularProtect Complete delivers a potent blend of nutrients found to protect macular health in the AREDS and AREDS2 clinical trials. The product is free of beta-carotene and is appropriate for both non-smokers and smokers. It also features a comprehensive multivitamin component for whole body health.

**Suggested Use:** Take a total of four capsules daily, with meals.

**Note:** Pregnant or lactating women or individuals with medical conditions should consult a physician before using.

MacularProtect Complete contains 80 mg of zinc, a level that was found to support eye health in the AREDS clinical trial. Check with your physician prior to taking MacularProtect Complete to ensure that this level of zinc is appropriate for you. Keep out of the reach of children.

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.

Supplement Facts		
Serving Size 4 Capsules	Servings Per Container 30	
	Amount Per Serving	%Daily Value
Vitamin A (from retinyl palmitate)	150 mcg RAE	17%
Vitamin C (as ascorbic acid)	750 mg	833%
Vitamin D (as cholecalciferol)	22.5 mcg	113%
Vitamin E (from d-alpha-tocopheryl succinate and mixed tocopherols)	321 mg	2,140%
Thiamin (vitamin B1 from thiamin hydrochloride)	4.5 mg	375%
Riboflavin (vitamin B2)	5 mg	385%
Niacin (as niacinamide)	10 mg NE	63%
Vitamin B6 (from pyridoxine hydrochloride)	20 mg	1,177%
Folate (50% from folic acid, 50% from calcium folinate)	667 mcg DFE	167%
Vitamin B12 (as cyanocobalamin)	100 mcg	4,167%
Biotin (as d-biotin)	100 mcg	333%
Pantothenic Acid (from calcium pantothenate)	12.5 mg	250%
Calcium (from calcium carbonate)	100 mg	8%
Iodine (from potassium iodide)	75 mcg	50%
Magnesium (from magnesium oxide)	100 mg	24%
Zinc (from zinc oxide)	80 mg	727%
Selenium (from selenomethionine)	70 mcg	127%
Copper (from copper oxide)	2 mg	222%
Manganese (from manganese amino acid chelate)	2.5 mg	109%
Chromium (from chromium polynicotinate)	100 mcg	286%
Molybdenum (from molybdenum amino acid chelate)	37.5 mcg	83%
Taurine	100 mg	†
Olive Leaf Extract (18% oleuropein)	100 mg	†
N-acetyl-L-cysteine (NAC)	75 mg	†
Lemon Bioflavonoids (50% bioflavonoid complex)	50 mg	†
Quercetin	50 mg	†
Turmeric Rhizome Extract (95% curcuminoids)	25 mg	†
Alpha Lipoic Acid	20 mg	†
Ginkgo Leaf Extract (24% ginkgolignone glycosides)	20 mg	†
Bilberry Fruit Extract (standardized to anthocyanidins)	15 mg	†
Grape ( <i>Vitis vinifera</i> ) Seed Extract (95% proanthocyanidins)	15 mg	†
Lutein (FloraGLO®)	10 mg	†
Trans-Resveratrol (from <i>Polygonum cuspidatum</i> root extract)	10 mg	†
Lycopene	2 mg	†
Zeaxanthin (from OPTISHARP® and FloraGLO® Lutein)	2 mg	†
Boron (with rice protein)	1 mg	†
Vanadium (from vanadyl sulfate)	15 mcg	†

† Daily Value not established.

Other Ingredients: Bovine Gelatin, Water, Silica and Magnesium Stearate.



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## Copper (2 mg)

The mineral copper is necessary for function of a key antioxidant enzyme. It is also needed to produce connective tissue, nerve sheaths, skin pigment, and for the proper utilization of iron. Since high levels of zinc compete with copper for absorption, copper is included in MacularProtect Complete to help ensure adequate levels of this essential mineral. The formula's copper level represents 100% of the Daily Value and is the form and amount used in the AREDS trial.

## Lutein, FloraGLO® (10 mg) and Zeaxanthin (2 mg)

Lutein and zeaxanthin are two similarly structured carotenoids found in green leafy vegetables like spinach, kale and mustard greens. These carotenoids make up the macular pigment of the retina, the tissue with the highest concentration of lutein and zeaxanthin in the body. As part of the macular pigment, zeaxanthin and lutein filter blue (visible) light that can cause photo-oxidative stress.

Intervention studies indicate supplementation with these carotenoids can favorably modify the pigment density of the macula<sup>16,17</sup>. AREDS2 reported an 18% reduction in progression to advanced AMD in participants who received the AREDS supplement with lutein/zeaxanthin in place of beta-carotene (compared to those taking the original AREDS supplement with beta-carotene)<sup>2</sup>. For participants receiving lutein/zeaxanthin supplements, a 26% reduced risk of progression was seen in those consuming the least lutein/zeaxanthin at the study's start, compared to those consuming the most<sup>2</sup>. The average daily intake of these two carotenoids among Americans 50 and older is less than 2 mg – far lower than the 12 mg tested in AREDS2<sup>18</sup>. The formula's lutein/zeaxanthin level reflects that used in AREDS2.

## Other Essential Nutrients for Eye and Whole Body Health

MacularProtect Complete provides robust levels of key B-vitamins, particularly vitamin B12, which can be difficult to absorb by those over 50, as well as vitamin B6 and folate for artery and colon health. A large clinical trial found this B vitamin trio reduced AMD risk in women with or at risk for heart disease<sup>19</sup>, and higher vitamin B12 and folic acid blood levels have been linked to lower AMD risk in an observational study<sup>20</sup>. These B-vitamins may also support cognitive function<sup>21</sup>.

Plant compounds with antioxidant activity such as the flavonoids contribute to the health benefits of eating five or more fruit and vegetable servings daily. Regular intake of berry flavonoids, for example, is linked to better odds of retaining heart health<sup>22</sup>. MacularProtect Complete contains a unique array of protective flavonoids from diverse sources: bilberry, citrus, grape seed, Ginkgo biloba, turmeric and quercetin, which is found in many fruits and vegetables.

## References

- AREDS Report No. 8. A randomized, placebo-controlled clinical trial of high-dose supplementation with vitamins C and E, beta carotene, and zinc for age-related macular degeneration and vision loss. Arch Ophthalmol 119: 1417-36, 2001.
- The AREDS2 Research Group. Lutein + zeaxanthin and omega-3 fatty acids for age-related macular degeneration. JAMA Ophthalmol 309:2005-15, 2013.
- Sebastian R, et al. Older adults who use vitamin/mineral supplements differ from nonuser in nutrient intake adequacy and dietary attitudes. J Am Dietetic Assoc 107:1322-32, 2007.
- Gaziano JM, et al. Multivitamins in the prevention of cancer in men—The Physicians' Health Study II randomized controlled trial. JAMA, 308:1871-80, 2012.
- AREDS Research Group. Centrum use and progression of age-related cataract in AREDS. Ophthalmol 113:1264-70, 2006.
- Harris E, et al. Effects of a multivitamin, mineral and herbal supplement on cognition and blood biomarkers in older men: a randomised, placebo-controlled trial. Hum Psychopharmacol 27:370-7, 2012.
- Grima NA, et al. The effects of multivitamins on cognitive performance: a systematic review and meta-analysis. J Alzheimers Dis 29:561-9, 2012.
- Brondum-Jacobsen P, et al. 25-hydroxyvitamin D and symptomatic ischemic stroke: an original study and meta-analysis. Ann Neurol 73:38-47, 2013.
- Kelly G. (Review) The interaction of cigarette smoking and antioxidants Part III: Ascorbic acid. Alt Med Rev 8: 43-54, 2003.
- Burton GW, et al. Human plasma and tissue alpha-tocopherol concentrations in response to supplementation with deuterated natural and synthetic vitamin E. Am J Clin Nutr 67: 669-84, 1998.
- Mah E, et al. Supplementation of a gamma-tocopherol-rich mixture of tocopherols in healthy men protects against vascular endothelial dysfunction induced by postprandial hyperglycemia. J Nutr Biochem 24:196-203, 2013.
- Grahn BH, et al. Review: Zinc and the eye. J Am Coll Nutr 20: 106-18, 2001.
- Weigert G, et al. Effects of lutein supplementation on macular pigment optical density and visual acuity in patients with age-related macular degeneration. Invest Ophthalmol Vis Sci 52:8174-78, 2011.
- Dawczynski J, et al. Long term effects of lutein, zeaxanthin and omega-3-LCPUFAs supplementation on optical density of macular pigment in AMD patients: the LUTEGA study. Graefes Arch Clin Exp Ophthalmol. Epub May 22, 2013.
- Rasmussen HM and Johnson EJ. Nutrients for the aging eye. Clin Inter Aging 8:741-48, 2013.
- Christen WG, et al. Folic acid, pyridoxine, and cyanocobalamin combination treatment and age-related macular degeneration in women: the Women's Antioxidant and Folic Acid Cardiovascular Study. Arch Intern Med 169: 335-41, 2009.
- Gopinath B, et al. Homocysteine, folate, vitamin B-12, and 10-y incidence of age-related macular degeneration. Am J Clin Nutr 98:129-35, 2013.
- de Jager CA, et al. Cognitive and clinical outcomes of homocysteine-lowering B-vitamin treatment in mild cognitive impairment: a randomized controlled trial. Int J Geriatr Psychiatry. 27:592-600, 2012.
- Cassidy A, et al. High anthocyanin intake is associated with a reduced risk of myocardial infarction in young and middle-aged women. Circulation 127:188-96, 2013.

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