

OcuTone®

Comprehensive Nutritional Support for Healthy Eyes

DESCRIPTION

OcuTone®, provided by Douglas Laboratories®, is a dietary supplement providing a well-balanced spectrum of key nutrients that are important in maintaining normal eye function. OcuTone delivers generous amounts of lutein, beta-carotene, flavonoids, glutathione, sulfur-containing amino acids, trace elements and a comprehensive array of antioxidant vitamins.

FUNCTIONS

More than any other tissue in the body, the ocular lens and retina are continually exposed to oxygen and intense light radiation. Both light and oxygen can create free radicals that play havoc with lipids in the membranes of visual cells. Experts believe that the uncontrolled generation of free radicals in the eyes can ultimately lead to macular degeneration and cataracts. Therefore, ocular tissues rely on a strong antioxidant defense system to protect them from free radical damage. OcuTone was formulated to provide a comprehensive combination of antioxidant nutrients that research has found to be important for proper eye nutrition. OcuTone includes nutritionally meaningful amounts of lutein, beta-carotene, antioxidant vitamins, the trace elements zinc and selenium, the cellular antioxidants glutathione and N Acetyl-L-Cysteine, the amino acid taurine, and potent flavonoids from bilberries and grape seeds.

Lutein. Lutein is a carotenoid similar to beta-carotene. Recent research has shown that lutein is the major eye pigment of the outer retina. Lutein is especially concentrated in the rods, which are the visual cells of the retina that are responsible for black and white vision in the dark. The rods contain complex membranes rich in polyunsaturated fatty acids that are especially susceptible to lipid peroxidation and free radical damage. Lutein is a potent antioxidant, and researchers believe that the rods require it to protect themselves from light-induced free-radical damage. Lutein occurs naturally in the diet, especially in dark green leafy vegetables, broccoli and kale. Most people derive about 1 to 2 mg of lutein daily from their diets. Epidemiological studies have shown that daily lutein intakes of 5 to 15 mg may be more appropriate for maintaining normal eye function during aging. As a result, OcuTone was formulated to provide 15 mg of natural lutein complex daily in three capsules. **Beta-Carotene.** Beta-Carotene serves at least two purposes for the eyes. It is a valuable precursor for vitamin A which functions in the rod cells as a light receptor. Beta-Carotene is also an important antioxidant in the lens and retina. OcuTone delivers 12 mg of beta-carotene daily to ensure a reliable supply of this important eye nutrient.

Vitamins C and E. The healthy ocular lens is rich in the antioxidant vitamins C and E, which scavenge oxygen- and light-induced free radicals. In the lens, excessive free radicals can lead to protein oxidation and polymerization, resulting in opaque, cloudy precipitates. High levels of vitamins C and E, and other natural antioxidant defense systems appear to be necessary for complete protection of the delicate, highly transparent lens proteins. OcuTone provides 500 mg of vitamin C and 400 I.U. of natural vitamin E as d-alpha-tocopherol succinate.

Zinc. Zinc is essential for normal visual signal transduction in the retina. Zinc is part of many of the enzymes involved in vitamin A-dependent light reactions in the rod cells. Moreover, zinc is an essential cofactor of superoxide dismutase, an antioxidant enzyme that removes potentially dangerous superoxide radicals in the visual cells, the lens, and other tissues. OcuTone provides 6 mg of zinc in the highly bioavailable monomethionine form.

OcuTone®
Comprehensive Nutritional Support for Healthy Eyes

Selenium. Selenium is the essential cofactor of the antioxidant enzyme glutathione peroxidase, which is abundant in healthy eyes. Glutathione peroxidase levels, however, decline with advancing age, and experts believe that adequate selenium nutrition can help maintain normal production of this important enzyme. OcuTone provides 50 mcg of Selenium, which is roughly equivalent to the required daily amount.

Glutathione and N-Acetyl-L-Cysteine. Glutathione is the essential cosubstrate for glutathione peroxidase. To carry out its antioxidant functions, this enzyme requires a steady supply of glutathione. In addition, glutathione by itself protects the proteins in the lens from becoming insoluble and cloudy. Although well absorbed, dietary glutathione can not enter the cell, and exerts much of its beneficial antioxidant effects in the extracellular space. N-Acetyl-L Cysteine (NAC) easily enters the cell and is used to synthesize intracellular glutathione. NAC also appears to have antioxidant properties by itself. Many studies have shown that ocular glutathione levels decline as we age. Dietary supplementation with both glutathione and NAC may help maintain normal extracellular and intracellular glutathione levels. Therefore, OcuTone combines a significant 50 mg of glutathione with 300 mg of NAC.

Taurine. Taurine, a conditionally-essential sulfur amino acid, is the most abundant free amino acid in ocular tissues, where it may function as a membrane stabilizer, antioxidant, osmotic regulator, and neurotransmitter. Taurine is important in maintaining normal extra- and intracellular distribution of calcium. This in turn has implications for neuronal excitability and the regulation of osmotic pressure. OcuTone provides 300 mg of pure taurine.

Bilberry Extract. Bilberries (*Vaccinium myrtillus*), a northern European cousin of North American blueberries, are a rich source of anthocyanosides, a class of flavonoids recognized for their importance in eye health. Bilberry anthocyanosides are potent antioxidants in the visual cells of the retina, and help maintain normal blood flow in the fine capillary blood vessels that nourish the eyes and other tissues. Three capsules of OcuTone contain 60 mg of a standardized 25 % anthocyanoside extract made from ripe Swedish bilberries.

Grape Seed Extract. Grape seed extract is rich in proanthocyanidins, another group of important flavonoids. Proanthocyanidins are highly regarded for their strong antioxidant properties and their role in supporting the body's capillary blood vessel system. Three capsules of OcuTone provide 50 mg of high-quality European grape seed extract (from *Vitis vinifera*) with a minimum of 92 % proanthocyanidins.

INDICATIONS

OcuTone may be taken as a dietary supplement to increase intake of selected nutrients that have special importance for normal eye function.

FORMULA (#OCU)

Three Vegetarian Capsules of OcuTone® contain:

Lutein complex.....	15 mg
Beta-Carotene.....	10,000 I.U.
Vitamin E (d-alpha-tocopheryl succinate)	400 I.U.
Vitamin C (L-ascorbic acid).....	500 mg
Zinc (monomethionine; OptiZinc™*).....	6 mg
Selenium (amino acid complex).....	50 mcg
N-Acetyl-L-Cysteine	300 mg
L-Glutathione	50 mg
Taurine.....	300 mg
Bilberry Extract (min. 25 % anthocyanosides)	60 mg
Grape Seed Extract (min. 92 % proanthocyanidins)	50 mg

OcuTone®

Comprehensive Nutritional Support for Healthy Eyes

*OptiZinc is a trademark of InterHealth Company.

SUGGESTED USE

Three capsules daily as a dietary supplement, or as directed by physician.

SIDE EFFECTS

No adverse side effects have been reported.

STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

REFERENCES

- Christen WG, Jr. Antioxidants and eye disease. *Am J Med* 1994;97 Suppl. 3A:14S-17S.
- Gerster H. Antioxidant vitamins in cataract prevention. *Z Ernahrungswiss* 1989;28:56-75.
- Handelman GJ, Dratz EA, Reay CC, van Kuijk JG. Carotenoids in the human macula and whole retina. *Invest Ophthalmol Vis Sci* 1988;29:850-855.
- Hankinson SE, Stampfer MJ, Seddon JM, et al. Nutrient intake and cataract extraction in women: a prospective study. *BMJ* 1992;305:335-339.
- Heinamaki AA, Muhonen AS, Piha RS. Taurine and other free amino acids in the retina, vitreous, lens, iris-ciliary body, and cornea of the rat eye. *Neurochem Res* 1986;11:535-542.
- Kamei A. Glutathione levels of the human crystalline lens in aging and its antioxidant effect against the oxidation of lens proteins. *Biol Pharm Bull* 1993;16:870-875.
- Kasuya M, Itoi M, Kobayashi S, Sunaga H, Suzuki KT. Changes of glutathione and taurine concentrations in lenses of rat eyes induced by galactose-cataract formation or ageing. *Exp Eye Res* 1992;54:49-53.
- Knekt P, Heliovaara M, Rissanen A, Aromaa A, Aaran RK. Serum antioxidant vitamins and risk of cataract. *BMJ* 1992;305:1392-1394.
- Malone JI, Benford SA, Malone J, Jr. Taurine prevents galactose-induced cataracts. *J Diabetes Complications* 1993;7:44-48.
- Mares-Perlman JA, Brady WE, Klein BE, et al. Serum carotenoids and tocopherols and severity of nuclear and cortical opacities. *Invest Ophthalmol Vis Sci* 1995;36:276-288.
- Nakamori K, Koyama I, Nakamura T, et al. Quantitative evaluation of the effectiveness of taurine in protecting the ocular surface against oxidant. *Chem Pharm Bull (Tokyo)* 1993;41:335-338.
- Newsome DA, Swartz M, Leone NC, Elston RC, Miller E. Oral zinc in macular degeneration. *Arch Ophthalmol* 1988;106:192-198.
- Rathbun WB, Schmidt AJ, Holleschau AM. Activity loss of glutathione synthesis enzymes associated with human subcapsular cataract. *Invest Ophthalmol Vis Sci* 1993;34:2049-2054.
- Reddy VN. Glutathione and its function in the lens--an overview. *Exp Eye Res* 1990;50:771-778.
- Schalch W. Carotenoids in the retina--a review of their possible role in preventing or limiting damage caused by light and oxygen. *EXS* 1995;62:280-298.
- Seddon JM, Ajani UA, Sperduto RD, et al. Dietary carotenoids, vitamins A, C, and E, and advanced age-related macular degeneration. Eye Disease Case-Control Study Group. *JAMA* 1994;272:1413-1420.
- Seddon JM, Christen WG, Manson JE, et al. The use of vitamin supplements and the risk of cataract among US male physicians. *Am J Public Health* 1994;84:788-792.
- Sperduto RD, Hu TS, Milton RC, et al. The Linxian cataract studies. Two nutrition intervention trials. *Arch Ophthalmol* 1993;111:1246-1253.
- Taylor A. Associations between nutrition and cataract. *Nutr Rev* 1989;47:225-234.
- Varma SD. Scientific basis for medical therapy of cataracts by antioxidants. *Am J Clin Nutr* 1991;53:335S-345S.

OcuTone® Comprehensive Nutritional Support for Healthy Eyes

Vitale S, West S, Hallfrisch J, et al. Plasma antioxidants and risk of cortical and nuclear cataract. Epidemiology 1993;4:195-203.

Xie PY, Kanai A, Nakajima A, Kitahara S, Ohtsu A, Fujii K. Glutathione and glutathione-related enzymes in human cataractous lenses. Ophthalmic Res 1995;23:133-140.

Zhang WZ, Augusteyn RC. Ageing of glutathione reductase in the lens. Exp Eye Res 1994;59:91-95.

For more information on OcuTone® visit douglaslabs.com

† 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.

Manufactured by
Douglas Laboratories
600 Boyce Road
Pittsburgh, PA 15205
800-245-4440
douglaslabs.com



**You trust Douglas Laboratories.
Your patients trust you.**

© 2012 Douglas Laboratories. All Rights Reserved