Specialist Supplements Ltd.

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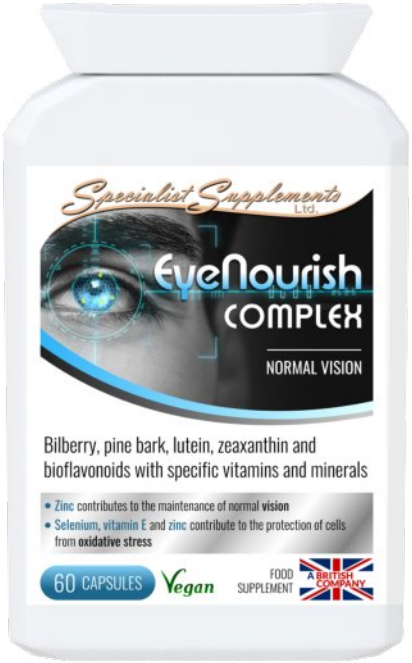
EyeNourish COMPLEX

EYE HEALTH SUPPLEMENT AND NORMAL VISION FORMULA



Eye health and vision formula

EyeNourish Complex is a comprehensive eye supplement, offering all-round support for normal vision (**backed by science**), including visual fatigue related to screens - essential in today's modern age.

This research-based formula includes a range of specific herbs, vitamins, minerals and other nutrients for eye health, including:

The herbs

Bilberry fruit and pine bark.

The nutrients

Lutein, zeaxanthin and bioflavonoids.

The vitamins and minerals

Vitamin C, zinc, manganese, copper, selenium and vitamin E.

BENEFICIAL FOR...

- Eye health
- Normal / clear vision
- Protection against free radical damage
- Tired / strained eyes
- Retinopathy (damage to the retina)
- Macular degeneration
- Glaucoma
- Cataracts
- Night vision
- Visual performance
- Screen / blue light fatigue
- Inflammation

About the ingredients...

Bilberry fruit: Vaccinium myrtillus L., commonly known as bilberry, has been the object of many studies for various diseases. That's because it is an incredibly powerful source of **anthocyanins**, also known as **anthocyanosides**.

Anthocyanins are a glycosylated form of anthocyanidins. There are hundreds of different anthocyanins, only twenty of which occur naturally. These can be found in many fruits and vegetables. Their polyphenols lend the rich colour to blueberries, raspberries, strawberries and cranberries. Bilberry contains five anthocyanins: cyanidin, delphinidin, malvidin, peonidin, and petunidin.

Bilberry has been shown to help in a variety of ocular conditions such as **glaucoma** and **diabetic retinopathy**. It tends to have a particular affinity for the **eye and vascular tissues**.*[1]

*[1]Shim, S. H., Kim, J. M., Choi, C. Y., Kim, C. Y., & Park, K. H. (2012). Ginkgo biloba extract and bilberry anthocyanins improve visual function in patients with normal tension glaucoma. Journal of medicinal food, 15(9), 818–823. https://doi.org/10.1089/jmf.2012.2241

Because of its favourable effects on **blood flow**, as well as its powerful **antioxidant capacity**, bilberry has been studied in glaucoma. One retrospective investigation reviewed the records of 332 patients with normal tension glaucoma. Some of them were treated with gingko biloba, others with bilberry, while the rest received no treatment. The mean follow-up duration was approximately two years. In the bilberry group, an improvement was found in best-corrected visual acuity and visual field mean deviation. The gingko biloba group also showed an improvement in visual field.*[1]

This shows promise in the benefit of anthocyanins in glaucoma, especially in such a challenging cohort as those with normal intraocular pressure.

Anthocyanins have also been studied in diabetic retinopathy because they are known to address a hallmark feature of the disease - vascular permeability. Anthocyanins have been shown to stabilise the cell membrane phospholipids by inhibiting peroxidation. They also stimulate the synthesis of glycosaminoglycans in connective tissue. In addition, there is evidence that they reduce in platelet aggregation and increase erythrocyte flexibility, aiding in the prevention of haemorrhaging.* By decreasing vascular permeability, anthocyanins have been found to be useful in retinopathies of hypertensive or diabetic origin.

*Perossini, M., Guidi, G., Chiellini, S., & Siravo, D. (1987). Diabetic and hypertensive retinopathy therapy with Vaccinium myrtillus anthocianosides (Tegens) double blind placebo-controlled clinical trial. Ann Ottalmol Clin Ocul, CXIII(12), 57-102. Retrieved 9 February 2021.

Bilberry has been studied in asthenopia as well. One double-blind, randomised, parallel-group, and placebo-controlled trial examined the use of bilberry **in combination with lutein** and fish oil. The daily treatment capsules contained 783mg of docosahexaenoic acid, 162mg eicosapentaenoic acid, 59mg of anthocyanidin from bilberry extract and 17.5mg of lutein. A questionnaire was administered to subjects at baseline, and again after four weeks, to assess symptoms of asthenopia. What they found was that **eyestrain** symptoms improved in the treatment group. No side effects were observed.*

*Kawabata, F., & Tsuji, T. (2011). Effects of dietary supplementation with a combination of fish oil, bilberry extract, and lutein on subjective symptoms of asthenopia in humans. Biomedical research (Tokyo, Japan), 32(6), 387–393. https://doi.org/10.2220/biomedres.32.387

Another longer randomised, double-blind, placebo-controlled, parallel-group comparison trial looked at the use of bilberry on tonic accommodation during use of a **digital device**. This was intended to give an objective measurement of **eye fatigue**. The treatment group received 240mg of standardised bilberry extract. The authors found a significant improvement in tonic accommodation in the bilberry group, as compared to the placebo cohort.*

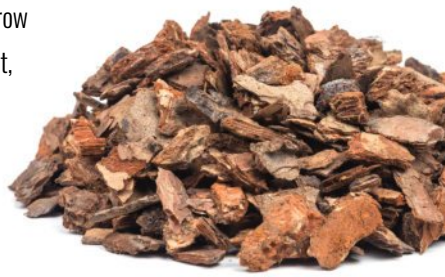
*Kosehira, M., Machida, N., & Kitaichi, N. (2020). A 12-Week-Long Intake of Bilberry Extract (Vaccinium myrtillus L.) Improved Objective Findings of Ciliary Muscle Contraction of the Eye: A Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Comparison Trial. Nutrients, 12(3), 600. https://doi.org/10.3390/nu12030600

An animal study has suggested that bilberry may also be useful in **dry eye**. The investigators performed a randomised, double-blind, placebo-controlled trial on rats with dry eye. They found an improvement in tear secretion with Schirmer's testing in the bilberry treatment group. Human studies are needed to corroborate these findings.*

*Riva, A., Togni, S., Franceschi, F., Kawada, S., Inaba, Y., Eggenhoffner, R., & Giacomelli, L. (2017). The effect of a natural, standardized bilberry extract (Mirtoselect®) in dry eye: a randomized, double blinded, placebo-controlled trial. European review for medical and pharmacological sciences, 21(10), 2518–2525.

About the ingredients...

Pine bark: More than 100 different species of pine trees exist. They are an ancient genus of evergreen trees that grow abundantly in many parts of the northern hemisphere and in some parts of the southern hemisphere as well. In the past, many cultures have used the bark, needles, resin and nuts of pine trees for medicinal purposes.



In the 1940s, scientist Jacques Masquelier began studying the health effects of pine bark after learning that indigenous peoples of North America were using pine bark tea to heal scurvy and wounds. Since then, pine bark extract has continued to increase in popularity as an herbal supplement.

It has shown huge value in **ocular health** applications, in particular. It has powerful **antioxidant capacity**, doubling the synthesis of antioxidative enzymes and acting as a free radical scavenger. It also plays a role in the regeneration and preservation of vitamins C and E, potentiating its antioxidant activity. It is a powerful **vasodilator** and an antagonist to **inflammation**.*

*Rohdewald P. (2002). A review of the French maritime pine bark extract (Pycnogenol), a herbal medication with a diverse clinical pharmacology. International Journal of Clinical Pharmacology and Therapeutics, 40(4):158-168. https://doi.org/10.5414/cpp40158.

Pine bark extract has been found to increase **vascular resistance**, specifically in the capillaries*, and therefore has been studied in **diabetic retinopathy**. A study of 24 patients with diabetic retinopathy was done using treatment with pine bark extract for three months. Investigators enrolled patients with early stages of retinopathy, characterised by mild to moderate **retinal oedema**.

The treatment group showed statistically significant improvement in retinal oedema score and retinal thickness, as compared to the placebo group, which showed no substantial change. Central retinal artery laser Doppler flow velocity also showed a statistically significant improvement relative to the control group. This is a very positive indication of the therapeutic potential for pine bark extract, especially given this group of patients already had established disease with vision-threatening potential at baseline.

*Schönlau, F., & Rohdewald, P. (2001). Pycnogenol for diabetic retinopathy. A review. International ophthalmology, 24(3), 161–171. https://doi.org/10.1023/a:1021160924583

Bilberry and pine bark have been studied in combination as a potential therapeutic supplement for **glaucoma**. Steigerwalt et al (2008) studied a standardised combination of these two extracts in a small group of patients with asymptomatic **ocular hypertension**. What they found, after two months, was that the treated group's intraocular pressure (IOP) dropped from a baseline of 25.2 mmHg to a post-treatment level of 22.2 mmHg. The untreated group only had marginal IOP fluctuations. The IOP lowering seemed to persist for at least three months. The investigators also measured retinal blood flow using Doppler. They found an improvement in the treated group's systolic and diastolic velocities. These effects also persisted at the three-month mark. No side effects were observed.*

*Steigerwalt, R. D., Gianni, B., Paolo, M., Bombardelli, E., Burki, C., & Schönlau, F. (2008). Effects of Mirtogenol on ocular blood flow and intraocular hypertension in asymptomatic subjects. Molecular vision, 14, 1288–1292.

This absence of side effects is in stark contrast to treatment with traditional topical glaucoma medicines, which can cause redness, itching, irritation, dryness and more. Although the patients in this study did not have diagnosed glaucoma, the fact that there was an improvement in **intraocular pressure and blood flow** with supplementation is very promising. These are precisely the aetiologies that doctors attempt to target in the treatment of glaucoma.

Bilberry and pine bark extracts are therefore two powerful compounds that have been shown to be beneficial in the pathophysiology of various ocular diseases. The antioxidant and anti-inflammatory properties of these two substances, in addition to their other mechanisms of action, render them potent adjunct therapies in conditions such as glaucoma and diabetic retinopathy, among others.

Lutein esters and zeaxanthin: Lutein is a **carotenoid** - a yellow-coloured **antioxidant** pigment that is fat-soluble and is in the class of carotenoids called xanthophylls (which means it carries an oxygen molecule). There are two forms of lutein – lutein esters and free lutein. Both lutein forms naturally occur in plants and deliver lutein that is beneficial to the body.

A lutein ester has a fatty acid ester substituted at one or both hydroxyl groups. Typical naturally occuring fatty acid esters are lauric, myristic and palmitic acid esters. Lutein esters are found mostly in plants, such as marigold. Naturally derived lutein is commercially extracted from marigold flowers. The natural form in the marigold flower is the lutein ester.

About the ingredients...

Lutein is important because it has strong **antioxidant** properties. It can scavenge peroxide free radicals and can promote direct antioxidant activity*.

*Gao, Shasha et al. "Lutein and zeaxanthin supplementation reduces H2O2-induced oxidative damage in human lens epithelial cells." Molecular Vision vol. 17 (2011): 3180-90

Because of its unique chemistry and structure, lutein can immerse itself in fatty brain cell membranes, crossing between the cell's exterior and interior environments. This stabilizes cell structures and protects against oxidative stress from inside and outside the cell*.

*Widomska J, Zareba M, Subczynski WK. Can XanthophyllMembrane Interactions Explain Their Selective Presence in the Retina and Brain? Foods 2016;5(1)

The link between lutein and eye health was first reported in 1994*.

*https://www.ncbi.nlm.nih.gov/pubmed/7933422

Since then, numerous studies, including the well-known AREDS II study*, have shown a strong correlation between lutein intake and **eye health**. In particular, lutein is known to improve and even prevent **age-related macular disease**, which is the leading cause of **vision impairment** and **blindness**.

*Age-Related Eye Disease Study 2 (AREDS2) Research Group (2014). JAMA Ophthalmol. 132: 142-149

Zeaxanthin is also a type of carotenoid. It is related to vitamin A and found in the human eye (macula and retina) along with lutein. This part of the eye is responsible for **clear vision**, which is why these nutrients may help to improve visual performance with **prolonged screen use** in healthy individuals. Zeaxanthin is thought to function as a light filter, protecting the eye tissues from **sunlight damage**.

Zeaxanthin is a critical antioxidant that is chosen by the retina to protect central vision. Additionally, zeaxanthin is accumulated in the fovea (centre of the retina), twice as much as lutein.

Foods rich in zeaxanthin include eggs, oranges, grapes, corn, goji berries, mango, orange pepper, and some other vegetables and fruits.

Lutein and zeaxanthin have identical chemical formulas and are isomers. The only difference between them is in the location of the double bond in one of the end rings. The difference gives lutein three chiral centers whereas zeaxanthin has two.

Lutein and zeaxanthin have also both been shown to benefit **cognitive health** in all age groups, from infants to late adulthood.

Vitamin C and citrus bioflavonoids: Citrus bioflavonoids are polyphenolic plant-derived pigments found in high levels in oranges, lemons, grapefruits and other citrus fruits. The three most abundant types of citrus bioflavonoids are hesperidin, naringenin and eriocitrin. Citrus bioflavonoids have long been known to possess powerful free radical-scavenging properties and cardioprotective effects*.

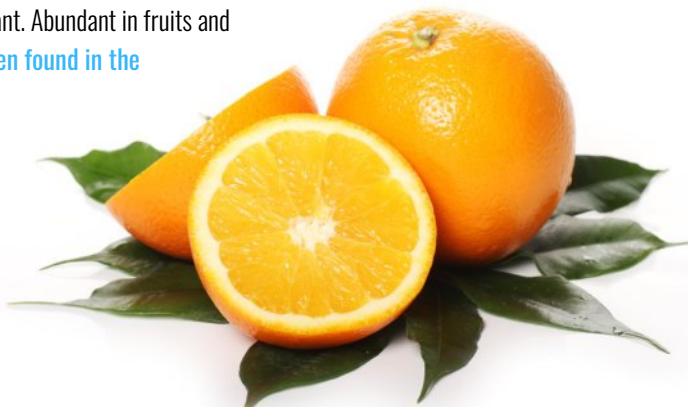
*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9332104/#:~:text=Citrus%20bioflavonoids%20are%20polyphenolic%20plant,are%20hesperidin%2C%20naringenin%20and%20eriocitrin.

In other words, vitamin C and bioflavonoids are important **antioxidants** that help to keep your eyes* and body healthy.

*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4372466/

Research suggests vitamin C and bioflavonoids have a complementary effect, making both nutrients more effective if ingested together (as in our EyeNourish Complex formula) rather than separately.

Vitamin C (also known as ascorbic acid) is a water-soluble vitamin and a powerful antioxidant. Abundant in fruits and vegetables, vitamin C helps the body form and maintain connective tissue, including **collagen found in the cornea of the eye**.



Vitamin C also promotes healthy bones, skin and blood vessels, including the delicate **capillaries in the retina**. Studies* suggest long-term consumption of vitamin C also may reduce the risk of forming a **cataract** and **vision loss** from **macular degeneration**.

*https://www.aaojournal.org/article/S0161-6420(16)00114-7/fulltext

About the ingredients...

Vitamin C contributes to* maintaining the normal function of the immune system. It also contributes to normal collagen formation for the normal function of blood vessels, bones, cartilage, gums, skin and teeth, normal energy-yielding metabolism, normal functioning of the nervous system, normal psychological function, protection of cells from oxidative stress, the reduction of tiredness and fatigue, the regeneration of the reduced form of vitamin E and increases iron absorption.

*http://www.efsa.europa.eu/en/efsajournal/doc/1226.pdf
*http://www.efsa.europa.eu/en/efsajournal/doc/1815.pdf

Zinc: Zinc contributes to* the maintenance of normal vision, normal DNA synthesis, normal acid-base metabolism, normal carbohydrate metabolism, normal cognitive function, normal fertility and reproduction, normal macronutrient metabolism, normal metabolism of fatty acids, normal metabolism of vitamin A, normal protein synthesis, the maintenance of normal bones, the maintenance of normal hair, nails and skin, the maintenance of normal testosterone levels in the blood, the normal function of the immune system, the protection of cells from oxidative stress and it has a role in the process of cell division.

*http://www.efsa.europa.eu/en/efsajournal/doc/1229.pdf
*http://www.efsa.europa.eu/en/efsajournal/doc/1819.pdf

Manganese: Manganese contributes to* normal energy-yielding metabolism, the maintenance of normal bones, the normal formation of connective tissue and to the protection of cells from oxidative stress.

*https://www.efsa.europa.eu/en/efsajournal/pub/1808
*http://www.efsa.europa.eu/en/efsajournal/doc/1217.pdf

Copper: Copper contributes to* the maintenance of normal connective tissues, normal hair pigmentation, normal skin pigmentation, protection of cells from oxidative stress, normal function of the immune system, normal functioning of the nervous system, normal energy-yielding metabolism and normal iron transport in the body.

*https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2009.1211
*https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2011.2079

Selenium: Selenium contributes to* the maintenance of normal hair, the maintenance of normal nails, the normal function of the immune system, normal thyroid function and the protection of cells from oxidative stress.

*http://www.efsa.europa.eu/en/efsajournal/doc/1220.pdf
*https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2010.1727

Vitamin E: Vitamin E contributes to* the protection of cells from oxidative stress.

*http://www.efsa.europa.eu/en/efsajournal/doc/1816.pdf

EyeNourish Complex is available for re-sale under your own label (or our label) and can be dropshipped by us.

*See our **Trade Price List** for trade prices, RRPs, discounts, dropshipping rates etc.