EYE FORMULA

Clinically tested eye health ingredients:

— Lutein
— Bilberry

Plus liver support to help deliver nutrients to the eye:

— Alpha Lipoic Acid
— Milk Thistle

Lutein and bilberry are two of the most popular supplements for eye and visual health. Lutein has been in the headlines lately for its groundbreaking research and our new understanding of its importance in the diet and for the eyes. Lutein is a carotenoid that is found as a pigment in our foods, and has a protective effect on the vision, and perhaps also helps to sharpen vision when it is present in our diets in large amounts (Hammond et al., 2001).

Bilberry also has high amounts of pigments from fruits and vegetables called anthocyanins. The anthocyanins in bilberry have been well-studied and found to have a protective and restorative action on the tiny blood vessels, called capillaries, in the peripheral parts of the body (legs, arms), and in the eyes; thus explaining their folkloric use in eye health, and their modern day use in diabetics, to protect against damage to the eyes from the effects of fluctuating blood sugar (Boniface et al., 1985).

In his book, The Eyecare Revolution (1999), Dr. Robert Abel, Jr., described the importance of a healthy liver in providing nutrients for the eyes. Without these nutrients, eye and visual function would gradually worsen over time, and lead to age-related problems. Therefore, supplementing the diet with liver protective and restorative nutrients like milk thistle and alpha-lipoic acid indirectly protects and restores the health of the eyes.

Research Summary on Eye Formula Ingredients:

Lutein:

- A review study was recently published examining the theories on the possible acute and chronic effects of carotenoids lutein and zeaxanthin on visual performance. The authors identified and discussed the two main theories on the role of these carotenoids on visual health: a) the "protection hypothesis", which states there is a protective effect against oxygen and light by carotenoids that reduces the cumulative degradation on vision; and b) the "acuity hypothesis", which states that these carotenoids increase visual acuity by absorbing short-wave scattered light. The authors suggested that both theories have merit, and may be at work simultaneously (Hammond et al., 2001).

- Landrum and Bone (2001) reviewed the role and localization of the carotenoid pigments lutein, zeaxanthin, and meso-zeaxanthin in the macular area of the eye. They discussed the functional role for these pigments in vision and in preventing age-related macular degeneration.
- A study looked at regular nutrient consumption and risk of developing age-related nuclear lens opacities. The higher use of antioxidant nutrients and multivitamins were found to correlate to the lowest prevalence of developing age-related eye problems (Jacques et al., 2001).

Bilberry:

- A recent review of the role of nutrients in maintaining visual health examined vitamins, nutrients, and botanicals used for maintaining eye health, and a few botanicals, bilberry included were identified as possibly offering therapeutic potential (Head, 2001).
- The findings of two clinical studies where bilberry was administered to diabetics were compared, and both found bilberry increased measures of vascular health. This was explained by Boniface et al. (1985) as due to the ability of anthocyanosides to decrease the biosynthesis of polymeric collagen and glycoproteins (which are responsible for the vascular complications in diabetics).
- Bilberry was administered to people with various degrees of eye damage (retinopathies) in one placebo controlled clinical study. The treated group was reported to increase by 50% compared to only 20% in the placebo group. In those people that had hard exudates in the back pole of the eye, 35% in the placebo group, vs. only 20% of the bilberry treated group worsened during the course of the study (Repossi *et al.*, 1987).
- In one study where bilberry was administered with vitamin E to elder people with mild senile cortical cataracts, the treatment reduced lens opacity in 97% of the cases (Bravetti *et al.*, 1987).
- In one small study of diabetics with diabetic-related retinopathies, a bilberry supplement was administered over 6 months, and improvements were noted in the retinal picture of all patients. (Orsucci et al., 1983).

Alpha-Lipoic Acid

- An interesting recent study found that alpha-lipoic acid suppresses the negative effect on the liver of some dietary fats (called n-3 polyunsaturated fatty acids). These dietary fats have been shown to inhibit the natural wound-healing functions of the liver, contributing to liver dysfunction. When alpha-lipoic acid was added to the diets of rats, the negative effects of the fats were ameliorated (Arend et al, 2000).
- The role of the alpha-lipoic acid in the body, as well as its potential as a high dose supplement was discussed in this early review of alpha-lipoic acid. This review mentioned that alpha-lipoic acid had potential in the treatment of insulin resistance and diabetic neuropathy, and that it had successfully used in the treatment of liver dysfunctions, including that induced by mushroom-poisoning, carbon tetrachloride, alcohol intoxication, and metal intoxication (Bustamante et al., 1998).

Milk Thistle

- Milk thistle was administered to people with damage to their liver due to alcohol consumption (liver cirrhosis) in a double-blind placebo-controlled clinical study (Lang et al., 1990). Liver functions were found significantly improved in the treatment groups vs. no change in the placebo group. Liver enzymes that were elevated before the study also normalized during milk thistle supplementation.
- Another double-blind study on the active component in milk thistle compared its administration in hepatitis patients vs. the use of a commonly used pharmaceutical treatment, ursodeoxycholic acid (UDCA). Both groups produced significant improvements in measurements of liver function (Lirussi and Okolicsanyi, 1992).
- Hikino and Kiso (1988) reviewed clinical studies on the active ingredient (silymarin) in milk thistle, and theorized that there were three main routes of action of silymarin in protecting the liver from toxic agents: it stabilizes the cell membrane, stimulates protein synthesis, and accelerates the regeneration of damaged liver tissue.