EyePromise™ Restore
Scientific Rationale Statement

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EyePromise™ Restore (**RESTORE)** is an ophthalmic supplement designed, in consultation with leading optometrists and nutritionists, for optimum ocular health. It is the supplementation component of an advanced risk management program for Eye Care Professionals, called QuantifEYE™.

RESTORE may be taken with a multi-vitamin if desired.

There are several nutrients that do not have RDA's and are not present in multi-vitamins, but have a scientific basis for use. The basis for each of these nutrients is discussed later, but the **RESTORE** combination provides nutrients that:

- Are naturally hyper-concentrated in the human eye.
- Occur at too low a level in the normal US diet.
- Are not normally found in reasonable levels in "over-the-counter" multi-vitamins.
- Have compelling scientific basis for extra-supplementation for protection of the eye.*
- Have been demonstrated to work synergistically with the macular pigments for improved retinal uptake and protection.

In contrast to the nutrients that are optimal at the established RDA's, there are other dietary factors to consider that may be beneficial for ocular health. The first group includes nutrients that function differently at higher doses and are official nutrients that concentrate at very high concentrations in the tissues of the eye. These include:

Vitamin E (tocopherols): Vitamin E is an essential nutrient derived from oils, nuts and grains, and is one of our body's most powerful lipid (fat) soluble antioxidants. Higher intake of vitamin E can increase the level in the retina. Vitamin E deficiencies can cause severe pathology. Vitamin E is also found in the lens. Animal studies have demonstrated powerful ocular protection with Vitamin E, and most clinical studies have shown significant protection against macular degeneration and cataracts with supplementation.

As will be discussed later, tocopherols act synergistically with other **RESTORE** nutrients in ocular protection. Some supplements contain isomers of Vitamin E which do not occur naturally. **RESTORE** uses only d-tocopherols from a natural source (the soy bean). Human nervous and ocular tissues also contain other important natural tocopherols without Vitamin E activity. **RESTORE** also contains these other "mixed tocopherols" from a natural source. **RESTORE** provides an optimum amount of tocopherols and has sourced this combination from nature.

Vitamin C (ascorbic acid): Vitamin C is a water soluble essential nutrient and an important aqueous antioxidant. At much higher doses it is an important antioxidant in all tissues of the eye and may be concentrated more than 20 fold in the lens and aqueous vs. amounts found in blood serum. Both animal and human clinical studies have shown important protective effects of Vitamin C against cataracts and macular degeneration. These protective effects are demonstrated at much higher dietary intake than the RDA. Blood levels are maximized at around 200 mg/day but this level is not likely to be consumed in our fruits and vegetables or a standard multi-vitamin. It is likely that Vitamin C acts synergistically with other components of **RESTORE**

Zinc (as zinc oxide): Zinc is an essential mineral that is in literally hundreds of important reactions in the body. In contrast to other essential minerals that are important as co-factors for the enzymatic antioxidant system, higher zinc intake (than the RDA) provides additional ocular protection. An increase in dietary intake of these other mineral co-factors is not known to provide additional enzymatic antioxidant protection.

Zinc at higher dosages than the RDA (11 mg) does confer additional ocular protection, and there is significant animal and human clinical support for inclusion in an ophthalmic supplement. The upper acceptable level of Zinc, established by the Institute of Medicine, is 40 mg per day. The 80 mg contained in the AREDS formula has been criticized from a safety perspective and will be lowered significantly in AREDS II.

RESTORE is formulated to provide additional zinc oxide so that two capsules per day, plus a healthy diet and a multi-vitamin, will not exceed the established safety limits. Because these safety limits are not exceeded, there is no need to add additional copper*.

Omega-3 Fatty Acids (Fish Oil) – Omega-3 long chain polyunsaturated fatty acids, PUFA, LC-PUFA, DHA (docosahexaenoic acid), EPA (eicosapentaenoic acid).

Mounting epidemiological evidence and animal studies suggests that two components of fish oil (DHA and EPA) are beneficial to humans' general health and may reduce the risks of macular degeneration. These two fatty acids are major components of nervous and retinal tissues and are highly concentrated in the ocular tissues. Human clinical trials have shown both a role in general systemic inflammatory modulation and infant visual development. The primary sources of these two dietary components are cold water fatty fish like salmon, tuna, sardines and anchovies. Epidemiology studies have demonstrated that a lack of these fish in our western diet increases the risks of AMD. Both of these fatty acids, DHA and EPA, are highly susceptible to oxidation in both our diet and in the retina. **RESTORE** provides a highly purified and concentrated source of these two fatty acids in a stabilized formulation.

Fish oil capsules are often sold as very large softgels. **RESTORE** has used a concentrated, high quality source to provide 250 mg of DHA and EPA in just two medium size softgels. This would be the equivalent to 2-4 large fish oil capsules per day, or 1-1/2 to 3 servings of cold water fish per week.

R – Alpha - Lipoic Acid (ALA): Alpha Lipoic Acid is an important antioxidant that has both lipophilic and hydrophilic characteristics, and thus may play a unique role in cell architecture protection. It is found in red meat and several important "eye vegetables," including dark leafy greens and orange tubers.

Besides playing a direct antioxidant role, it may play an important role in protecting mitochondrial energy production, and directly plays a role in recycling other important ocular antioxidants, including ascorbate, Vitamin E and glutathione. It may also play a role in reducing metal toxicity (including zinc).

ALA is being evaluated in humans for its effect on cardiovascular, neuronal and diabetes complications, all of which may also impact eye health. The invitro and animal studies conducted to date suggests ALA has an important protective role in lens and retinal protection. Lipoic acid is not normally included in most multi-vitamins and our scientific advisors believe the science supports its inclusion in **RESTORE**.

Zeaxanthin and Lutein: Zeaxanthin and Lutein are collectively referred to as the "macular pigments." While lutein is more widely known than zeaxanthin, it does not mean it is more important. While epidemiologists have suggested that 6mg of lutein/zeaxanthin per day over a 10 year period reduces the risks of progression of AMD, it does not necessarily mean it is an optimal dose for restoring or increasing the retinal macular pigment levels. In contrast, a preponderance of papers suggests the ability to increase MPOD levels is related to the maximal levels in the blood. This means that intake of higher levels of a good zeaxanthin and lutein formula is very important if the optometrist determines that MPOD levels should be increased. While lutein supplements have been available for some time, only **EP Restore** provides this higher level of the premium, more rare and expensive pigment, zeaxanthin.

The human body and retina have worked hard to put this rarer pigment in the center of the retina and **RESTORE** uniquely mimics this ratio. Restore uniquely has 6mg each of zeaxanthin and lutein in every capsule. The **RESTORE** ratio of lutein and zeaxanthin is important because zeaxanthin is preferentially deposited in a 2 to 1 ratio vs. lutein in the center of the macula. Zeaxanthin is a superior photo-protector and antioxidant due to its chemical structure. Epidemiology studies support the conclusion that low levels of zeaxanthin in the diet, blood and macula are associated with increased risk of AMD. Zeaxanthin is far less prevalent in the average diet than lutein and may need to be supplemented.

Summary

EyePromise Restore Ophthalmic Supplement is only available through Eye Care Professionals. It is designed by professionals to include those ingredients which may not be adequately provided by a good diet and multi-vitamin use. These ingredients have passed strict scientific criteria for inclusion and are designed for maximum bioavailability. They offer the best synergistic protective interaction possible. While there are other dietary components that may be included in the future, they have not yet passed our strict scientific criteria. The inclusion of higher levels of the premier eye nutrient zeaxanthin, in **RESTORE** can assure patients of maximum ocular health.