

Modified ARED's Supplement is Best to Slow Macular Degeneration

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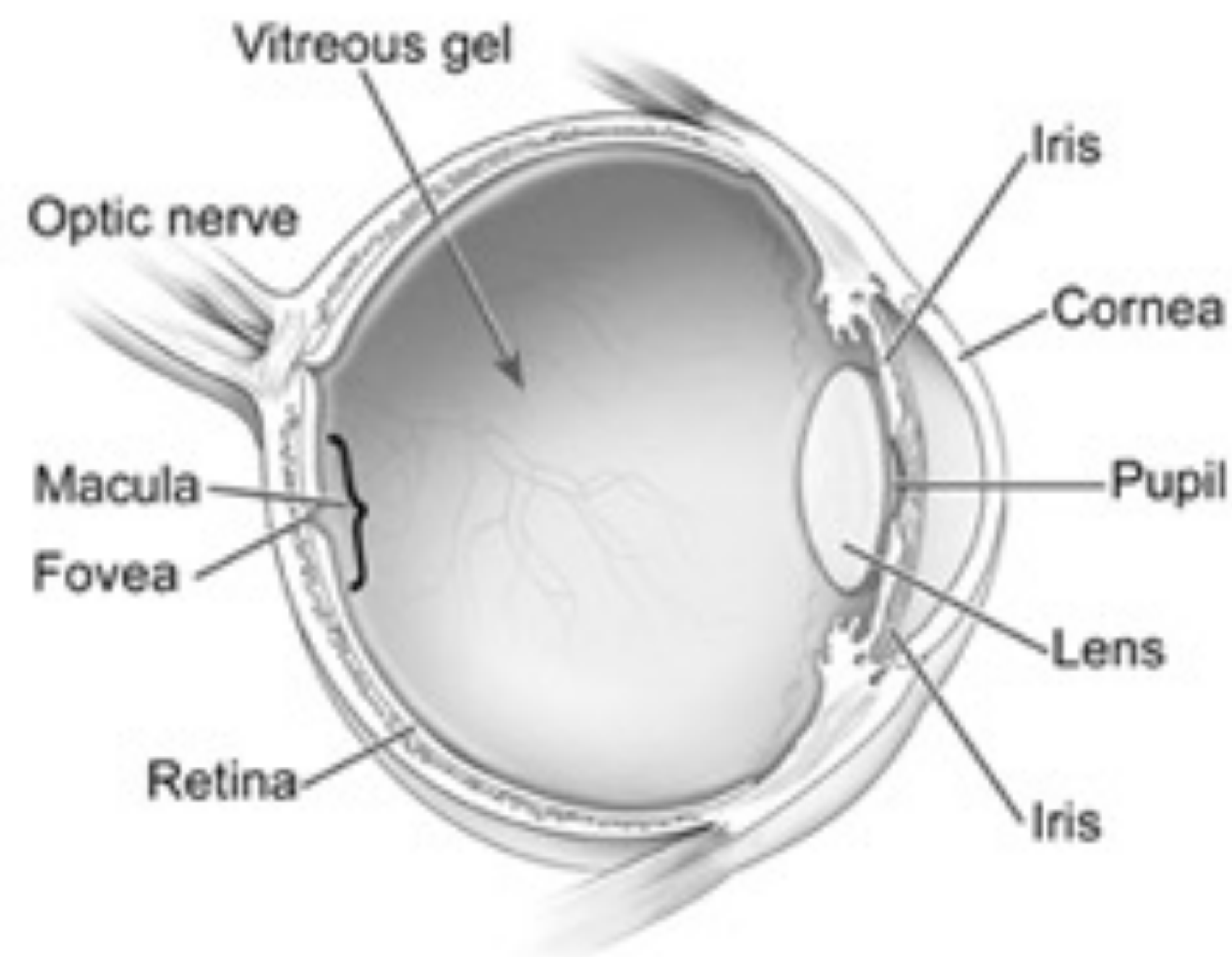
ABSTRACT

Age-related macular degeneration (AMD) is a leading cause of vision loss in Americans 60 years of age and older. Approximately ten million Americans show early signs of AMD and a half million or more have significant vision loss from advanced stages of AMD. One of the challenges for patients with AMD is making sense of what they hear about the research and treatment. So much of the information found on the internet is either factually incorrect or written by a biased source. Thus, I evaluated specific nutrition products from a wide variety of choices. I discuss the Age-Related Eye Disease Study (AREDS) - sponsored by the Federal government's National Eye Institute - which has found that taking high levels of antioxidants and zinc can reduce the risk of developing AMD by about 25 percent. I also examined any evidence that Lutein and Zeaxanthin might reduce the risk or progression of AMD. Based on my research, Zeaxanthin plays an essential role in reducing damage caused by light. Lutein may cause significant improvement of visual function but the benefits of Lutein supplements for the eye remain uncertain. These two antioxidants do not provide a cure but were proven to have benefits of improving AMD.

INTRODUCTION

Age-related macular degeneration (AMD) is a disease that blurs the sharp, central vision you need for daily activities such as reading, writing, and driving. AMD affects the macula, the part of the eye that allows you to see fine details. The macula is located in the center of the retina, the light sensitive tissue at the back of the eye. The retina instantly converts light from an image into electrical impulses. The retina then sends these impulses, as nerve signals, to the brain. AMD is a leading cause of vision loss in Americans 60 years of age and older. It might begin when you are much younger. Approximately ten million Americans show early sign of AMD and half a million people or more have significant vision loss from advanced stages of AMD. Therefore, I have evaluated specific nutrition products, particularly AREDS formulation, lutein and zeaxanthin, which have been proposed to reduce the risk and progression of AMD.

Figure 1: eye structure (1)



What Age-related Macular Degeneration (AMD) looks like as it progress

RESULTS

Eye Formulation	AREDS	Zeaxanthin	Lutein
Description	The first major study to prove the connection between nutrition and AMD. -sponsored by the Federal Government's National Eye Institute.	Within the central macula, zeaxanthin is the dominant component, up to 75% of the total. Both were not commercially available when the AREDS began and therefore were not included in the study.	In the peripheral retina, lutein predominates, up to 67%.
Effect	Not a cure, but reduces the risk of developing advanced AMD.	Not a cure. Provides protection	Not a cure. The possible benefits of lutein for the eye remain uncertain and not so many studies have been conducted.
Result	Taking high levels of antioxidants and zinc can reduce the risk of developing advanced age-related macular degeneration.	Plays an essential role in protecting the retina of the eyes from the damaging effects of light. Absorbs harmful blue wavelength light and help prevent oxidative damage.	Taking lutein causes significant improvements of visual function, such as glare recovery and contrast sensitivity.
Percentage	Reduce the risk by 25%.	Zeaxanthin's chemical structure makes it a much more effective antioxidant than Lutein.	Patients taking lutein experienced a 50% increase in macular pigment density.
Product and cost	-VisiVite Original AREDS Macular Degeneration Formula -\$23.95 (60 capsules-One month supply) -require one capsule twice daily -80mg Zinc	-Zevision -\$59.95 (60 capsules-2month supply) -Once a day -10mg zeaxanthin -ICaps Lutein and Zeaxanthin Formula- 120 Tablets -\$18 -two tablets per day -4mg of both lutein and zeaxanthin	-Ocuvite-120 Tablets -\$14.99 -one to two tablets a day -2mg lutein

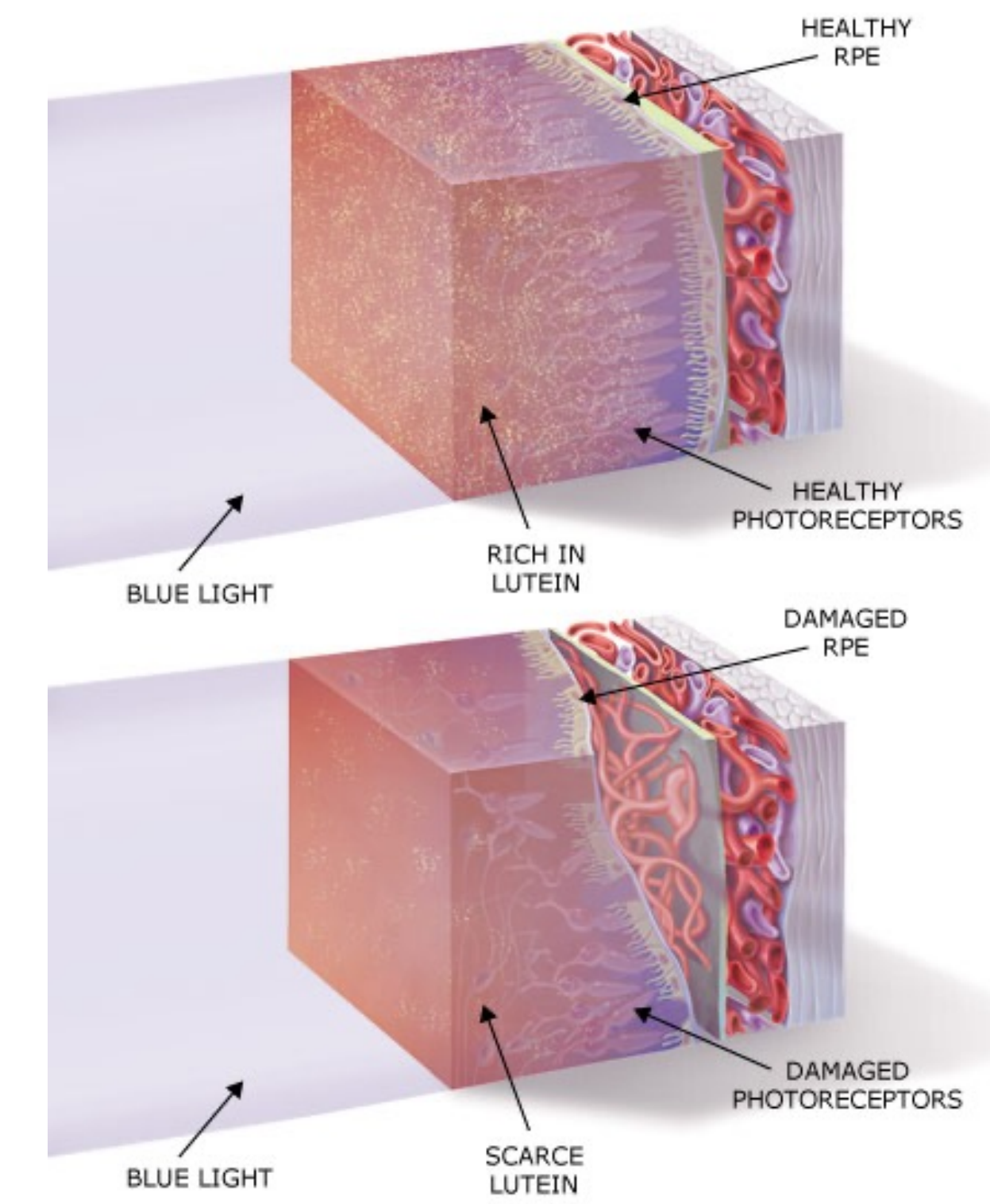


Figure 3: normal eye with lutein (top), AMD eye with less lutein (bottom) (3)

Figure 4: structures (4)

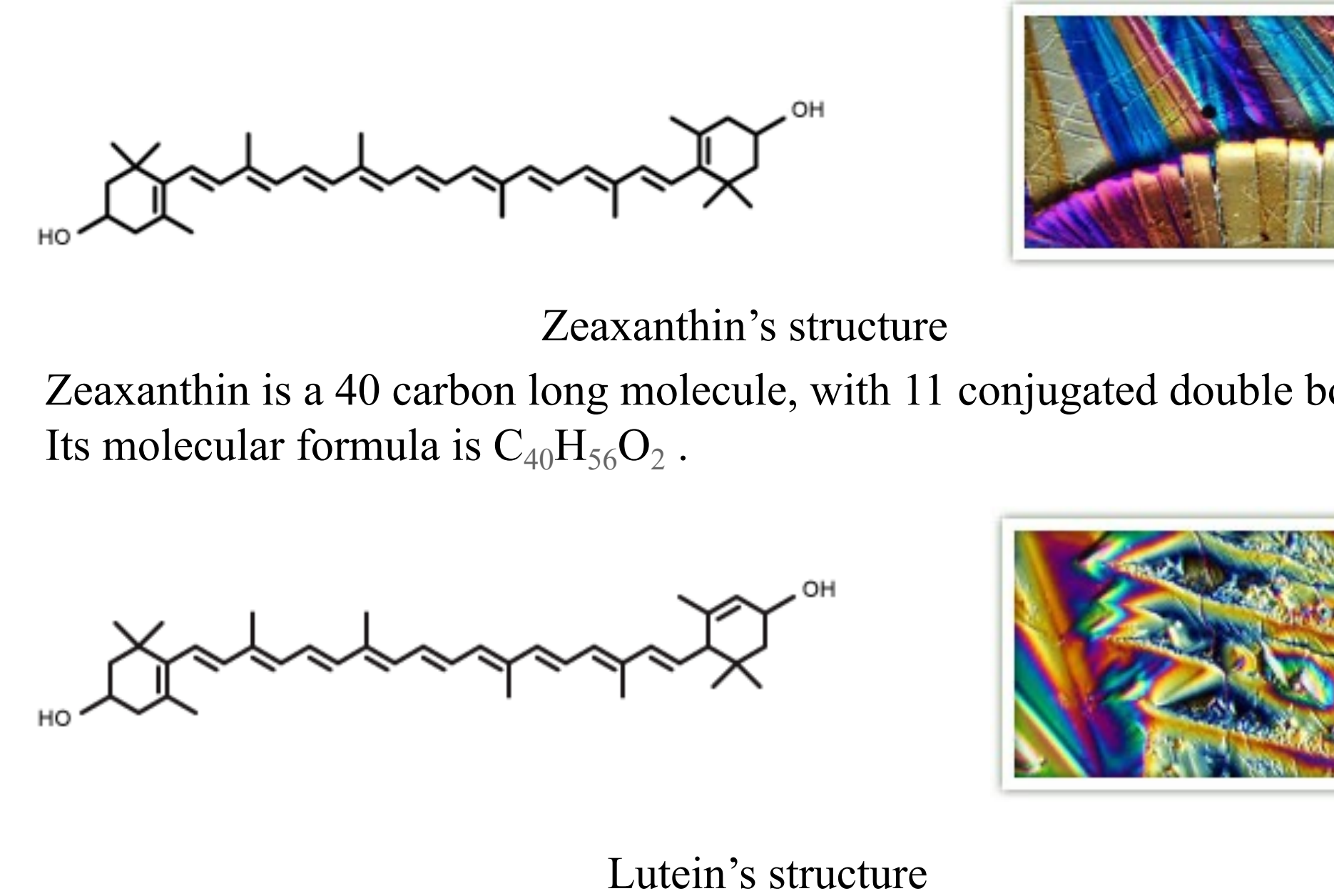
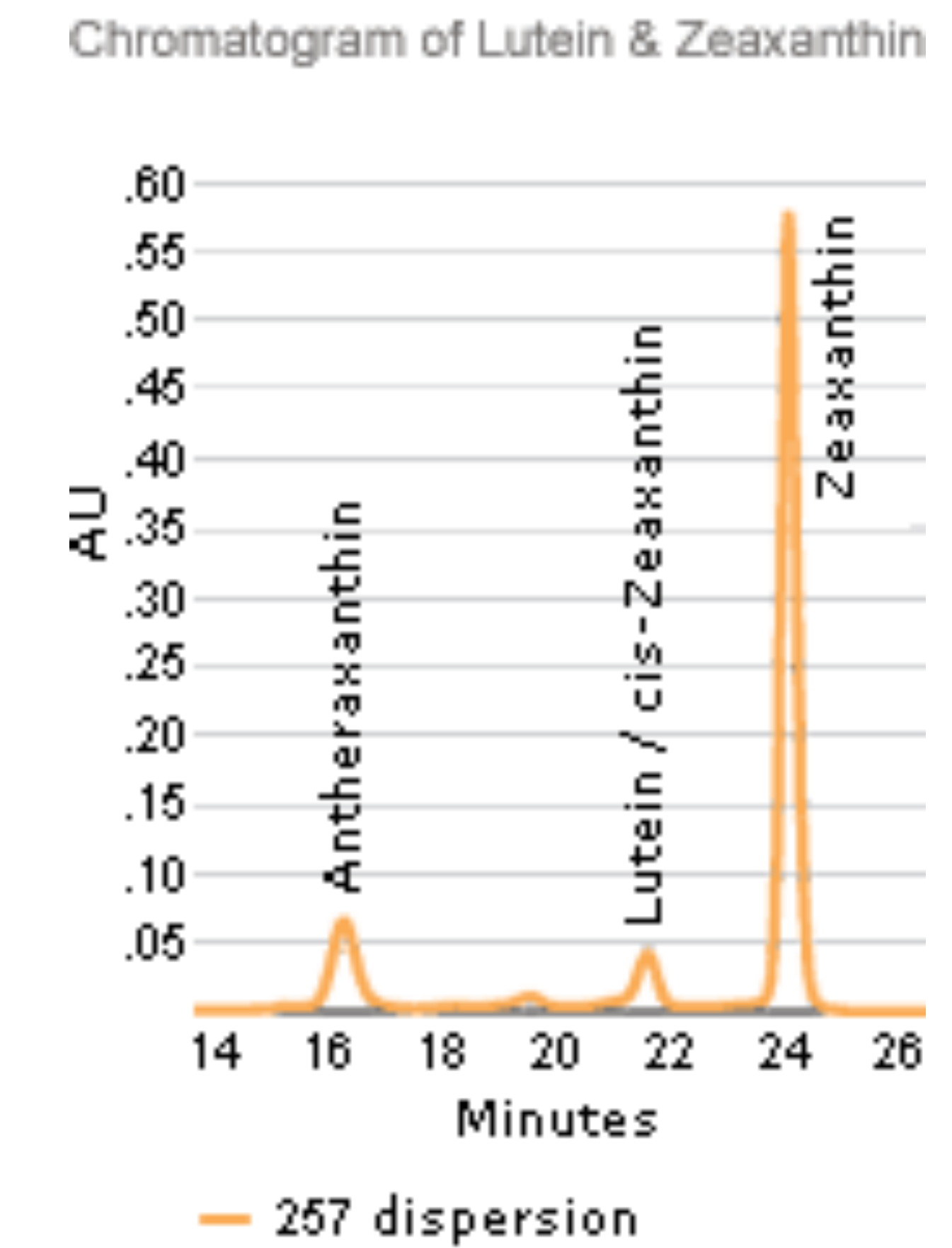


Figure 5: separation of eye pigments (5)



Analyses of macular pigment concentrations in and around the center of the macula in eyes with AMD versus normal control eyes have shown a direct link between macular pigment concentration and AMD. It has been observed that there is a significant drop in pigment concentration at the edges in eyes with AMD. There is more lutein than zeaxanthin in the outer edges. The more time your eyes are exposed to harmful sunlight, the more zeaxanthin absorbs light to protect the eye. Therefore, we need to supply the body with zeaxanthin to compensate for the amount lost. This figure shows that zeaxanthin is more effective in protecting the eye than lutein when exposed to light at 257 nm which is around the harmful wavelength of sunlight.

DISCUSSION AND CONCLUSION

People who are at high risk for developing advanced AMD i.e. intermediate AMD in one or both eyes and advanced AMD in one eye but not the other should consider taking the reformulations. The AREDS formulation is not a cure for AMD. It will not restore vision but it may delay the onset of advanced AMD.

Lutein and zeaxanthin are not a cure for AMD but they are found to have the effect of reducing the progression of AMD or preventing it. In brief, zeaxanthin and lutein might decrease your risk of AMD. I hope that my project will enlighten people more about the various products offered and help them choose the best for them.

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