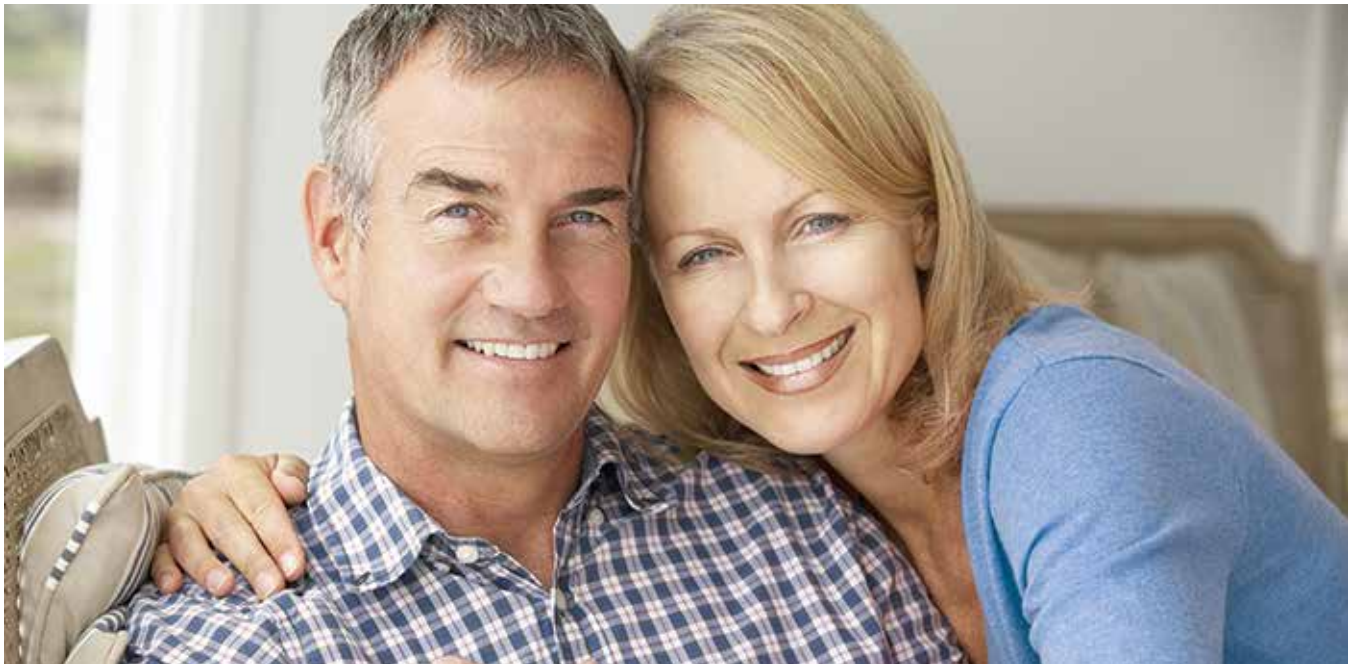
Getting Clear on AMD

ZeaVision EyePromise®
What Your Eyes Need Most



What is Age-related Macular Degeneration (AMD)?

According to the National Eye Institute (NEI), Age-related Macular Degeneration (AMD) is a common eye condition and a leading cause of vision loss among people age 50 and older. It causes damage to the macula, a small spot near the center of the retina and the part of the eye needed for sharp, central vision, which lets us see objects that are straight ahead.

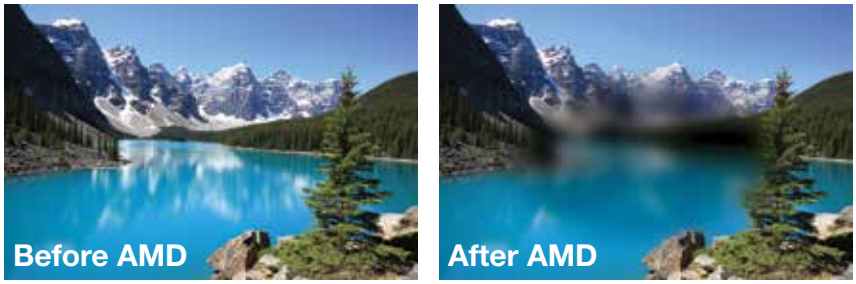
In some people, AMD advances so slowly that vision loss does not occur for a long time. In others, the disease progresses faster and may lead to a loss of vision in one or both eyes. As AMD progresses, a blurred area near the center of vision is a common symptom. Over time, the blurred area may grow larger or you may develop blank spots in your central vision. Objects also may not appear to be as bright as they used to be.

AMD impairs central vision, is irreversible, and currently has no cure. It can interfere with simple everyday activities, such as the ability to see faces, drive, read, write, or do close work, such as cooking or fixing things around the house.

What Are the Stages of AMD?

There are three stages of AMD defined in part by the size and number of drusen under the retina. Drusen are made up of lipids, a type of fatty protein. They may be the result of a failure of the eye to dispose of waste products that are produced when the photoreceptors of the eye drop off older parts of the cell. It is possible to have AMD in one eye only, or to have one eye with a later stage of AMD than the other.

1. ***Early AMD*** *– Early AMD is diagnosed by the presence of medium-sized drusen, which are about the width of an average human hair. People with early AMD typically do not experience vision loss.*
2. ***Intermediate AMD*** *– People with intermediate AMD typically have large drusen, pigment changes in the retina, or both. Again, these changes can only be detected during an eye exam. Intermediate AMD may cause some vision loss, but most people will not experience any symptoms.*
3. ***Late AMD*** *– In addition to drusen, people with late AMD have vision loss from damage to the macula.*



Are There Different Types of AMD?

Yes, there are two types of AMD: dry AMD and wet AMD. The most significant forms of these two types of AMD are:

1. ***Geographic atrophy*** *(the most advanced form of dry AMD) – there is a gradual breakdown of the light-sensitive cells in the macula that convey visual information to the brain, and of the supporting tissue beneath the macula. These changes cause vision loss.*
2. ***Neovascular AMD*** *(the most advanced form of wet AMD) – abnormal blood vessels grow underneath the retina. "Neovascular" literally means "new vessels." These vessels can leak fluid and blood, which may lead to swelling and damage of the macula. The damage may be rapid and severe, unlike the more gradual course of geographic atrophy. It is possible to have both geographic atrophy and neovascular AMD in the same eye, and either condition can appear first.*

Does Early AMD Ultimately Develop Into to Late AMD?

Not everyone with early AMD will develop late AMD. According to the NEI, people who have early AMD in one eye and no signs of AMD in the other eye, about 5% will develop advanced AMD after 10 years. For people who have early AMD in both eyes, about 14% will develop late AMD in at least one eye after 10 years. With prompt detection of AMD, there are steps you can take to further reduce your risk of vision loss from late AMD.

If you have late AMD in one eye only, you may not notice any changes in your overall vision. With the other eye seeing clearly, you may still be able to drive, read, and see fine details. However, having late AMD in one eye means you are at increased risk for late AMD in your other eye. If you notice distortion or blurred vision, even if it doesn't have much effect on your daily life, consult an EyeCare Professional.

Keep in mind that AMD has few symptoms in the early stages, so it is important to have your eyes examined regularly. If you are at risk for AMD because of age, family history, lifestyle, or some combination of these factors, you should not wait to experience changes in vision before getting checked for AMD.

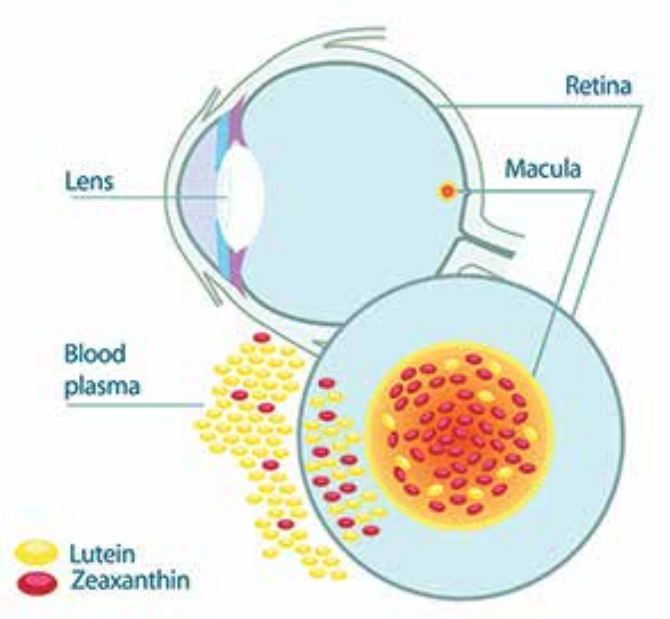
What Are the Risk Factors for AMD?

Due to the aging Baby Boomer population, it is estimated that the number of people with AMD is expected to double by 2020. While there is currently no cure for AMD and its effects are irreversible, the following risk factors help differentiate those deemed to be at-risk of developing AMD.

Non-modifiable Risk Factors:	Modifiable Risk Factors:
Age	*Smoking*
Family History	*Poor Diet*
Light Skin & Eyes	*Low Macular Pigment*
Female Gender	*High Body Mass Index*

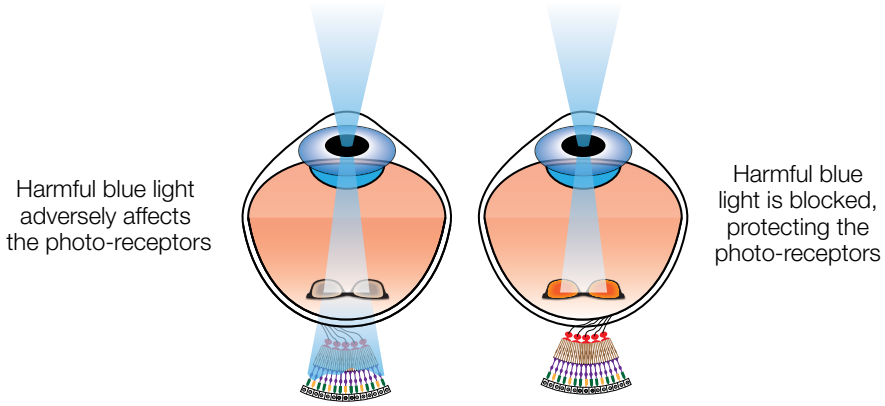
What is Macular Pigment?

Macular pigment is comprised of Zeaxanthin and Lutein, which are found in the center of the macula (fovea) at a natural 2:1 ratio. Healthy macular pigment acts as "internal sunglasses" to protect against harmful blue light that enters the eye and negatively impacts the visual cells responsible for central and peripheral vision.



MPOD (Macular Pigment Optical Density) is important for 3 specific reasons:

1. *Low macular pigment is a key risk factor for AMD, the leading cause of significant vision loss over age 50.*
2. *Macular pigment absorbs harmful blue light, protecting the photo-receptors from damage*



3. *Macular pigment improves visual performance, including:*

Visual acuity *– ability to see clearly, especially in fine detail situations like needlepoint or reading in low light situations*

Light sensitivity *– visual discomfort in sunlight or when exposed to bright light*

Contrast sensitivity *– ability to discern objects from their background (i.e. seeing a white golf ball or baseball clearly against a light blue sky)*

Glare recovery *– recovery from temporary "blindness" caused by high intensity lighting, such as automobiles or stadium lights*

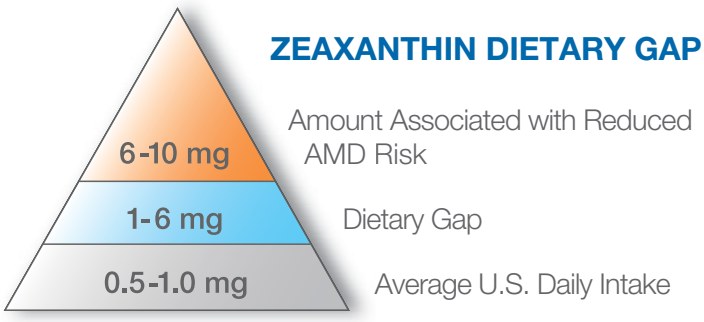
What is Blue Light and Where Does It Come From?

Harmful blue light adversely affects the photo-receptors (cones and rods), which are responsible for and central and peripheral vision, respectively. Blue light come from everyday sources, such as computers, sunlight, TVs, cell phones, and more.

Blue Light Sources:

What is Zeaxanthin and Lutein?

Zeaxanthin (zee-uh-zan-thin) is a carotenoid in the fovea that, along with Lutein, largely makes up the macular pigment. Studies show that Zeaxanthin increases low macular pigment levels – a leading risk factor for AMD. However, Zeaxanthin is particularly scare in the average daily U.S. diet leaving a significant dietary gap for most people.



The macular pigments, Zeaxanthin and Lutein, are found at a natural 2:1 ratio in the fovea (center of the macula). The body does not produce Zeaxanthin or Lutein, so nutritional intake and supplementation are key in maintaining healthy MPOD.

What Did the Age-related Eye Disease Study 2 (AREDS 2) Say About Zeaxanthin and Lutein?

The AREDS 2 study is a five-year, multi-center, randomized trial designed to assess the effects of oral supplementation daily on the progression to advanced AMD in patients with intermediate to advanced AMD. Taking the AREDS formula along with Lutein + Zeaxanthin vs. the AREDS formula with no Lutein + Zeaxanthin resulted in:

26% reduction in the risk of progression to advanced AMD

subjects with the lowest levels of ***dietary*** Zeaxanthin & Lutein intake (most of the US population)

* The reduction in progression to advanced AMD is even greater (26%) in study subjects with the lowest intake of Lutein and Zeaxanthin in their diet, which is more representative of the general U.S. population where the dietary intake of Lutein and Zeaxanthin is typically less than 1 mg per day. The AREDS 2 results reaffirm previous research studies that high dietary intake of Lutein and Zeaxanthin reduces the risk of AMD.

10% reduction in progression to advanced AMD

compared to NO Zeaxanthin & Lutein

11% reduction in the risk of progression to neovascular AMD

The results of AREDS 2 suggest adding 10 mgs Lutein and 2 mgs Zeaxanthin and eliminating beta-carotene resulted in:

18% reduction in progression to advanced AMD

without Beta Carotene compared to the AREDS ***with*** Beta Carotene

* with Lutein and Zeaxanthin and no beta-carotene.

Does EyePromise® Offer an AREDS 2 Formula?

Yes! *EyePromise* offers two AREDS 2 formulas – *EyePromise* AREDS 2 Plus Zinc-Free and AREDS 2 Plus with a Multi-Vitamin. Both formulas contain the same dietary ingredients studied in the AREDS 2 clinical trial – PLUS other essential nutrients demonstrated to support healthy vision, including 10 mgs of dietary Zeaxanthin, as well as Vitamin D3, Omega-3's, and other science supported ingredients to promote ocular health.

*Approximately **90%** of AREDS 2 participants supplmented with a multi-vitamin.*

Is There a Way To Measure Macular Pigment Levels?

Yes! The *QuantifEye*® MPS II measurement instrument offered by *ZeaVision*® is the most reliable and accurate device for measuring Macular Pigment Optical Density (MPOD). Used by leading EyeCare Professionals throughout the U.S., the *QuantifEye* MPS II is:

- ***RELIABLE:*** *Scientifically-validated*
- ***REPEATABLE:*** *Has accurately measured more than 4-million eyes*
- ***AFFORDABLE:*** *Non-invasive*
- ***FAST:*** *Only takes a few minutes*

For more information, contact the Customer Support Team at 866.833.2800, or via email at support@eyepromise.com

Does the AREDS 2 Study Support MPOD Measurement?

AREDS 2 study results clarified that patients in the lowest quintile of dietary Zeaxanthin and Lutein intake benefitted the most from Lutein and Zeaxanthin supplementation. This reiterates the need for MPOD testing to help identify these undernourished patients, and measurement results are an important biomarker for macular health. A large body of scientific evidence recognizes low MPOD as a key AMD risk factor.

Low Macular Pigment – What Now?

78% of the population has less than optimal macular pigment, but significant increases can be achieved through nutritional intake and supplements containing Zeaxanthin and Lutein, such as *EyePromise* AREDS 2 Plus and Restore eye vitamins.

EyePromise Restore is an ocular/macular formula designed to increase macular pigment, providing vision protection and enhancement. All *EyePromise* eye vitamins are science-based, doctor-recommended vitamins for supporting eye health. With more than 40-million doses consumed and counting, *EyePromise* products are:

- *Made in the U.S.A.*
- *From the highest quality, natural ingredients*
- *Contain the highest levels of dietary Zeaxanthin available*
- *Come with an unconditional 60-day, money-back guarantee*
- *The ONLY brand guaranteed to increase Macular Pigment Optical Density (MPOD)!*

Made in the USA

highest quality NATURAL Ingredients

dietary HIGHEST LEVEL zeaxanthin

60-Day Money-Back EyePromise Guarantee

EyePromise GUARANTEED TO INCREASE MPOD!

How does the EyePromise MPOD Increase Guarantee Align with the AREDS 2 Clinical Trial Findings?

While MPOD was not measured in the AREDS 2 study, there are logical correlations that can be drawn between the two:

- *AREDS 2 was designed to study disease progression in patients with intermediate to advanced AMD after supplementation with Zeaxnthin and Lutein.* EyePromise *brands contain the highest available level of dietary Zeaxanthin and Lutein, and supplementation with* EyePromise *brands increase MPOD.*
- *The* QuantifEye *MPS II macular pigment measurement instrument was designed to help identify patients with low macular pigment, a key risk factor for AMD, before AMD develops.*
- EyePromise *is the only supplement brand guaranteed to increase MPOD and supported by a money-back guarantee.*

What Other Science Supports Zeaxanthin and Lutein for Eye Health?

AMD, Macular Pigment, and Visual Performance (Zeaxanthin & Lutein)	
AREDS 2 Study Chew, MD. et. al.	The AREDS 1 formula plus Lutein & Zeaxanthin vs. AREDS 1 & beta-carotene: • 18% reduction in the progression to advanced AMD • 22% reduction in the risk of progression to neovascular AMD AREDS formula along with Lutein + Zeaxanthin vs. AREDS formula with no Lutein + Zeaxanthin: • 10% additional reduction in the risk of progression to advanced AMD • 11% reduction in the risk of progression to neovascular AMD • 26% reduction to advanced AMD in the lowest quintile – the group with the lowest dietary intake of Lutein and Zeaxanthin, which is more representative of the general population
Gale Study: Zeaxanthin & Lutein and the Risk of AMD (Ophthalmology and Visual Science: 2003)	• Low levels of Zeaxanthin in plasma = significantly higher risk of AMD • Did not show similar effect for Lutein • Possible that studies that combine Zeaxanthin and Lutein may have obscured protective effect of Zeaxanthin
POLA Study: Zeaxanthin & Lutein (Investigative Ophthalmology and Visual Science: 2006)	• Large European trial (899 patients) • Patients with high plasma levels of Zeaxanthin had a 93% reduction in AMD and 77% reduction in nuclear cataracts • Patients with high plasma levels of Lutein had a 79% reduction in AMD
Blue Mountain Study (American Academy of Ophthalmology: 2008)	• Higher dietary intake of Zeaxanthin and Lutein reduced risk of AMD (in 3654 patients) by 65% • Confirmed protective influence of zinc • Higher beta-carotene associated with increased risk of AMD
AREDS Report 22 (Archives of Ophthalmology: 2007)	• Participants reporting highest intake of Zeaxanthin and Lutein at baseline less likely to have advanced AMD (NV & GA) or intermediate drusen
Bone & Landrum (Investigative Ophthalmology and Visual Science 2001)	• 12 cadaver donors, 224 eyes • Donor eyes in the highest quartile of Lutein and Zeaxanthin per unit area had an 82% lower prevalence of AMD compared with those in the lowest quartile
Improvement of Retinal Function in Early Age-Related Macular Degeneration After Lutein and Zeaxanthin Supplementation: A Randomized, Double-Masked, Placebo-Controlled Trial (Ma et. al. - American Journal of Ophthalmology, October 2012 Peking University Eye Center, Beijing, China)	• 108 subjects with early AMD supplemented with 10 mgs Lutein, 10 mgs Lutein & 10 mgs Zeaxanthin, 20 mgs Lutein, or placebo plus 36 age matched controls. (144 subjects) • Pre and post supplementation multi-focal ERG was measured in 6 concentric annular zones around the macula • Increased MPOD related positively to increases in N1P1 response density in ring 1 and ring 2 with little effect in ring 3 thru 6 • Improvement of N1P1 response densities was positively associated with MPOD increase, suggesting a causative effect of MPOD on retinal function and health • Early functional abnormalities of the central retina in the early AMD patients may be improved by Lutein and Zeaxanthin supplementation • The 10 mgs Lutein/10 mgs dietary Zeaxanthin arm had the greatest ERG documented retinal function increase in ring 1.
Zeaxanthin & Visual Performance Benefits:Zeaxanthin and Visual Function (ZVF) Trial (Richer, Stuart, et. al. - Journal of Optometry November 2011)	• 60 elderly subjects with early to moderate AMD • Consumed 8 mgs of dietary Zeaxanthin per day for 12 months • Improved high contrast near visual acuity by 8.5 letters or 1.5 lines on an eye chart • Achieved clearing of central scotomas • Improved foveal shape discrimination • Improved night driving skills
Macular Re-pigmentation Enhances Driving in Elderly Adults (Richer, Stuart, et. al. - Clinical & Experimental Ophthalmology April 2012)	• 60 elderly subjects with early to moderate AMD • Consumed 8 mgs of dietary zeaxanthin per day for 12 months • Self-described improvement of driving skills were strongly associated with macular re-pigmentation • The greatest effect was seen with zeaxanthin • Older male drivers with AMD are encouraged to have their foveal macular pigment measured annually

ZeaVision EyePromise®
What Your Eyes Need Most

ZeaVision, the parent company of *EyePromise,* was founded in 2001, with a mission to fight vision loss and preserve healthy vision through nutrition and technology.

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