



Research to Prevent Blindness

Advances in Eye Research: Macular Degeneration

Age-related macular degeneration (AMD) is a leading cause of vision loss in the U.S. More than 2 million Americans over age 50 have AMD. That number is expected to increase to 3.5 million by 2030.

AMD is caused by abnormalities in and around an area of the light-sensitive retinal tissue in the back of the eye, called the macula. In the center of the macula is the fovea, a tiny area of the retina that mediates high-acuity vision.

Eyesight may not be seriously affected in the early stages of AMD, but an eye care specialist can detect tiny clusters of soft, plaque-like deposits called drusen in the retina. As the condition progresses, people with AMD may have difficulty seeing at night. While early AMD usually progresses slowly, it is important for people at risk for AMD or who have been diagnosed with early AMD to monitor their vision and see an eye care specialist regularly.

Symptoms of more advanced AMD are blurred central vision and straight lines appearing wavy. The blurriness may progress to blind spots, affecting face recognition, reading and TV watching. Though early AMD is more common, late AMD has a greater impact on vision and quality of life.

Current scientific evidence indicates that macular degeneration does not originate in the light-sensitive cells in the eye, but through the accumulation of toxic materials in the nearby retinal pigment epithelium (RPE), a layer of cells that nourishes the visual cells.

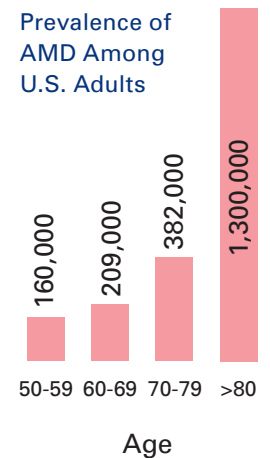
Late AMD can take two forms: dry or wet. In dry AMD, also known as non-neovascular AMD, there is a loss of visual cells and RPE cells. In wet AMD, or neovascular AMD, new and fragile blood vessels form in the macula and leak blood, fluid or both. This leads to greater damage of visual cells and loss of vision.

Risk Factors

Age is the biggest risk factor for AMD. However, studies supported by Research to Prevent Blindness (RPB) show that lifestyle choices may also influence the onset and progression of AMD, especially in people with a family history of the disease.

- Current and past smokers have an increased risk of AMD. If you stop smoking at any time, you can reduce your risk.
- Obesity and a high body mass index increase the risk of developing AMD in those with a family history of the disease. Studies show that regular exercise, at least three times a week, can help lower your risk.
- A diet high in animal fats and vegetable oils can increase your risk of advanced AMD.

Discuss your AMD risk factors with an eye care professional. Regular eye exams are important for maintaining eye health.



Treatments for AMD

Dry AMD

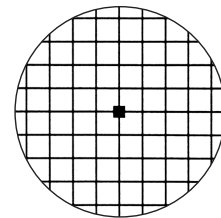
The Age-Related Eye Disease Study (AREDS), sponsored by the National Eye Institute, has shown that high doses of nutritional supplements, including vitamins A, C, and E, lutein, zeaxanthin, zinc and copper, can slow the progression of the disease by up to 25%. However, these supplements do not appear to prevent the disease.

Also, people who have a diet high in green, leafy vegetables and fatty fish, such as salmon, have a lower incidence of AMD.

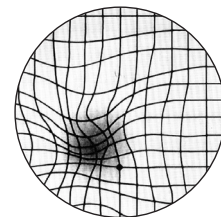
Wet AMD

Dry AMD can transition to wet AMD due to an inflammatory reaction, which causes irregular, fragile blood vessels to grow in the fovea area of the retina. Growth of these blood vessels is caused by a protein called vascular endothelial growth factor (VEGF).

The most effective treatment shown to slow the progression of wet AMD is regular injections of an anti-VEGF therapy directly into the gel in the center of the eye called the vitreous humor. These injections can reduce the development, growth and leakage of the abnormal blood vessels in the eye. In some people, this treatment can also slow vision loss and even improve vision, at least temporarily. However, the injections must be continued for a long period of time.



Amsler grids to test for AMD are available at rpbusa.org.



Amsler grid as it might appear to someone with AMD.

Hope Through Research

RPB's mission is to preserve and restore vision by supporting research to develop methods to prevent, treat and cure all conditions that damage and destroy sight.

Focus on RPE Cells

Scientists are identifying and studying the toxic materials that poison RPE cells in AMD, and how they can be best eliminated from the eye. Researchers are also developing methods of transplanting RPE cells to replace the damaged RPE cells in AMD.

Statins Improve Dry AMD

A study showed that some patients with dry AMD taking high doses of a cholesterol-lowering medication known as a statin had a decrease in fatty deposits in the eye and an improvement in their vision. These patients also did not progress from dry AMD to the more advanced wet AMD.

Invest in Your Vision

You can join RPB in supporting critical research in the fight against vision loss by sending your tax-deductible donation to the address shown below or online at www.rpbusa.org. RPB is a public 501(c)(3) foundation.



Research to Prevent Blindness

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Since 1960, RPB has led a research effort to preserve vision and restore sight, supporting nearly every major development in the treatment of blinding disorders.