Understanding Macular Degeneration

Macular Degeneration Research
The nonprofit BrightFocus Foundation is an international leader in supporting innovative research to find cures for Alzheimer’s disease, macular degeneration, and glaucoma. Guided by scientific review panels of world-class researchers, we invest in promising and rigorous science to end diseases of mind and sight. Through free publications such as this one, we share research findings and helpful tips with those impacted by these diseases, including families and caregivers.

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What is Macular Degeneration?

Age-related macular degeneration (AMD) is a common eye disease among people 60 and older, and a leading cause of irreversible vision loss worldwide. As many as 11 million people in the U.S. have some form of macular degeneration, and more than 2 million have the most advanced form of the disease.

AMD damages the nerve cells of the macula, which can lead to distorted vision and blind spots. The macula is the central part of the retina, and provides sharply focused central vision needed to read, recognize people and objects, and perform skilled tasks.

Many daily activities, including driving and reading, become increasingly difficult when the macula is damaged.

Quick Facts

- AMD can affect one or both eyes.
- The disease can progress slowly or rapidly.
- There are two forms, wet and dry.
- A person can have either or both forms.
- Dry AMD can change suddenly to the wet form.
- Dry AMD can advance and cause vision loss without becoming wet AMD.

Dry AMD

Most AMD starts as “dry AMD.” Yellow waste deposits called drusen build up under the retina and cells of the macula may slowly break down.

There may be no symptoms in the early stages, but as the disease progresses a blurry spot may appear in the center of vision. It can become larger and darker, eventually causing a complete loss of central vision.

Dry AMD can reach an advanced stage that leads to vision loss, also known as geographic atrophy. (It’s so named because macula cells begin dying in clusters that resemble countries on a map.) Although there is no treatment for geographic atrophy, an increasing amount of research in this area is contributing to therapies that show promise.
**Wet AMD**

Wet AMD is usually preceded by the dry form. As the condition worsens, abnormal blood vessels grow behind the macula. They can leak blood and fluid, damaging the macula and leading to distorted vision.

In wet AMD, straight lines may appear wavy, and central vision loss can occur rapidly—sometimes within days.

The wet form is always considered the advanced stage of the disease. Wet AMD accounts for approximately 10 percent of all AMD cases, but causes 90 percent of AMD-related legal blindness.

- Exercise regularly.
- When outdoors, wear a hat as well as sunglasses with UVA and UVB protection.

**Early Diagnosis Can Protect Sight**

Whether or not you have been diagnosed with AMD, get comprehensive, dilated eye exams on a regular basis as recommended by your eye doctor. In these exams, the pupil is dilated with eye drops to allow your eye doctor to see into the retina.

The American Academy of Ophthalmology recommends a complete eye exam every year or two after age 65 (depending on your risk category), to check for conditions like AMD and glaucoma. Since some eye diseases can begin in midlife but may not noticeably affect vision until later, the Academy also recommends a baseline comprehensive eye exam at age 40. And be sure to consult your doctor at once if you notice changes in your vision.

**Treatments for Dry AMD**

People with intermediate-stage AMD may benefit from vitamins that nourish the eye and may slow the disease’s progress.

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**A Healthy Lifestyle**

These healthy habits may help reduce your risk of getting AMD, or help protect remaining vision if you already have AMD.

- Maintain a healthy weight.
- Eat a varied and nutritious diet, including green leafy vegetables, fruit, and fish.
- Don’t smoke.
- Maintain normal blood pressure and cholesterol levels.

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*People with advanced AMD may have trouble seeing the faces of their loved ones.*
The National Eye Institute found in a large clinical trial, the Age-Related Eye Disease Study (AREDS), that a specific vitamin formula may prevent intermediate dry AMD from reaching the advanced stage, where it can cause vision loss.

The latest recommended formula, AREDS2, is:
- 500 milligrams of vitamin C
- 400 international units of vitamin E
- 10 milligrams of lutein
- 2 milligrams of zeaxanthin
- 80 milligrams of zinc, as zinc oxide
- 2 milligrams of copper, as cupric oxide

Currently there is no treatment for the advanced form of dry AMD. People may regain some closely focused vision with an implantable miniature telescope. The FDA-approved device, called CentraSight®, is inserted into one eye to provide central vision, while the other eye provides peripheral vision.

There are also special adaptive tools and techniques to help people with AMD read, use phones and computers, and perform other daily tasks.

**Treatments for Wet AMD**

Wet AMD is most commonly treated by injecting drugs known as angiogenesis inhibitors into the eye, which block the activity of a protein known as vascular endothelial growth factor (VEGF). In the U.S., four drugs in this “anti-VEGF” class have been used for wet AMD treatment.

Avastin® (bevacizumab), Macugen® (pegaptanib sodium), Lucentis® (ranibizumab), and EYLEA® (aflibercept ophthalmic).

Less frequently, wet AMD may be treated with photodynamic therapy, or laser photocoagulation therapy, to destroy leaking or abnormal blood vessels in the eye.

**Monitoring Your Sight after Diagnosis**

**Dry AMD**

Dry AMD can turn into wet AMD rapidly, so use an Amsler grid to evaluate your vision at home and make an appointment immediately if you notice changes in your vision. An Amsler grid is an eye chart used to detect problems with central vision. (See sample, which is smaller than the actual size.) You can request a free one by using the enclosed order form with this brochure.

Another monitoring program is ForeSeeHome™, a simple daily test that can help detect wet AMD early.

**Wet AMD**

If you have wet AMD and your eye doctor advises treatment, do not wait. Vision loss can happen quickly. If you detect any changes, contact your eye doctor immediately.
BrightFocus is at the forefront of brain and eye health, supporting innovative research around the world and promoting better health through our three programs:

Alzheimer's Disease Research  
Macular Degeneration Research  
National Glaucoma Research