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### Additional resources

The Internet is an excellent source of information on support groups and other resources for people with macular degeneration. Here are just a few:

**National Institutes for Health**  
[www.nihseniorhealth.gov](http://www.nihseniorhealth.gov)

**American Macular Degeneration Foundation**  
[www.macular.org](http://www.macular.org)

**Mayo Clinic**  
[www.mayoclinic.com/health/macular-degeneration/DS00284](http://www.mayoclinic.com/health/macular-degeneration/DS00284)

**The American Health Assistance Foundation**  
[www.ahaf.org/macular/about/maabout.htm](http://www.ahaf.org/macular/about/maabout.htm)

To order additional complimentary copies of this pamphlet, call **630-896-4686** Ext. 254 or fax your request to **630-896-7868**.

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2330 West Galena Boulevard, Aurora, IL 60506

2036.172

630.896.4686

[www.countrysidecare.com](http://www.countrysidecare.com)

*Monitor your vision at home.* Use the Amsler grid reproduced here to help detect subtle changes in vision.

While focusing on the dot in the center of the grid, with one eye covered:

- Are you unable to see the corners and sides of the square?
- Do some of the straight lines seem faded, broken or distorted, especially around the center (as in Figure 1, below)?
- Are there any holes or missing areas at the center of the grid (as in Figure 2, below)?

If you can answer yes to any of these questions, seek immediate attention from a medical eye care specialist (ophthalmologist).

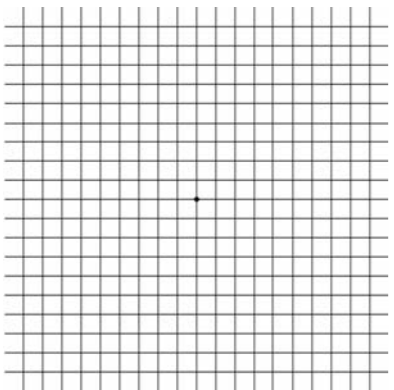
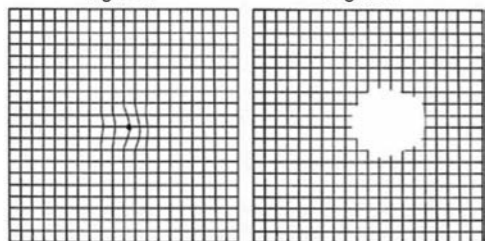


Figure 1

Figure 2



### What types of treatments are available?

Because the damage caused by macular degeneration can't be reversed, the sooner AMD is detected, the better the chances are of preserving the remaining

central vision. Once diagnosed, some of the procedures that may be used to treat AMD include:

**Photocoagulation.** In some cases, a doctor may use a high-energy laser beam to seal off and destroy abnormal blood vessels, which damage the macula, preventing further damage and continued vision loss.

**Photodynamic therapy.** Combining cold laser treatment with light-sensitizing drugs to close off abnormal blood vessels, this therapy is primarily used to treat deterioration in the area of the eye that provides your sharpest vision.

**Macular translocation surgery.** Although not widely used, this surgical technique can help preserve vision if there is enough healthy tissue remaining, and if the damage is recent and not too widespread. The procedure involves moving the affected part of the macula to an area of healthier surrounding tissue.

**Direct application of medication.** The latest treatment for AMD involves injecting substances that inhibit the growth of abnormal blood vessels directly into the affected eye or eyes.

### Living with macular degeneration

If you are diagnosed with AMD, it is important to keep a positive outlook and observe certain guidelines in order to remain safe and make the most of your remaining vision.

Ask your eye doctor about receiving professional assistance to make your home safer and more convenient for you to use. A *low-vision center* in your community may be able to provide certain optical and household devices that can be helpful when dealing with near-vision tasks.

Many people with macular degeneration tend to isolate themselves from “normal” sighted friends and family members. While understandable, this withdrawal is a mistake. Instead, it is important to ask for help from those around you and continue to participate in many of the activities you enjoyed before your vision became impaired. Macular degeneration is more common than you may think, and people will understand.

## What is Macular Degeneration?

*Age-related macular degeneration* (AMD) is a disease that destroys your central vision, essential for seeing objects clearly and performing such basic tasks as reading and driving. AMD is a leading cause of vision loss in Americans age 60 and older.

AMD affects the *macula*, the part of the eye that allows us to see color and fine detail. In some cases, AMD advances so slowly that people notice little change in their vision. In others, the disease progresses faster, affecting one or both eyes, generally resulting in total loss of vision.

## What causes macular degeneration?

As we age, the underlying layer of blood vessels that nourishes the macula may deteriorate. Lacking nutrients, the light-sensitive cells of the macula become damaged and waste deposits may begin to form. The damaged cells can no longer send normal signals through the optic nerve to the brain, and vision becomes blurred. This is often the first symptom of macular degeneration.

## Two types of macular degeneration

Most people with the condition suffer from *dry macular degeneration*. Dry macular degeneration is the result of a deterioration of the light-sensitive cells in the macula brought about by the breakdown of the eye's waste-removal system. The build-up of waste deposits in turn causes the light-sensitive cells of the macula to degenerate.

*Wet macular degeneration* is a less common progression of the dry form of the disease, accounting for only about 15 percent of all cases. Caused by leaking clumps of blood vessels that form beneath the deteriorating macula, it produces blurred central vision and, eventually, blank spots in the entire field of vision. Once the wet form of macular degeneration is diagnosed, sight loss is often rapid and severe, eventually resulting in legal blindness.

## What are the Symptoms?

The signs and symptoms of macular degeneration may vary, depending on whether one has the dry or the wet form.

With *dry macular degeneration* people may notice:

- The need for increasingly bright lighting when reading or doing close work
- Increasing blurred appearance of printed words
- A decrease in the intensity of colors
- Difficulty recognizing faces
- Gradual increase in the haziness of overall vision

With *wet macular degeneration*, rapidly progressing symptom may include:

- Visual distortions, such as straight lines appearing wavy or crooked, a doorway or street sign that seems misaligned, or objects appearing smaller or farther away than normal
- A decrease in, or loss of, central vision
- A dark, blurry spot or empty area in the center of the field of vision



With either form, sight may deteriorate in both eyes simultaneously, or only in one eye, while the other remains fine for years.

**If you experience any of these, contact your ophthalmologist immediately for a comprehensive examination.**

*Approximately 1.8 million Americans age 40 and older have advanced AMD. Another 7.3 million people with intermediate AMD are at substantial risk for vision loss. In fact, government researchers estimate that by 2020 there will be 2.9 million people with advanced AMD.*

## Risk Factors

Researchers don't yet know the exact causes of macular degeneration, however, a number of contributing factors have been identified. They include:

- **Aging.** Most macular degeneration occurs in people over age 50.
- **Family history.** AMD seems to have a genetic link.
- **Race.** AMD is more common in the Caucasian population than in other racial groups.
- **Sex.** Women are more likely than men to develop macular degeneration.
- **Cigarette smoking.** Exposure to cigarette smoke doubles the risk of macular degeneration.
- **Obesity.** Being severely overweight increases the progression of the disease.
- **Light-colored eyes.** People with light-colored eyes appear to be at greater risk than do those with darker eyes.
- **Exposure to sunlight.** Long-term exposure to ultraviolet light may increase the risk of developing AMD.
- **Nutritional deficiencies.** Low levels of minerals such as zinc, and of antioxidant vitamins, such as vitamins A, C and E, may increase risk.
- **Heart disease.** Conditions like high blood pressure, stroke, heart attack and coronary artery disease appear to be contributing factors in AMD.

## Prevention

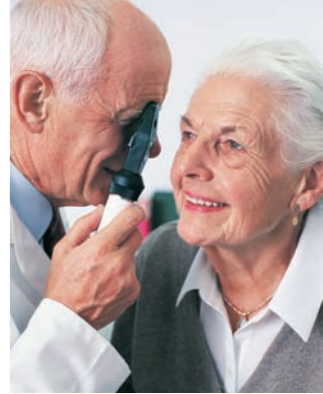
Obviously, we can't do anything about our racial makeup, genetic predispositions, or the fact that we're bound to get older. However, the following measures may help prevent or delay the progression of macular degeneration:

**Eat foods containing antioxidants.** Antioxidants are substances that prevent oxidative damage to tissue, such as the retina. A nutritionally balanced diet with plenty of leafy greens, fruits and other vegetables may

be among the most important factors in promoting good retinal health, especially for people in high risk groups. High levels of the antioxidants lutein and zeaxanthin, found in egg yolks, corn and spinach, may also help protect the retina, although this has not been clinically proven.

**Consider using nutritional supplements.** The recently conducted *Age-Related Eye Disease Study* (AREDS) revealed that for

people with moderate to advanced macular degeneration, taking high doses of zinc, beta carotene, vitamins A C and E, is effective in reducing the risk of further vision loss. However, it is important to talk to one's doctor before using any dietary supplements, particularly in large doses, since they may interact with other medications.



**Include fish in your diet.** Regular consumption of fish, which are rich in omega-3 fatty acids, can reduce the risk of macular degeneration. Use discretion, as certain types of fish may contain high levels of toxins and other contaminants.

**Wear sunglasses that block out harmful ultraviolet light.** Look for glasses that filter 99 percent to 100 percent of ultraviolet A (UVA) and ultraviolet B (UVB) rays.

**Stop smoking.** Smokers are more likely to develop macular degeneration than are non-smokers. If you smoke, ask your doctor for help in stopping.

**Manage other medical problems.** If you have heart disease or high blood pressure, for example, be sure to take your medication and follow your doctor's instructions for controlling the condition.

**Get regular eye exams.** Early detection of macular degeneration increases your chances of preventing serious vision loss. After age 60, an annual comprehensive eye examination is important to maintaining eye health, especially if you have family history of AMD.