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## **Macular Degeneration**

Degeneration (deterioration) of the part of the eye called the macula causes a loss of the center part of the visual field (central vision). Things you look at directly may seem blotted out, smudged or shrouded in a dark haze.

Fortunately, peripheral vision remains normal, so even severe macular degeneration does not lead to total blindness. You will still be able to see out of the sides.

Because the condition tends to appear later in life, it is also called age related macular degeneration, or ARMD. ARMD is the leading cause of poor vision in people over 60, though it can also occur at younger ages.

### **What is the Macula**

The macula is the center most part of the retina, the light-sensitive membrane of nerve tissue that lines the back of the eye. The retina is the "screen" upon which images are focused by the optical parts of the eye (cornea and lens).

Although it's no bigger than a pinhead, the macula contains the visual cells needed for sharp vision and for seeing straight ahead. If those cells are damaged, it becomes difficult or impossible to see fine detail and read small print.

### **What causes ARMD?**

Scientists have not yet learned why a macula that has functioned normally for many decades begins to degenerate. Long-term exposure to bright sunlight may be involved. Heredity is likely to play a role. Smoking definitely ages the macula. A diet low in fish, fruit, and dark green vegetables will make it worse.

There are two major types of ARMD, called dry and wet. Most patients have the dry type, which tends to develop slowly as the tissue beneath the macula gradually deteriorates. The wet type occurs when these tissue changes are accompanied by the formation of tiny abnormal blood vessels under the retina and these begin to leak fluid or bleed. This fluid causes changes in the vision, making objects look distorted or crooked.

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### **Symptoms**

The typical first symptom (either type) is blurring of vision in one or both eyes. When the blurring is gradual, you may think you need new glasses. But a new prescription is not likely to improve your vision because the problem is not with the optical part of the eye.

As time goes on, you may notice a hazy or dark zone in the center of objects you look at directly. And colors may begin to look different or lose richness. With the wet type especially, vision may become distorted and "wavy", so that straight lines, such as edges of doors and windows, look bent or crooked.

Any of these symptoms may be gradual or sudden, but the more abrupt changes are more likely to occur with the wet type.

### **Examination**

Your vision will be checked and you will have a complete eye exam. Your pupils will be dilated (enlarged) with the drops so that the inside of the eyes can be evaluated. Photographs may be taken of your retina. Pictures are useful in determining the extent of the problem and in evaluating its progression.

If you have a test called fluorescein angiography, an orange-colored dye will be injected into a vein in your arm and a rapid series of retinal photographs are taken as the dye travels through the eye's blood vessel. By identifying the position and extent of any abnormal blood vessels and any leakages, the angiogram provides important guidance for treatment.

### **Treatment**

So far, there are no medications for treating ARMD. Dietary supplements and vitamins have been suggested as a way to slow the degeneration, and this has been supported with scientific evidence. It slows the dry ARMD down by 10% a year and reduces the risk of getting the wet ARMD 20%.

Sometimes, in the early stages of the wet type of ARMD, a laser can be used to seal the leaks or to destroy the abnormal blood vessels near the macula. (Laser surgery does not help the dry type of ARMD). What is hoped for is the laser treatment will help stabilize or even improve vision. But please don't expect miracles. Once the blood vessels get under the macula, laser will not help because it will destroy the macula we are trying to save. Then we use injections of a medicine (Avastin®) to make the blood vessels shrink. This will have a 90% chance of improving or keeping the vision the same. The injection has some risk of infection, retinal detachment and others, but does prevent a lot of vision loss. The key is to detect the wet ARMD early so the injections can be started before too much vision has been lost.

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**What to expect**

ARMD usually comes on gradually or in small spurts over many months and then it slows down. Eventually, both eyes are likely to be affected; though the degeneration in one eye may precede the other, sometimes by years.

There is also the possibility that new “wet” changes will occur later, even after successful treatment, or they can develop in someone who originally had the dry type.

Sometimes the degenerative process stops before vision is reduced very much. Unfortunately, that does not happen often enough. In most cases, vision continues to decrease to the point that reading is hampered, and driving a car is no longer safe.

If vision drops to a level that cannot be improved with eyeglasses to better than 20/400 (the big “E” on the eye chart), the term legal blindness is used. But do not be frightened, since this is merely a legal definition used for determining eligibility for social services.

Remember, even if the degeneration is severe, side vision will remain normal. You should continue to see well enough to move about comfortably and care for yourself. Some patients even surprise everyone by being able to see and pick up small object from the floor. Many also experience good days and bad days.

**What you can do**

In addition to having regular eye exams, you should take a few seconds every day to check your own vision with an Amsler grid. This is a small card made up of crossing straight lines that form squares. If any of the lines start looking wavy or begin to have missing segments (which could indicate the beginning of wet changes that might be treatable); you should have your eyes examined the first chance you get. We will then do tests to see if you are getting the wet ARMD and start treatment as soon possible.

It is frightening to face the prospect of losing central vision. But you can learn new ways to use the sight you have to the best advantage. Most people quickly learn how to use their peripheral vision more effectively, which includes learning to look off center.

A Blind Association in your area can introduce you to non-optical aids, such a large-type books and magazines, large press-on numbers for your appliances, and even talking clocks. Devices such as the “Kindle” can change the size of the font that you are reading.

Prevention is the most vital point. We have available in our office “Lutea” brand of vitamins that reduce the ARMD. It has several antioxidants that slow the progression of ARMD. A healthy diet of fish, fruit, and spinach is also highly recommended. Finally, healthy living is key. Don't smoke. Monitor blood pressure and blood sugar levels. Use the Amsler Grid often and call if there are any changes.

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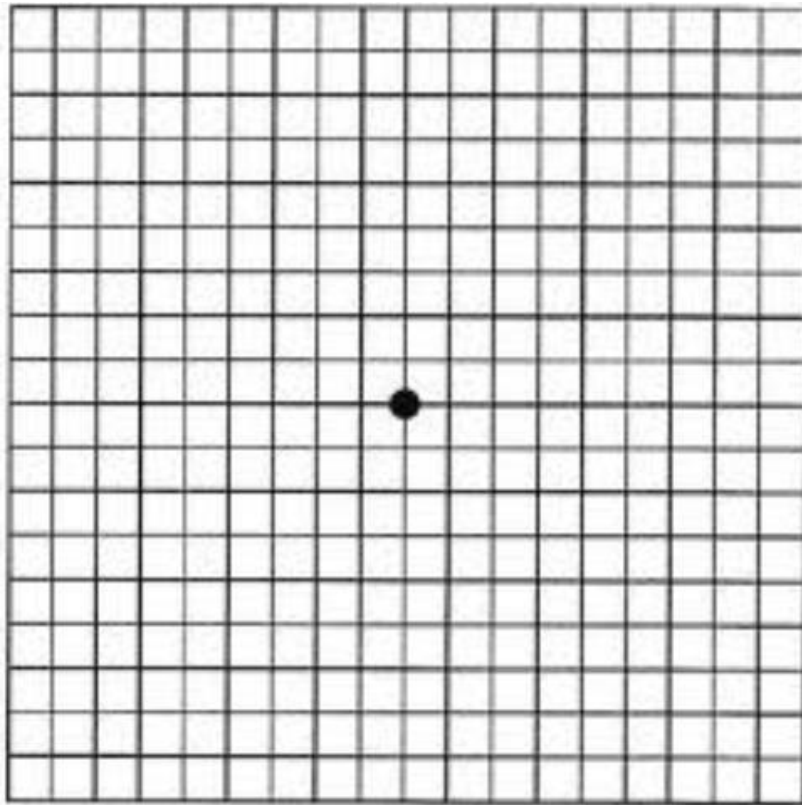
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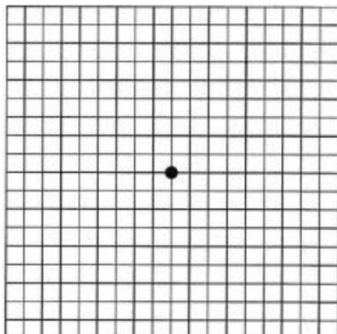
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**General Instructions**

1. If prescribed, take this test with reading glasses on, and view at 14 inches
2. Cover one eye with your hand and look at the black solid square in the center.
3. Test the opposite eye in the same manner.
4. If any of the lines or squares appear wavy, distorted, irregular, or if a blind spot appears during the testing of either eye, consult a licensed eye specialist



**Normal Vision**



**Abnormal. Consult your eye doctor immediately**

