

Macular Degeneration

Macular degeneration is a term that includes a variety of eye diseases that affect central vision. Age-related macular degeneration (AMD) is by far the most common form of macular degeneration. AMD is caused by a premature aging of the cells in the area of retina responsible for detailed central vision. This area of the eye is called the macula.

Age-related macular degeneration is the leading cause of legal blindness in people older than 55 years in the United States. The disease affects more than 15 million Americans, including 35% of Americans older than 75 years. Because overall life expectancy continues to increase, age-related macular degeneration has become a major public health problem.

Symptoms of macular degeneration include central visual blur, distortion of images, and blind spots near the central vision. An **Amsler Grid** (see page 64) is a useful tool to test the central visual field and to detect early vision problems due to macular degeneration. Early stages of AMD may have no visual symptoms at all.

Risk factors for age-related macular degeneration include increasing age, family history, and cigarette smoking.

There are two major types of age-related macular degeneration: The initial stage of macular degeneration is called **Non-exudative “Dry” macular degeneration**. In some patients, a more aggressive form of macular degeneration can develop, called **Exudative “Wet” macular degeneration**.

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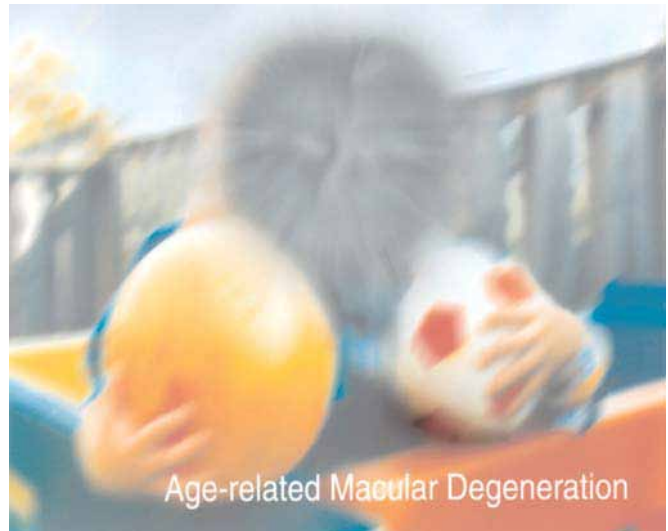
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Macular Degeneration



Photographs credit: National Eye Institute, National Institutes of Health

These photographs illustrate how macular degeneration might affect one's vision. The photograph to the right is blurred, distorted, and contains a blind spot in the middle of the image.

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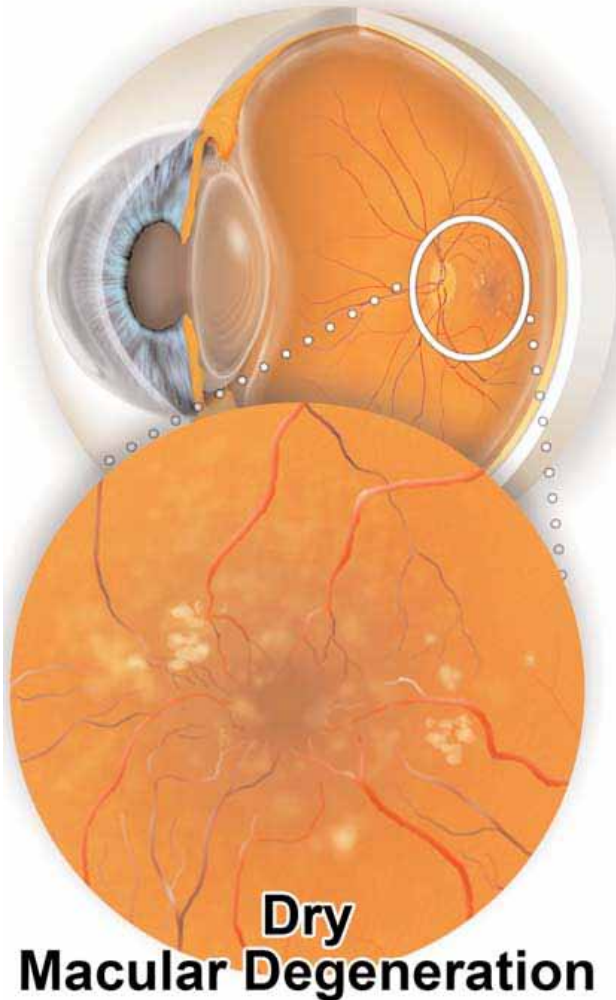
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Non-exudative (“Dry”) Macular Degeneration



Multiple, small, yellowish deposits develop underneath the central retina called **drusen**. Drusen are the main feature of dry macular degeneration. As drusen accumulate underneath the central retina in an area called the macula, the macula can become thin and the retinal cells begin to function poorly.

Many people with drusen have excellent vision and no symptoms at all. However, some develop mild to moderate vision loss if the drusen worsen and the retinal cells are significantly affected. When visual loss develops, this generally happens slowly over a period of years.

Most people with age related macular degeneration begin with the “dry“ form of the disease. The dry form accounts for 90% of all cases of age-related macular degeneration. Dry AMD progresses slowly, and most patients maintain useful vision throughout life.

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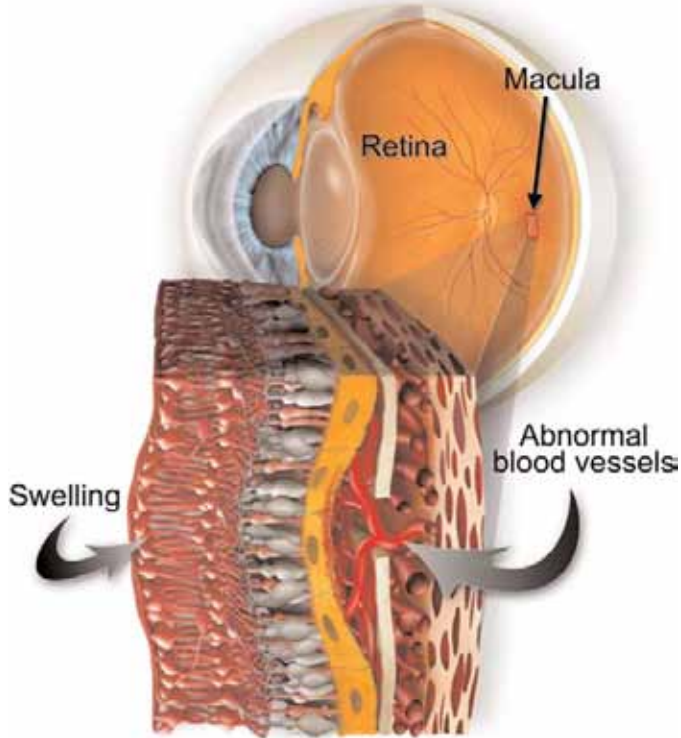
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Exudative (“Wet”) Macular Degeneration: Choroidal neovascularization – CNV

Abnormal leaking blood vessels



Newly-formed abnormal blood vessels, called **choroidal neovascularization**, are the hallmark of wet macular degeneration. These abnormal blood vessels grow between the retina and the deeper layers of the eye wall, in the area of the macula.

These blood vessels will spontaneously leak fluid, bleed, and scar the retina. This process causes distortion and damage of the central retina. Vision distortion, visual blur, and/or a blind spot can develop suddenly with the development of choroidal neovascularization.

Most patients who develop wet macular degeneration have some degree of preexisting dry macular degeneration. Although wet macular degeneration affects only 10% of people who have age-related macular degeneration, it accounts for the majority of people who have significant visual loss. More than 200,000 new cases of wet age-related macular degeneration occur each year in the US.

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Treatment: Macular Degeneration

Treatments: As there is no cure for aging, there is no cure for macular degeneration. However, proven treatments are available which can slow or halt the progression of the disease and sometimes improve vision in many patients.

1: Lifestyle Modifications: Smoking cessation is crucial in reducing the risk of AMD progression. Eating a diet rich in dark, leafy green vegetables and fish may also slow progression of the disease. Studies have shown that a poor diet and uncontrolled blood pressure could contribute to worsening of AMD.

2. Vitamins: The Age Related Eye Disease Study (AREDS) showed that antioxidants and vitamins reduce the risk of vision loss in patients with moderate to advanced “dry“ age-related macular degeneration. The nutrients evaluated by the AREDS are contained in several different formulations, which are now available over the counter. However, these formulations are not without risk. A consultation with your eye doctor is recommended to determine if vitamins may benefit you.

3. Injections: Several medicines have been proven effective for treatment of “wet” macular degeneration by injection directly into the eye. Lucentis®, Avastin®, and Eylea® are medications that are commonly used to treat “wet“ macular degeneration. These medications block a chemical substance that promotes the growth of abnormal blood vessels. Medication therapy is currently the area of most active research for AMD treatment.

4. Photodynamic Therapy: A light-activated drug called verteporfin (Visudyne®) is given intravenously. Shortly after the administration of the drug, a “cold” laser is used to close the abnormal vessels. Photodynamic therapy is used for treatment of “wet” macular degeneration.

5. Laser Treatment: Laser surgery was the first proven treatment for “wet” macular degeneration. Patients with neovascularization outside the center of vision may be treated with a “hot” laser to directly destroy the abnormal blood vessels. Only a small percentage of patients with “wet” macular degeneration are good candidates for this treatment.

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Prognosis: Macular Degeneration

The “dry” form accounts for 90% of all cases of AMD. Dry AMD progresses slowly, and most patients maintain useful vision throughout life.

The “wet” form comprises 10% of all cases of AMD. Wet AMD is a leading cause of irreversible legal blindness in patients older than 55 in the United States. Approximately 60% of those who lose vision in one eye lose some vision in the other eye as well. When both eyes have wet AMD, quality of life can be severely affected.

People rarely lose all of their vision from macular degeneration as the peripheral or side vision usually stays intact. Despite poor central vision, most people with macular degeneration are able to care for themselves and perform most of the activities of daily living.

Treatments for macular degeneration are constantly evolving. Research and a better understanding of the disease process have led to new treatments and better visual outcomes for patients with AMD. *With today’s treatments, the visual prognosis for macular degeneration is better than it has ever been.*

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