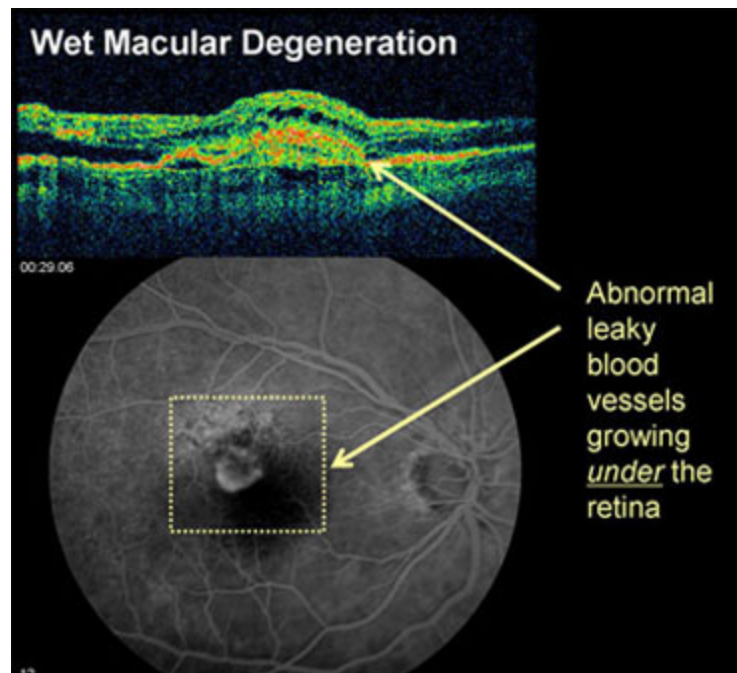




## Macular Degeneration

Macular degeneration is the most common cause of vision loss among people aged 65 years or older. It is estimated that 9-10 million Americans currently suffer from macular degeneration and that number will nearly double by the year 2050. It is not clear why some people develop macular degeneration and others do not, but certain familial genes may increase chances of developing this condition. Because this disease primarily affects the macula, which is the central part of the retina, people with macular degeneration can experience central vision loss. The vision loss in macular degeneration is painless. There are 2 forms of the disease: dry and wet.



### What is Dry Macular Degeneration?

The retina is a layer of nerve cells that lines the inside of the eye and enables the eye to see images, and the macula is the central portion of the retina. Dry macular degeneration occurs when toxic deposits of fat and protein material build up under the macula. These toxic substances make the layer of cells under the macula, cells that normally nourish the macula, to become sick. When the nourishing cells under the macula become sick, then the macula itself becomes sick. Think of the macula as healthy grass, and the nourishing layers under it as the soil. If toxic material is poured into the soil, the grass over that area becomes sick and can die.

Dry macular degeneration is much more common than wet macular degeneration, and most of the time, dry macular degeneration is mild to moderate and does not cause noticeable vision change. In severe cases, however, dry macular degeneration can lead to a large patch (or patches) of sick macula and there can be severe vision loss. Dry macular degeneration usually progresses more slowly than the wet form, but sometimes, it can turn into the wet form. For this reason, regular eye examinations and home testing using an Amsler grid (see below) are very important for people with dry macular degeneration.

## What is Wet Macular Degeneration?

Sometimes the damaged layers under the macula produce abnormal signals that trigger the invasion and growth of abnormal and leaky blood vessels in the space under the macula. Because of these abnormal signals, these blood vessels grow in a place where they do not belong (under the macula) and they leak fluid and blood into the macula. This is known as the wet form of macular degeneration.

Unlike the dry form, wet macular degeneration can progress rapidly and cause vision loss over days to weeks. Wet macular degeneration can also lead to scar formation under the macula, causing permanent vision loss. The best time to treat wet macular degeneration is early on, when significant vision loss has not yet occurred. Regular Amsler grid testing at home (see below) can often reveal early wet macular degeneration.

The doctors at The Retina Partners use the most advanced and most effective treatments for wet macular degeneration. Monthly injections into the eye of specialized molecular medicines (Lucentis™ and/or Avastin™) that counteract the growth and leakage of abnormal blood vessels can prevent severe vision loss up to 95% of the time. Also, 2 out of 5 people may even have a significant gain in vision with continued appropriate treatment. Other types of treatment, including laser photocoagulation (also called "hot" laser) and photodynamic therapy (also called "cold" laser) are also offered, and may be used in conjunction with injection therapy. Your doctor will evaluate the size, location, and type of leakage using specialized testing and develop a customized treatment plan with you.

## What is an Amsler grid?

An Amsler grid is a self-administered check on the health of the central visual function (the macula). It is recommended to monitor for changes in the area of retina that is involved in macular degeneration. If areas of new blood vessels develop or if leakage occurs ("wet" macular degeneration), then portions of the grid will become wavy, distorted, or grey/black spots of vision loss can occur. When these changes occur suddenly, it is important to notify your ophthalmologist right away. Early detection of wet macular degeneration offers the best chance for vision preservation through the prompt treatment when possible.

How to do the test: With your reading glasses on, the grid should be viewed from a comfortable distance used for reading. You should test one eye at a time by closing the other eye. Concentrate only on the central dot, but appreciate the character of the straight lines around the central dot out to the edges of the grid. Some distortion may exist. The key is to recognize new areas of distortion or blockage of the grid and to notify your ophthalmologist right away if any change occurs. The test should take no longer than a couple of seconds. We recommend taping it to the refrigerator door or inside a cupboard door which is well lit and used daily.

The doctors or staff would be happy to review this test with you during your visit.

## Vitamins and Macular Degeneration

Over the past 10 years, patients have been participating in a collaborative investigation between 14 different centers in the United States to try and answer this important question: Does vitamin supplementation decrease the risk of severe vision loss due to macular degeneration? This group, known as the Age-Related Eye Disease Study (AREDS), found that taking high levels of antioxidants and zinc reduced the risk of developing wet macular degeneration by 25% and reduced the risk of developing severe vision loss by nearly 20%.

The study also clarified which patients seemed to benefit the most from these supplements: Patients with drusen (age-related deposits under the macula), atrophy (or thinning) of retinal tissue, or patients with advanced macular degeneration in one eye.

A large number of commercially available vitamin supplements are sold over-the-counter. Below are the vitamins (and doses) known to be of benefit:

- Vitamin C (500 mg)
- Vitamin E (400 IU)
- Beta-carotene (15 mg)
- Zinc (80 mg)
- Copper (2 mg)

In addition, the following supplements may be of benefit:

- Lutein (up to 20 mg daily)
- Omega-3 / Fish oil (2 tablets daily)

**WARNING:** If you have smoked within the last 10 years, or if you recently quit smoking, it is recommended that you check with your primary care doctor before beginning these supplements. If you are a current or recent smoker, you should not take supplements containing vitamin A (beta-carotene) as this may increase your risk of developing lung cancer. All of the major vitamin preparations for macular degeneration have a special formulation designed for people who currently smoke or have smoked within the past 10 years. Please ask your doctor for more information.