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## Macular Degeneration

Macular degeneration is the leading cause of vision loss in the U.S. in people over 60 years of age. 90% of people with age-related macular degeneration (AMD) have "Dry" AMD, 10% have "Wet" AMD.

### "Dry" Age-Related Macular Degeneration

Age-related macular degeneration (AMD) is a disease caused by damage or breakdown of the **macula**, the small part of the eye's retina that is responsible for our central vision. This condition affects both distance and close vision and can make some activities (like threading a needle or reading) very difficult or impossible.

Although the exact causes of AMD are not fully understood, it *is* understood that the macular becomes thinned. A recent scientific study shows that antioxidant vitamins and zinc may reduce the effects of AMD in some people with the disease.

Among people at high risk for late-stage macular degeneration (those with intermediate AMD in both eyes or advanced AMD in one eye), a dietary supplement of vitamins C, E, and beta-carotene, along with zinc, lowered the risk of the disease progressing to advanced stages by about 25% to 30%. However, the supplements did not appear to benefit people with minimal AMD or those with no evidence of macular degeneration.

Light may affect the eye by stimulating oxygen, leading to the production of highly reactive and damaging compounds called **free radicals**. Antioxidant vitamins (vitamins C and E and beta-carotene) may work against this activated oxygen and help slow the progression of macular degeneration.

Zinc, one of the most common minerals in the body, is very concentrated in the eye, particularly in the retina and macula. Zinc is necessary for the action of over 100 enzymes, including chemical reactions in the retina. Studies show that some older people have low levels of zinc in their blood. Because zinc is important for the health of the macula, supplements of zinc in the diet may slow down the process of macular degeneration.

The levels of antioxidants and zinc shown to be effective in slowing the progression of AMD cannot be obtained through your diet alone. These vitamins and minerals are recommended in specific daily amounts as supplements to a healthy, balanced diet.

It is very important to remember that vitamin supplements are not a cure for AMD, nor will they restore vision you may have already lost from the disease. However, specific amounts of certain supplements do play a key role in helping some people at high risk for advanced AMD to maintain their vision. You should speak with your ophthalmologist (Eye M.D.) to determine if you are at risk for developing advanced AMD and to learn if supplements are recommended for you.

### "Wet" Age-Related Macular Degeneration

"Wet" refers to abnormal blood vessel growth that may leak and bleed. Researchers have found that a chemical called **vascular endothelial growth factor**, or **VEGF**, is critical in causing abnormal blood vessels to grow under the retina. Scientists have developed several new drugs that can block the trouble-causing VEGF. These are referred to as "anti-VEGF" drugs, and they help block abnormal blood vessels, slow their leakage, and help reduce vision loss.

Treatment with the anti-VEGF drug is usually performed by injecting the medicine with a very fine needle into the back of your eye. Your ophthalmologist (Eye M.D.) will clean your eye to prevent infection and will administer an

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anesthetic into your eye to reduce pain. Usually, patients receive multiple anti-VEGF injections over the course of many months. There is a small risk of complications with anti-VEGF treatment, usually resulting from the injection itself. However, for most people, the benefits of this treatment outweigh the small risk of complications.

Anti-VEGF medications are a step forward in the treatment of wet AMD because they target the underlying cause of abnormal blood vessel growth. This treatment offers new hope to those affected with wet AMD. Although not every patient benefits from anti-VEGF treatment, a large majority of patients achieve stabilized vision, and a significant percentage can improve to some degree.

Additionally, specific lasers may be used with or without dyes to destroy the abnormal blood vessels while destroying as little normal tissue as possible.