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## **Step 1:**

### **Decreasing Risk Factors for Macular Degeneration**

The following are helpful guidelines to help lower the risk of developing macular degeneration:

- **Do not smoke**
- **Exercise regularly**
- **Eat a diet rich in fruits and vegetables (see below) and low in saturated fat**
- **Control blood pressure and cholesterol levels**
- **Wear sunglasses and/or glasses that block the ultraviolet light. Use a brimmed hat or visor to decrease overhead light and glare.**

Due to the fact that macular degeneration is caused by multiple factors, including genetics and age, there is no absolute way to prevent macular degeneration from occurring or worsening. Anyone diagnosed with macular degeneration should continue to see their eye doctor as scheduled and monitor their vision with an Amsler grid on a daily basis. When using the Amsler grid, one eye should be tested at a time (cover one eye) and if any new distortion, decreased vision or black spots are noted on the grid, you should contact your eyecare professional as soon as possible and discuss the changes.

# Step 2

## Age Related Eye Disease Study (AREDS)

The Age Related Eye Disease Study was originally conducted through the National Eye Institute in the 1990's and the AREDS 2 study was concluded in 2013. The goal of taking supplemental vitamins for the eye is to slow and/or stop the progression of dry macular degeneration and help prevent a conversion from dry to wet degeneration.

The following vitamin supplements were found to be beneficial in reducing the risk of losing more vision due to macular degeneration in 25-30% of patients diagnosed with dry macular degeneration:

**Vitamin C:** Ascorbic Acid (500 mg) – best absorption into the body if taken a 250 mg twice a day. Vitamin C is a powerful anti-oxidant and prevents “free-radical” change that contributes to aging and aging-related diseases. Vitamin C is essential for growth and repair of tissue in all parts of the body.

- **Natural Food Sources High in Vitamin C:** orange juice, strawberries, oranges, Brussel sprouts, cauliflower and broccoli.

**Vitamin E** as di-alpha-tocopheryl (400 IU): Vitamin E is helpful in helping the body provide strong immunity and it is also an anti-oxidant and prevents “free-radical” change. Vitamin E causes blood thinning and your general physician should be consulted prior to taking high levels of Vitamin E if you are currently taking blood thinning medication.

- **Natural Food Sources High in Vitamin E:** wheat germ, wheat germ oil, olive oil, unprocessed vegetable oils (including cottonseed, soybean and safflower), beet & collard greens, spinach, red bell peppers.

**Zinc** (25 – 80 mg as Zinc Oxide): Zinc is distributed throughout our body and is an essential component to twenty enzymes associated with many different metabolic processes. Some of the highest concentrations of Zinc are found in the eye. Higher levels of Zinc (60 - 80mg) may affect the body's metabolism and your general physician should be consulted.

- **Natural Food Sources High in Zinc:** Although some Zinc is found in nearly all foods, the mineral is especially plentiful in oysters, meats,

poultry (especially dark meat), fish and other seafood, liver, lima beans (and other legumes).

**Copper** (1.6 - 2mg as Cupric Oxide): Copper is added to eye vitamin supplements to prevent deficiency, which may be associated with high levels of Zinc supplementation.

**Lutein** (10-20 mg): Lutein is found natural pigment found in the photoreceptors of the retina. The pigment acts as a natural filter and helps protect the photoreceptors (rods & cones) from light-generated free-radicals and can thus help slow down the progression of dry macular degeneration. Be aware that many brands of vitamins (i.e. Centrum Silver) contains only 0.25mg (250 micrograms) of Lutein. Also, FloraGLO Lutein is made from Marigolds and is considered very high quality which provides better safety and absorption.

- **Natural Food Sources of Lutein:** Green, leafy vegetables (such as kale, spinach, collard greens, turnip greens) corn, orange bell peppers and broccoli.

**Zeaxanthin** (2-4 mg): Zeaxanthin is a twin compound to Lutein and is also found in the photoreceptors of the human eye. Zeaxanthin also help protect the photoreceptors and may slow down the progression of dry macular degeneration.

- **Natural Food Sources of Zeaxanthin:** Green, leafy vegetables (such as kale, spinach, collard greens, turnip greens) corn, orange bell peppers and broccoli.

**Please Note:** High levels of **Beta-Carotene** (12,500 IU – converted to Vitamin A in the body) were included in the initial AREDS formulation. One study reported that high levels of beta-carotene may increase the risk of lung cancers in patients who were active smokers or who had previously smoked. For this reason, most eye vitamins contain minimal or no beta-carotene / Vitamin A (0-2,500 IU).