

## **Vitamin and Mineral Supplementation**

Patients and their doctors have often wondered if taking vitamin supplements could help prevent or minimize the effects of various diseases. Many small studies have suggested a link between vitamin supplementation and the prevention of certain eye diseases such as cataracts or age-related macular degeneration (ARMD). Unfortunately, many of these studies were not complete enough to answer some important questions.

Recently, the National Institute of Health completed a major study to address this question with regard to ARMD. The Age-Related Eye Disease Study (AREDS) followed 3,600 patients at 11 centers around the country over five years with various degrees of ARMD. Overall, the study found that patients who are at higher risk for advanced ARMD (loss of central vision), could decrease this chance by about 25% by taking certain anti-oxidant and zinc supplementation. Moreover, the safety of these supplements was carefully followed. These vitamins have become known as the "AREDS Formulation".

### **Who should take the AREDS Formulation?**

Your eye doctor will be able to tell by examining your retina whether or not you are at risk for developing advanced ARMD. Your eyes will need to be dilated in order to make this determination. The AREDS study found that those patients with little or no evidence of ARMD did not benefit from take the AREDS Formulation.

### **What are the dosages of the vitamins in the AREDS Formulation?**

The specific amounts studied were:

**500mg of Vitamin C**

**400IU of Vitamin E**

**15mg of Beta-Carotene** (often labeled as 25,000 IU of Vitamin A)

**80mg of Zinc** as Zinc Oxide

**2mg of Copper** as cupric oxide. Copper was added to help prevent copper deficiency anemia as a result of high zinc intake.

Also, two-thirds of the study participants took a daily multi-vitamin, such as Centrum Silver, and this was found to be safe. The AREDS Formulation is not a substitute for your daily multi-vitamin or other supplements you may be taking such as calcium or Vitamin D for osteoporosis. However, do not take additional supplements that are already included in the AREDS Formulation.

### **What are the benefits of taking the AREDS Formulation?**

While there is no "cure" or definitive way to prevent ARMD, the AREDS Formulation is effective at reducing one's risk of developing the most severe form of the disease. The supplements decrease a patient's chance of developing "wet" ARMD by about 25% over

a six year period. The Formulation was found to be effective only in those patients who already had evidence of moderate “dry” ARMD in one or both eyes, or “wet” ARMD in one eye only. Those with little or no evidence of ARMD did not benefit from the Formulation, and therefore these patients should not take it.

### **Are there any side-effects from taking the AREDS Formulation?**

Some patients taking the supplements had minor side-effects including urinary tract problems secondary to the zinc. Others noted mild yellowing of the skin secondary to the beta-carotene. Overall, there were no major side-effects noted.

### **Is it dangerous for current or former smokers to take the AREDS Formulation?**

Large clinical trials have demonstrated that beta-carotene increases the risk of lung cancer in current smokers. **Therefore, these patients should avoid taking the beta-carotene found in the AREDS Formulation.** Most of these patients were heavy smokers. There is no direct evidence that former smokers are at risk from beta-carotene, but given that these patients still have a heightened risk of lung cancer beyond the time they quit smoking, it would be reasonable for these patients to avoid high dose beta-carotene as well.

There are AREDS formulations available *without* beta-carotene.

### **Where can I find the AREDS Formulation?**

Most drug stores, Sam’s clubs or Costco carry versions of the Formulation. I generally recommend taking the Ocuville Preservision AREDS formula with or without beta-carotene (made by Bausch and Lomb), depending on the patient’s smoking history. The version without beta-carotene contains Lutein. These supplements come as an easy to swallow gel-cap that is taken as 1 gel-cap twice a day.

Other anti-oxidants, such as Bilberry, Lutein, Zeaxanthine, or Omega-Three fatty acids were not studied by AREDS and there is no definitive information on their possible benefits or safety.

The National Institute of Health is currently enrolling patients for a new trial called AREDS II to study some of these additional supplements.

For more information visit: [www.nei.nih.gov/amd](http://www.nei.nih.gov/amd).