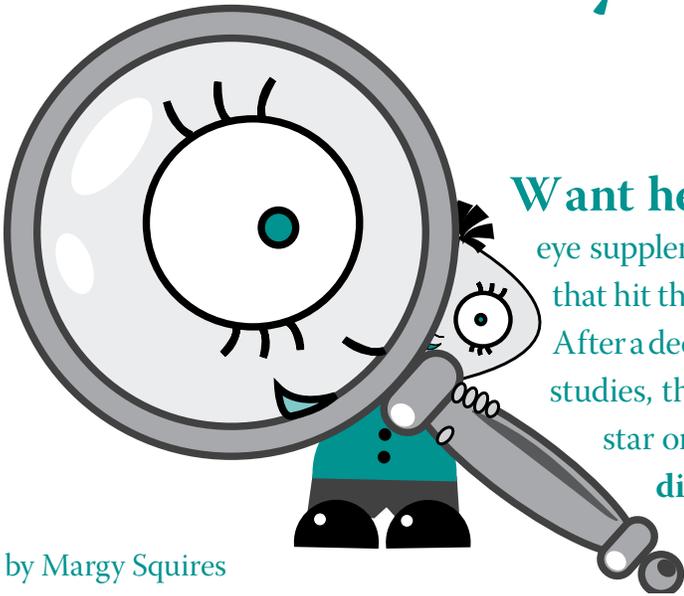


The Eyes Have It

Looking at Lutein

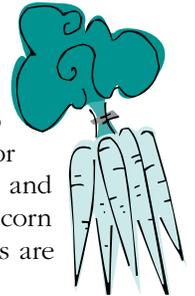


Want healthy peepers? Take lutein, one of the hottest eye supplements and for good reason. Although many super stars that hit the big time fade away into obscurity, lutein is here to stay. After a decade of more than 300 clinical trials and several landmark studies, this colorful carotenoid has already earned a permanent star on the supplement Walk of Fame. **The evidence is clear: diets high in lutein correlate to healthier eyes!**

by Margy Squires

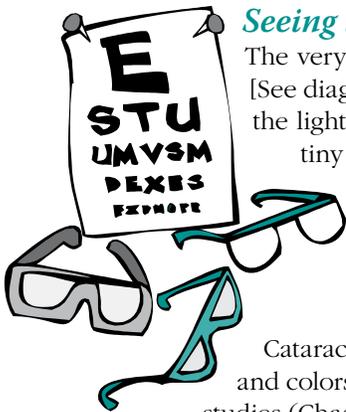
What is lutein?

Lutein is in a class of phytonutrients known as carotenoids. More than 700 carotenoids exist in nature, coloring fruits, veggies and plants with their brilliant pigments. Although 22 are found in humans, only two are specific to the eye, lutein (loo-teen) and zeaxanthin (ze-ah-zan-thin). Ever been told to eat carrots for good vision? Beta carotene, an orange carotenoid in carrots, is not even found in the eye! It seems lutein and zeaxanthin—also in carrots — may be the real stars. Lutein itself is yellow-gold, as evidenced in egg yolks, corn and Marigold petals. Its highest content, however, is in collard greens and spinach, although its rich hues are hidden by the green pigments.



Lutein and zeaxanthin are abundant in the retina and lens. They protect vision in two ways: 1) by blocking harmful high energy UV blue light and 2) lowering free radical (oxidative) damage.

Seeing is believing



The very act of seeing requires light entering through the pupil and refracted by the lens onto the retina. [See diagram on the next page.] The retina, a paper thin layer of nerve cells on the back of the eye, converts the light to nerve signals, sending them via the optic nerve to the brain to be converted to an image. The tiny center in the retina is the *macular lutea* or *yellow spot*. It's responsible for finely detailed, central vision. Two major eye diseases that affect vision are age-related macular degeneration or ARMD and cataracts. The risk of developing these two disorders increases with age, probably due to a cumulative exposure to UV light and oxidative damage. Ironic, isn't it, that light is a factor in giving you vision and taking it away?

Cataracts form by a clouding of the lens, dimming the light that hits the retina. Objects become blurred and colors fade. A common treatment is surgery, replacing the natural lens with artificial ones. Two Harvard studies (Chasan-Taber et al, Brown et al) published in the *American Journal of Clinical Nutrition* report a 22% decrease in cataracts in women and a 19% decrease in men when high lutein diets were consumed.

In ARMD, finely detailed central vision is compromised, although peripheral (side) vision is unaffected. ARMD limits your ability to read or write, drive and recognize Aunt Betty's face. The eye has trouble shifting from light to dark conditions and back. ARMD is progressive and silent. Vision loss can take up to 10 years to occur and starts as early as age 43. Approximately 13 million Americans have ARMD; 1-2 million are legally blind. Previously, no treatment was effective. Two landmark studies show hope for ARMD, both in treatment and prevention. In the 1994 study, the Harvard author recommended a diet high in lutein after an intake of 6 mg of lutein daily lowered the risk of ARMD by 43% (J. Seddon, *J Amer Med Assoc*). In the second study, (S. Richer et al, *Optometry*), researchers found that lutein and zeaxanthin actually reversed ARMD and increased macular density by 50% as well, compared to placebo takers.

Continued

The Eyes Have It

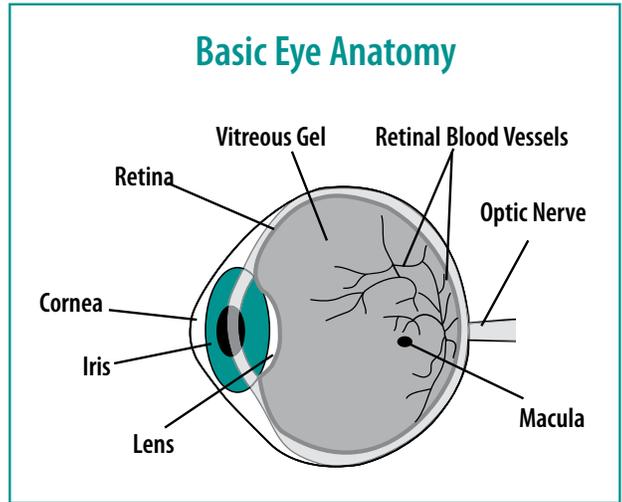
continued

Who's got the lutein?

Your body doesn't make lutein (although it can convert lutein to zeaxanthin if you have high enough levels.) That's why diet is a critical factor in supplying lutein for eye health. Unfortunately, too many Americans do not eat their daily quota of fruits and veggies, especially those high in lutein like collard greens, spinach, Brussels sprouts and broccoli! Only minute amounts are found in egg yolks and corn.

There are two forms of lutein that occur naturally via diet. Yellow-red fruits and veggies like papaya, peaches and squash contain esterified lutein (lutein bound to fatty acids). When we eat these foods, our bodies readily break apart the bound lutein esters to free form. Thus,

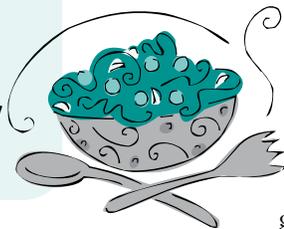
it makes sense that supplements would also come in both ester (bound) and unesterified (free) lutein. Marigold flowers is the principal source of both lutein forms. In one study from a carotenoid expert, lutein ester was just as bioavailable as free form, leading to the conclusion that "the bioavailability of lutein from supplements may depend to a great extent on industrial formulation and processing." (Bowen PE et al., *J Nutr* 2002;132:3668-3673).



Food Sources for Lutein/Zeaxanthin

(Approx 1 Cup)	(in mg)
Kale (raw)	26.5
Kale (cooked)	23.7
Spinach (cooked)	20.4
Collards (cooked)	14.6
Green peas (cooked)	4.1
Corn (cooked)	1.5
Broccoli (cooked)	1.6
Broccoli (raw)	1.3
Romaine lettuce	1.1
Green beans (cooked)	0.9

Source: www.ars.usda.gov 2005, 2007



I've often written about a supplement being as good as its bioavailability. The carotenoid family is absorbed like other fat-soluble substances (cholesterol, phospholipids like lecithin and even vitamins A, D and E). Taking a little fat in with esterified and free lutein helps absorption.

Specific studies confirm that patented Flora GLO[®] and Xangold[®] are as bioavailable as lutein-containing foods. The general dose for lutein in studies was 20 mg a day. Both lutein and zeaxanthin are listed on the FDA's *generally recognized as safe* or GRAS List. In fact, acceptable intakes up to 2 mg per kg of body weight (109 mg for a 120 pound person) were established by the Joint Food and Expert Committee on Food Additives. The committee (part of the Food and Agriculture Organization/World Health Organization) is internationally recognized for establishing the safety of food additives. Since higher daily intakes increase macular pigment density faster, and a denser macular is associated with greater eye health, lutein rules.

Healthy Eye Habits

Prevention is still the best medicine. Get a yearly eye exam, one that includes a retinal check. Blink more often. As we age, eyes may get drier. Make a conscious effort to blink to relubricate eyes, especially if you use a computer. Adding a beneficial oil such as Barlean's Organic Flaxseed Oil helps the fatty nerve membranes in retinal cells. Make sure you're getting plenty of sleep since fatigue shows up first in the eyes.

Reduce your exposure to free radical damage. Poor diet, smoking, alcohol, sugar, caffeine and inadequate sun protection contribute to free radical overload. Wear sunglasses with UV protection and consider a wide brimmed hat. Keep a control on blood pressure, diabetes and heart disease, which are medical risk factors. Aging is inevitable. Losing your eyesight is optional with a supplement like lutein around. Here's looking at you, kid!



References available by request. Email editor@e-tyh.com. ©2005-2010 TyH Publications (M. Squires)

Published in *Health Points*. This article is protected by copyright and may not be reproduced without written permission. For information on a subscription, please call TyH Publications, 1-800-801-1406 or write TyH Publications, 12005 N. Saguaro Blvd., Ste 102, Fountain Hills, AZ 85268. E-mail editor@e-tyh.com. For information on TyH products, visit our website at www.e-tyh.com.