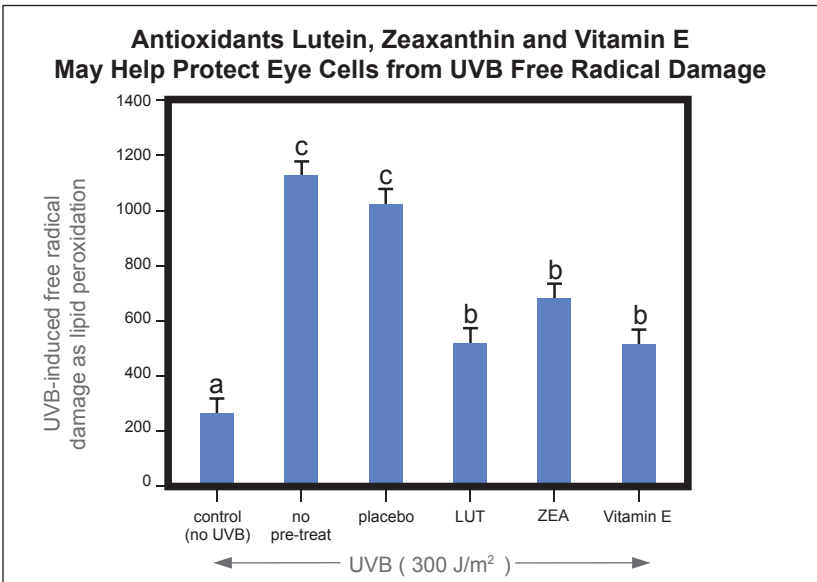


It is hypothesized that exposure to UVA and UVB rays may lead to various vision problems, both temporary and long-term, since these forms of radiation can trigger the formation of free radicals within the eye.<sup>31</sup> Given their wavelengths, shorter UVB rays tend to affect the eye's outer areas, like the cornea and the conjunctiva (the clear membranes that cover the iris, pupil and remaining surface of the eye). Longer UVA rays can penetrate all the way to the retina, and may be a key contributor to age-related vision problems.<sup>32, 33</sup>

Sunglasses can be effective against UV rays, but not all sunglasses offer full protection from both ultraviolet and blue-light rays. By neutralizing free radicals and absorbing blue light, lutein is believed to work as "internal sunglasses," complementing outer protective measures such as sunglasses



researchers suggested that lutein seemed to help maintain lens clarity.<sup>39</sup>

- In a small trial that investigated how antioxidants might benefit people with lens clouding, researchers reported that visual function in patients with age-related lens clouding appeared to improve with lutein supplementation.<sup>40</sup>

### Did you know?

Lutein and zeaxanthin are the only antioxidant carotenoids that are found in the eye's lens.

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*"I am 77 years young, with six children and 10 grandchildren. I play bridge and make greeting cards. Also I walk an hour every morning at 5 AM and when I get home, I walk my small dog. I read about lutein*



**Frances P.**  
**Sun City West, Arizona**

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*and a health magazine three years ago. Since my mom had eye problems I have been concerned that someday I too would have them. I take 40 mg of lutein every day along with my single blood pressure pill. I go to the Mayo Clinic for my eye health and I'm happy to report that just two weeks ago when I had my exam the doctor shared that my eyes were in great health, although he upgraded my prescription for glasses. I urge my friends to add lutein to their list of vitamins."*

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## VISUAL FATIGUE

Regardless of our age or our daily routine, our eyes work hard, constantly taking in images of various depths, colors, and complexities. As long as our eyes are open, they are busy doing their job at an amazing rate of function. It's understandable, then, that these overworked orbs may occasionally get tired. Research suggests that lutein may help to maintain visual performance during activities that may tire eyes. In a 2009 Japanese study, participants were given long proofreading tasks, having their eyes tested both before and after the work. The results led researchers to report considerable differences between the study groups, with the lutein group testing higher than the placebo group.<sup>41</sup>

### Did you know?

In its "Improve Your Game" online section, the United States Tennis Association gave the thumbs-up to lutein as a supplement, calling it "the 'new nutrient' for the eye." This recommendation makes sense considering how clear vision and sharp focus factor into peak tennis performance.<sup>42</sup>



and a hat. Perhaps even more importantly, lutein may help our defenses even when sunglasses and/or a hat are off, supporting eye health from the inside out. **Ongoing research suggests that lutein might act as a filter to help protect against light-induced free radical damage in eye tissues.**

## LUTEIN ANTIOXIDANT SUPPLEMENTATION TRIALS

In 2004, a group of researchers at the Medical Center Eye Clinic in Chicago, Illinois published the results of a lutein study known as LAST (Lutein Antioxidant Supplementation Trial). LAST involved 90 patients at a veterans' hospital with chronic age-related eye problems. One group of patients received 10 mg of lutein daily and another group received 10 mg of lutein along with other antioxidants and nutrients (including vitamins A, C, and E, among others). A third group received only a placebo.

At study's end, researchers suggested that 10 mg of lutein alone or with other vitamins and minerals **“significantly improved macular pigment optical density [MPOD] and glare recovery, improved near visual acuity, and significantly improved most measures of quality of vision.”**<sup>34</sup>

Three years later, the LAST II study built on these findings, as researchers reported that macular pigment optical density (MPOD) increased with lutein supplementation and decreased without it. Researchers made a particular point to note that “those individuals with lowest MPOD, and in greatest need of supplementation, were also most likely to benefit from either the lutein or the lutein plus antioxidant supplementation.”<sup>35</sup>

### Did you know?

Researchers have reported that lutein and zeaxanthin are even more powerful than the super-antioxidant vitamin E when it comes to protecting human eye lens cells from dangerous and damaging UVB rays.<sup>36</sup>

## LENS HEALTH

Like a camera lens, the lens of the human eye is in charge of bringing images being viewed into focus for the retina, making it another indispensable component of sight. Lens clouding is a relatively common problem that some people experience with age; exposure to ultraviolet rays and radiation are also associated with the condition. Some early research suggests that lutein may help to support lens health.

- In 1999, a study conducted at the Harvard School of Public Health concluded with researchers suggesting that increased intake of lutein and zeaxanthin might lower the incidence of significant lens clouding in men aged 45-75.<sup>37</sup>
- Another Harvard study that tracked over 35,000 women concluded with researchers reporting that higher dietary intakes of lutein/zeaxanthin and vitamin E from food and supplements were associated with significantly decreased risks of lens clouding.<sup>38</sup>
- In a Spanish study conducted in 2006 involving over 175 elderly people,