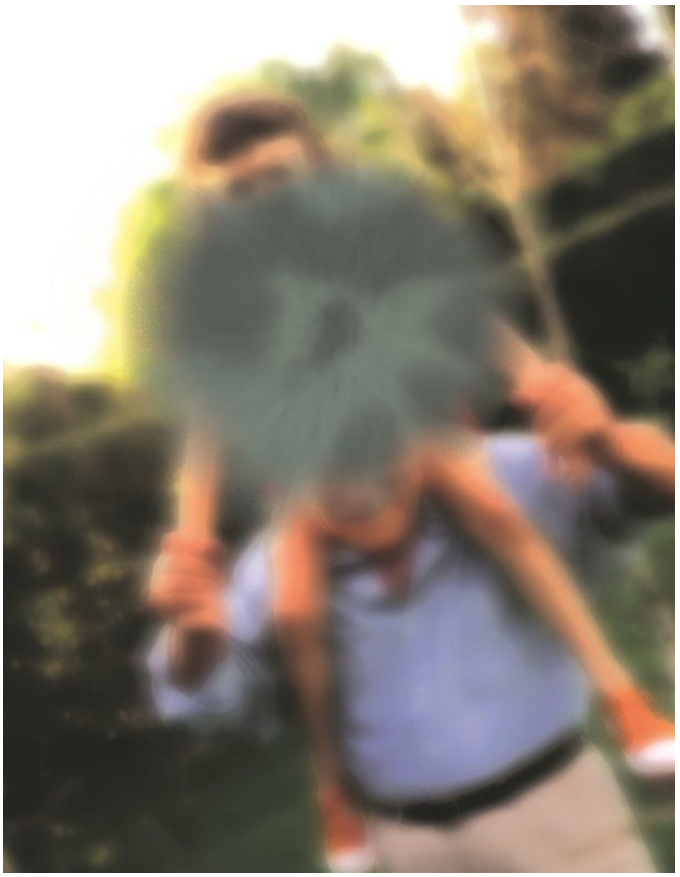
It takes more than eating carrots to keep our eyes healthy

It is well established that looking at the sun can cause damage to the retina in a manner of minutes. There are also studies that show chronic bright light exposure increases the risk of macular degeneration — a disease quietly becoming an epidemic in the baby boomer and older generations.

Age-related macular degeneration (AMD) is a loss of vision in the centre of the visual field — the area that allows us to see with the highest detail. It is a progressive disease of the retina that can start with blurriness and advance to profound loss of sight. It is the most common cause of vision loss in people over the age of 50. In fact, more than 12% of people over the age of 80 have some degree of it.



The disease can be diagnosed by evidence of yellow deposits beneath the retina that can be seen on an eye exam. These deposits are usually evident well before there are any signs of vision loss. Some of the risk factors for AMD can’t be controlled, such as genetics or age. Oxidative stress is believed to be a major contributor to the progression of AMD. This is the damage inflicted within cells by harmful byproducts of our metabolism called oxidants.

A major diet focus in the past decade has been on the consumption of antioxidants, molecules that neutralize the harmful byproducts. The retinal cells have the highest rate of metabolism in the body and, therefore, theoretically more susceptible to oxidative stress than other tissues. If not neutralized, these oxidants can trigger inflammation and even retinal cell death.

Healthy living can reduce oxidative stress. Studies have shown a decrease in inflammatory markers from both diet and exercise. Conversely, obesity and cigarette smoking are associated with higher levels of oxidants.

Most of us have never heard of regular exercise as a benefit for eye health. There is likely a synergistic effect of healthy living, as the women with the overall healthiest lifestyle also tended to have lower blood pressures and high blood pressure is a risk factor of AMD. Given that inflammation plays a role in the progression of AMD, one of the primary treatments is a steroid, one of the most potent medications to turn off the inflammatory process. The steroid is injected directly into the eyeball in a process I envision would be repeated only in horror movies. A more specific injection targets the growth factors that promote AMD and blocks their action. These drugs can slow the progression of the disease but are not expected to reverse it.

If the worst happens, there are a number of researchers developing retinal implants. There are teams working on stem cell implants. The first trials have been done and the results so far are not profound, but successful enough to encourage future development. Other teams are working on artificial implants with devices that are implanted in front of or behind the retina. Thus far, the best devices allow users to see light and recognize patterns.

Ideally, most of us won't ever need implants on our eyeballs. However, it takes more than eating carrots to keep our eyes healthy.

[Source]