



# Eye on Health

## From Outer Space To The Eye Clinic

(NAPSA)—A device developed for the space program is now also valuable for eye care patients as the first noninvasive early detection device for cataracts, the leading cause of vision loss worldwide.

Researchers from the National Eye Institute (NEI), part of the National Institutes of Health, and the National Aeronautics and Space Administration (NASA) collaborated to develop a simple, safe eye test for measuring a protein related to cataract formation. If subtle protein changes can be detected before a cataract develops, people may be able to reduce their cataract risk by making simple lifestyle changes, such as decreasing sun exposure, quitting smoking, stopping certain medications and controlling diabetes.

“By the time the eye’s lens appears cloudy from a cataract, it is too late to reverse or medically treat this process,” said Manuel B. Datiles III, M.D., NEI medical officer and lead author of the study. “This technology can detect the earliest damage to lens proteins, triggering an early warning for cataract formation and blindness.”

The new device is based on a laser light technique initially developed to analyze the growth of protein crystals in a zero-gravity space environment. NASA’s Rafat R. Ansari, Ph.D., senior scientist at the John H. Glenn Research Center and co-author of the study, brought the technology’s possible clinical applications to the attention of NEI vision researchers when he learned that his father’s cataracts were caused by changes in lens proteins.

Several proteins are involved in cataract formation. One known as alpha-crystallin binds to others, keeping them from forming a cataract. However, humans are



### **Out-of-this-world medical research may have a down-to-earth effect on sight.**

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born with a fixed amount of alpha-crystallin, so if the supply becomes depleted due to radiation exposure, smoking, diabetes or other causes, a cataract can result.

The technique may also prove useful in early detection of other diseases such as Alzheimer’s and Parkinson’s in which an abnormal protein may be found, added Dr. Ansari. “By understanding the role of protein changes in cataract formation, we can use the lens not just to look at eye disease but also as a window into the whole body.”

“This research is a prime example of two government agencies sharing scientific information for the benefit of the American people,” said NEI director Paul A. Sieving, M.D., Ph.D.

The DLS technique will now assist vision scientists in looking at long-term lens changes due to aging, smoking, diabetes, LASIK surgery, eye drops for treating glaucoma and surgical removal of the vitreous gel within the eye, a procedure known to cause cataracts within six months to one year. It may also help in the early diagnosis of Alzheimer’s disease, in which an abnormal protein may be found in the lens.

For more information, visit [www.nei.nih.gov](http://www.nei.nih.gov) and [www.grc.nasa.gov](http://www.grc.nasa.gov).