

Small Eye Movements Aid Sight, May Lead to Help for Lazy Eye

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By Elizabeth Lopatto

June 13 (Bloomberg) -- The small, involuntary eye movements that occur when people zero in on an object may help them see details, such as depth, scientists say. The discovery may help understand disorders such as lazy eye.

The eyes are in constant motion, and about 80 percent of that activity consists of "fixational eye movements," the jitters during times of intense focus. It wasn't known previously that these jitters were important for seeing space.

Conditions such as amblyopia, also called lazy eye, are characterized by the absence of such motion and the inability to judge depth correctly. Lazy eye shows up in childhood and can be corrected if treatment starts before the age of five years. After that, a full recovery becomes progressively more unlikely and the eye can cease to function.

"This may open new pathways for developing early diagnostics, as well as therapies that might repair and restore function for people with these disorders," said Susana Martinez-Conde, director of the Laboratory of Visual Neuroscience at the Barrow Neurological Institute in Phoenix. She wasn't affiliated with the study.

The study researchers, led by Michele Rucci, used volunteers with healthy eyes and normal vision. The scientists placed the participants' heads in rests to keep them perfectly still, then tracked the movement of their eyes as they viewed images. The researchers then moved the images at the same speed and in the same direction as the eye during its jitters.

"These movements, they're not just noise," Rucci said in a telephone interview yesterday. "They're an important component of how we process visual information."

Ignored

The movements have mostly been ignored in diagnosis and therapy because it wasn't clear what they did for the visual system, Martinez-Conde said. Previous research from her lab showed that the eye movements prevented the images from fading from view when people looked at them for longer periods of time.

Rucci's paper will be published in tomorrow's issue of the journal *Nature*.

Though early treatment can provide correction, lazy eye is the most common cause of blindness or partial blindness with no underlying disease in people older than 20, said Martinez-Conde.

Treatment includes having a child wear a patch on the normal eye or blurring it with drops to train the lazy one, or even surgery.