

Eye-Twitching Might Be Necessary for Seeing

Posted By topeditor On 17th July 2007 @ 18:57 In [Global](#) | [1 Comment](#)



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Researchers might finally have explained an oddity about eyesight that has flummoxed scientists for decades: why eyes seem to twitch involuntarily, [1] [Scientific American reports](#) (*subscription required*). Those frequent flickers were once thought to be random, but now scientists say that the process could be essential for observing stationary objects. Since the 1800s, scientists have observed that when people deliberately focus on a stationary image, other parts of the image seem to fade away.

In recent decades, scientists have begun to suspect that human eyes make imperceptible movements as a way of adapting to the challenge of seeing stationary objects. Susana Martinez-Conde and Stephen Macknik, both of the Barrow Neurological Institute in Phoenix, write how recent experiments suggest that the largest of the eye's involuntary tics, called microsaccades, are in fact essential to seeing. In one experiment, scientists found that the eye movements of volunteers became smaller and less frequent before the participants reported that an optical illusion on a screen faded from their view. The eye movements accelerated just before the image reappeared. Researchers think that the miniature eye movements help stop an image from fading, and serve as a signal to the brain that something out there is visible.

The findings might eventually help doctors treat problems that are associated with either too high or too low a rate of involuntary eye movement, such as "lazy eye," which causes people to lose the ability to perceive details, and is the most common cause of vision loss in one eye among 20- to 70-year-olds. Involuntary eye movement also might expose individuals' subliminal thoughts. Recent research suggests that microsaccades may twitch in the direction of objects that attract interest, even if a person's focus is elsewhere. Thus, the authors say, "No matter how hard you might avert your eyes from the last piece of cake on the table or the attractive male or female standing across the room, the rate and direction of your microsaccades betray your attentional spotlight." – *Robin Moroney*

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