

## Isia Leviant's famous optical illusion is no longer an 'Enigma'

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Neuroscientists in Arizona, U.S., say that it is because of constant tiny movements of the eyes that concentric circles in Isia Leviant's painting 'Enigma' appears to be flowing before onlookers.

Susana Martinez-Conde, who led the study at the Barrow Neurological Institute in Phoenix, came to this conclusion after testing the effect of the involuntary jerks of the eyes, scientifically known as microsaccades.

Though the purpose of such jerks is not fully understood, the rate of such movements is known to vary naturally.

During the course of study, three subjects viewed Enigma, and cameras were simultaneously used to record their eye movements 500 times every second.

The participants had to press a button when the speed of the optical "trickle" of the illusion appeared to slow down or stop, and release it when the trickle seemed faster.

Accounting for the reaction time required to press the button, the researchers found that the illusion became more pronounced when microsaccades were happening at a faster rate.

The illusion vanished when the rate slowed to a stop, the team said.

Martinez-Conde says that her team's findings run counter to previous suggestions that eye movements were not responsible for the effect.

In a previous study, the participants were given contact lenses with tiny stalks attached that held a version of the illusion, ensuring, the team thought, that it was always stationary relative to the eye.

The volunteers still experienced the illusion, suggesting that the brain actually caused the phenomenon.

However, that study did not take into account the effect of microsaccades because the contact lenses do not keep pace with the eye during such rapid, jerky movements.

"We can now rule out the idea that the illusion originates solely in the brain," *New Scientist* magazine quoted Martinez-Conde as saying.

She further said that the research might help understand other similar illusions, such as Bridget Riley's *Fall*, or the *Ouchi* illusion.



"It would be unexpected if Enigma is the only illusion affected by eye movements," she said.

The researcher, however, admitted that her team was still unclear as to what brain processes link the eye movements and the perception of an illusion, something for which they were planning to conduct new experiments.

The study has been published in the journal *PNAS*. (ANI)

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