

EYES ATREMBLE

For a century, neuroscientists have been trying to solve a seemingly simple mystery: Why do we see as well as we do? Our eyes are not that structurally different from those of other animals, yet we are almost unmatched in our ability to detect fine details, like the ridges on the side of a dime. Part of the answer seems to lie in the fact that our eyes are in constant, jittery motion, without our even knowing it. But the phenomenon has been difficult to study because it requires that either the eye or the image on the retina be stabilized, which doesn't occur naturally.

To cancel out the effects of the eyes' natural movements, Michele Rucci and his Boston University team used a computer system that jiggles images in tandem with a viewer's eyes. They found that subjects' ability to decipher tiny details in test patterns decreased by nearly 20 percent. It may be that jerky motions are the most efficient way for our eyes to process complex images. This finding may be a key to understanding our baffling visual abilities, says Susana Martinez-Conde, director of a visual neuroscience lab at Barrow Neurological Institute in Arizona. "It could have implications that we don't know much about today."

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