

Looking at something can change our perception of time

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Human eyes are constantly moving. Most people make more than 10,000 eye movements every hour – adding up to more than 160,000 in an average waking day. Many of these eye movements are quite reflexive. Something catches the corner of your eye, and you move your eyes rapidly to that event to look at it directly. These rapid eye movements are called saccades. Sometimes, of course, eye movements are voluntary, as when looking carefully at a painting in a museum, for example.

New research from Dr. Yoshiko Yabe and her colleagues has demonstrated when these [eye movements](#) occur, the perception of time just before the initiation of the saccade is distorted – and this distortion is more pronounced for reflexive than for voluntary saccades. It has been known for a while that if two visual events occur just before the eyes are moved to a target, the timing of the events is misperceived: The interval between them is often perceived as shorter than it really is, and the order in which they occurred is sometimes reversed. The new experiments by Dr. Yabe and colleagues show that this distortion is significantly worse when the eyes are grabbed by a sudden stimulus than when they are moved voluntarily.

The brain mechanisms underlying this misperception of time are unknown. But the fact that the error rate is reduced when the target is already present in the scene, as would be the case with a voluntary saccade, suggests that how the brain encodes the position of the target is crucial to how we perceive timing of visual events. The present study may provide a new window through which to investigate how distortions in space and time arise – and what they might tell us about how the brain encodes visual information about the world.

More information: "Temporal order judgments are disrupted more by reflexive than by voluntary saccades." Yabe Y, Goodale MA, Shigemasa H.

Journal of Neurophysiology 2014. [DOI: 10.1152/jn.00767.2013](#).

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