

Impaired visual signals might contribute to schizophrenia symptoms

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By observing the eye movements of schizophrenia patients while playing a simple video game, a University of British Columbia researcher has discovered a potential explanation for some of their symptoms, including difficulty with everyday tasks.

The research, published in a recent issue of the *Journal of Neuroscience*, shows that, compared to healthy controls, [schizophrenia](#) patients had a harder time tracking a moving dot on the computer monitor with their eyes and predicting its trajectory. But the impairment of their [eye movements](#) was not severe enough to explain the difference in their predictive performance, suggesting a breakdown in their ability to interpret what they saw.

Lead author Miriam Spering, an assistant professor of ophthalmology and visual sciences, says the patients were having trouble generating or using an "efference copy" – a signal sent from the eye movement system in the brain indicating how much, and in what direction, their eyes have moved. The efference copy helps validate visual information from the eyes.

"An impaired ability to generate or interpret efference copies means the brain cannot correct an incomplete perception," says Spering, who conducted the dot-tracking experiments as a postdoctoral fellow at New York University, and is now conducting similar studies at UBC. The brain might fill in the blanks by extrapolating from prior experience, contributing to [psychotic symptoms](#), such as [hallucinations](#).

My vision would be a mobile device that patients could use to practice that skill, so they could more easily do common tasks that involve [motion perception](#), such as walking along a crowded sidewalk.

"But just as a person might, through practice, improve their ability to predict the trajectory of a moving dot, a person might be able to improve their ability to generate or use that efference copy," Spering says. "My vision would be a mobile device that patients could use to practice that skill, so they could more easily do common tasks that involve motion perception, such as walking along a crowded sidewalk."

Provided by University of British Columbia

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