Relatives of individuals with autism tend to display abnormal eye movements

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Abnormal eye movements and other sensorimotor and neurobehavioral impairments appear common in unaffected family members of individuals with autism, according to a report in the August issue of *Archives of General Psychiatry*.

"Autism is a highly heritable neurodevelopmental disorder with considerable genetic and phenotypic heterogeneity," the authors write as background information in the article. "Its core behavioral features include social and communication impairments, behavioral inflexibility and executive dysfunction." Several sensorimotor features have also been shown to be abnormal in some patients with autism. Common impairments include deficits in saccades, or rapid eye movements that shift between objects in the field of vision, and smooth-pursuit eye movements, in which the gaze is stabilized on a slowly moving object.

Matthew W. Mosconi, Ph.D., and colleagues at the University of Illinois at Chicago conducted eye movement testing and other assessments of neurobehavioral function in 57 first-degree relatives of individuals with autism. Their results were compared with those of 40 individuals who were the same age, sex and had the same IQ but did not have a family member with the condition.

When compared with controls, family members of individuals with autism tended to perform more slowly and less accurately on eye movement tasks, including those assessing saccades and smooth-pursuit eye movements. "The present findings document that first-degree

relatives of individuals with autism demonstrate a unique pattern of oculomotor impairments similar to that previously reported in independent samples of individuals with autism, suggesting that these alterations within sensorimotor and cognitive brain circuitry may be familial traits," the authors write.

"Family members also demonstrated executive dysfunction on neuropsychological tests, communication abnormalities and increased rates of obsessive and compulsive behaviors, but these were independent from one another and from oculomotor impairments," they continue.

The abnormalities were associated with several brain pathways—including the cerebellar, frontotemporal, striatal and prefrontal circuits—that have been linked to autism, some of which are important for language skills, motor control and executive function, or the control and regulation of behavior. The results suggest that these potentially familial deficits could be "useful for studies of neurophysiological and genetic mechanisms in autism," the authors conclude. "Further work is needed by way of replication of our findings, quantitative evaluation of the familiality of these traits in family trios and efforts to demonstrate association of oculomotor and other phenotypes with genetic mechanisms."

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