

Autism's earliest symptoms not evident in children under 6 months

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A study of the development of autism in infants, comparing the behavior of the siblings of children diagnosed with autism to that of babies developing normally, has found that the nascent symptoms of the condition -- a lack of shared eye contact, smiling and communicative babbling -- are not present at 6 months, but emerge gradually and only become apparent during the latter part of the first year of life.

Researchers conducted the study over five years by painstakingly counting each instance of smiling, babbling and eye contact during examinations until the children were 3. They found that by 12 months the two groups' development had diverged significantly. Intentional social and communicative behavior among children developing normally increased while among [infants](#) later diagnosed with [autism](#) it decreased dramatically. The study is published online early and will appear in the March issue of the *Journal of the American Academy of Child & Adolescent Psychiatry*.

"This study provides an answer to when the first behavioral signs of autism become evident," said Sally Ozonoff, the study's lead author, a professor of psychiatry and behavioral sciences and a researcher with the UC Davis MIND Institute. "Contrary to what we used to think, the behavioral signs of autism appear later in the first year of life for most children with autism. Most babies are born looking relatively normal in terms of their social abilities but then, through a process of gradual decline in social responsiveness, the symptoms of autism begin to emerge between 6 and 12 months of age."

Autism is a pervasive developmental disorder of deficits in social skills and communication, as well as in repetitive and restricted behaviors, with onset occurring prior to age 3. Abnormal brain development, probably beginning prenatally, is known to be fundamental to the behaviors that characterize autism. Current estimates place the

condition's incidence at between 1 in 100 and 1 in 110 children in the United States.

Children with a sibling already diagnosed with autism are known to be among those at greatest risk of developing the disorder. The current study included 25 high-risk children who met criteria for autism at 3 years of age, matched with 25 low risk peers who were developing normally. It was conducted at the MIND Institute and the University of California, Los Angeles. The sole inclusion criterion for the high-risk group was having a sibling with autism; low-risk participants had to have been born after 36 weeks gestation and have no autistic family members.

The children's development was evaluated at 6, 12, 18, 24 and 36 months of age using a series of widely implemented diagnostic tools, including the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R). Examiners were not told which babies were at high- or low-risk when evaluating the participants' development.

The researchers found that there were few discernable differences between the two groups at the outset but that after six months, 86 percent of the infants who developed autism showed declines in social communication that were outside the range for typical development. "After six months," the study found, "the autism spectrum disorder group showed a rapid decline in eye contact, social smiling, and examiner-rated social responsiveness." Group differences were significant by 12 months in [eye contact](#) and social smiling and all other measures by 18 months, the study found.

The study is notable because of the accuracy and precision of its prospective methodology, assiduously recording exact numbers of social and communicative behaviors during lab visits. Previously, researchers have constructed evidence

of autism's earliest manifestations by interviewing parents about when they believed their children's symptoms first arose or by reviewing home movies for clues to when children begin exhibiting symptoms of autism.

"Until now, research has relied on asking parents when their child reached developmental milestones. But that can be really difficult to recall, and there is a phenomenon called the "telescoping effect" where people usually say that they remember something happening more recently than when it occurred," Ozonoff said. In addition parents frequently will turn off the video camera when their children are behaving poorly — precisely when autistic symptoms may appear.

Ozonoff said that the study provides a deeper understanding for parents, caregivers and health-care providers and for future research of the developmental trajectory for very young children with autism.

"We need to be careful about how we screen, and we need to know what we're looking for," Ozonoff said. "This study tells us that screening for autism early in the first year of life probably is not going to be successful because there isn't going to be anything to notice. It also tells us that we should be focusing on social behaviors in our screening, since that is what declines early in life."

"This study also found that the loss of skills continues into the second and third year of life," she said. "So it may not be adequate, as the American Academy of Pediatrics currently suggests, that providers screen for autism twice before the end of the second year. Autism has a slow, gradual onset of symptoms, rather than a very abrupt loss of skills."

"Screening may need to continue into the third year of life, since symptom emergence takes place over a long time. If a child starts exhibiting a declining trajectory and a sustained reduction in social communication we want to refer them into therapy, especially if they are at risk," Ozonoff said, "even before we might be able to make a definitive diagnosis."

Ozonoff said that the study does not address the etiology of autism or causality. In this study, the infants who participated were at high risk due to having strong family histories of autism, suggesting that genetics play a major role in the later autism diagnoses, despite the fact that their symptoms were not apparent at birth.

Provided by University of California - Davis

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