

Unusual use of toys in infancy a clue to later autism

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Researchers at the UC Davis M.I.N.D. Institute have found that infants later diagnosed with autism exhibited unusual exploration of objects long before being diagnosed. Studying a group of children at high risk for developing autism, the researchers found that those eventually diagnosed with the disorder were more likely to spin, repetitively rotate, stare at and look out of the corners of their eyes at simple objects, including a baby bottle and a rattle, as early as 12 months of age.

These findings could help pediatricians diagnose and treat autism earlier, reducing some of the social and educational challenges associated with the disorder.

"There is an urgent need to develop measures that can pick up early signs of autism, signs present before 24 months," said M.I.N.D. researcher Sally Ozonoff, first author of the current study, which was published in the October issue of *Autism*, the journal of the National Autistic Society.

The American Academy of Pediatrics has recommended that all infants be screened for autism twice before their second birthdays. Currently, pediatricians look for the hallmark social and communication signs of autism, which include language delays and lack of interest in people.

"The finding that the unusual use of toys is also present early in life means that this behavior could easily be added to a parent check-list or quickly assessed during a visit to a pediatrician's office," Ozonoff said.

The study involved 66 one-year-old infants. Nine of the children were later diagnosed with autism. Seven of the nine children displayed significantly more spinning, rotating and unusual visual exploration of objects than typically developing children.

"We found that these behaviors were relatively rare in the contrast group, but very high in the group who later developed autism," Ozonoff said.

Current screening tests focus on social-communicative behaviors like responding to name, making eye contact and word learning. These measures accurately distinguish children developing autism from children who are developing as expected.

The average age of autism diagnosis in the United States is three years of age or older. Interviews with parents, however, have shown that signs of autism often are present long before the diagnosis is made.

"About a third of parents notice signs before a child's first birthday," Ozonoff said. "We felt that our field could do a better job at early diagnosis, so we decided to look at multiple candidates for early screening and early detection," she explained.

Ozonoff and her colleagues decided to look at repetitive behaviors that previous studies indicated developed later than two years of age. These retrospective studies, however, relied on the memory of parents whose children were ultimately diagnosed with autism.

"We wanted to directly test whether or not repetitive behaviors so characteristic of autism might actually be apparent earlier and therefore useful in early diagnosis," Ozonoff said.

In contrast to previous research, the current prospective study began with

a group of 12-month olds who had not received any diagnosis. The study group included infants from families who had either an older child diagnosed with autism or an older child developing typically.

To approximate the skewed gender ratio of autism in the real world, 62 percent of the infants enrolled were male. The children in the study were presented with four objects — a metal lid, a round plastic ring, a rattle and a plastic baby bottle — one at a time for 30 seconds each while being videotaped.

Researchers blind to the outcomes coded the behaviors in the tapes. The children were screened for autism at 36 months. Ozonoff and her colleagues found that children later diagnosed with autism were more likely to repeatedly spin and rotate objects. They were also more likely to explore objects in unusual ways, like glancing sideways at them or staring intently at them for prolonged periods.

"Our results suggest that these particular behaviors might be useful to include in screening tests," Ozonoff said.

More research involving more infants will have to be done first. Ozonoff and her colleagues have already begun a larger five-year study that also includes a high-risk sibling group like the one used in the current study.

"We will also want to check that we find the same results in a random community sample," she said.

These kinds of long-term studies, Ozonoff said, are the keys to improving early detection and diagnosis of autism.

"The earlier you treat a child for autism, the more of an impact you can have on that child's future," she said.

Source: University of California - Davis

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