

UCLA Uncovers Autism Defect: Autism Study Breaks New Ground

By Dana Bartholomew for the LA Daily News

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Children with autism lack a key brain activity that would normally help them understand the feelings and intentions of others, according to a groundbreaking study by UCLA researchers.

New magnetic imaging research has shown that, unlike in normal children, the mirror neuron system in autistic children fails to work while they imitate and observe emotions.

The UCLA study, published Sunday in the journal *Nature Neuroscience*, supports evidence that social problems associated with autism are caused by a neurological defect.

"We're really excited," said Mirella Dapretto, the study's lead author and assistant professor in residence of psychiatry and biobehavioral sciences at the Semel Institute for Neuroscience and Human Behavior at University of California, Los Angeles.

"This supports a theory that really accounts for the wide range of core symptoms of autism." Normally, mirror neurons fire when a person takes action or observes the same action taken by others. For example, when a girl skips rope, her mirror neurons fire in the inferior frontal gyrus of the brain. When observed by a nonautistic friend, his mirror neurons become active, as well.

New studies suggest such brain activity leads us to automatically understand what people intend and how they feel.

Autistic children, however, often misunderstand verbal and other cues suggesting anger, joy or other emotions in others. In short, they lack a mature sense of empathy.

What UCLA researchers found was that the more autistic symptoms a high-functioning autistic child demonstrated, the less his or her mirror neuron system functioned.

Researchers at the Semel Institute compared 10 high-functioning autistic children ages 10 to 14 with 10 normally developing peers using functional magnetic resonance imaging (MRI) to measure brain activity.

During the study, each child was asked to imitate and observe 80 photographs depicting various Advertisement emotions - anger, fear, happiness, sadness. Unlike the developing children, those with autism had virtually no significant activity in the part of the brain where the mirror neurons function.

"This study proves that the system is dysfunctional in autism and children with autism," Dapretto said. "It opens the way for new ideas and treatments and insights into autism."

Educators of autistic children lauded the new study, saying it will help in the early intervention of autism. They also said its findings could help fund further research into autism spectrum disorders.

"It allows people to understand what it is that stands in the way of (autistic) children," said Laura Stephens, a psychologist who heads the autism spectrum disorder program at The Help Group, which administers three schools for children with autism in Sherman Oaks.

"What it really does show is that what these children are capable of is imitating facial expressions. What they're not doing is processing their emotions. They can do the basics, but they can't understand (them)."

The Help Group - which runs Village Glen, Bridgeport and Sunrise campuses - is one of the few schools in the nation to train students in such social skills as eye contact, facial expressions, tone of voice and body language to "rewire" the child's brain.

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