

NEWS

Cognition and behavior: Complex response to faces in autism

BY JESSICA WRIGHT

8 NOVEMBER 2013

Mind bend: Children with autism perform as well as controls when discriminating between morphed and original images, suggesting they don't have a deficit in face perception.

Two studies published in the past few months show that face-processing deficits in people with autism are complex and may depend on the task.

The first study, published 21 August in *Developmental Cognitive Neuroscience*, shows that children with autism have similar brain activity to controls when describing emotions elicited by photographs¹. Previous studies in adults with autism have found the opposite to be true². Unlike those studies, the researchers in the new study showed the children only a few photographs, relatively slowly, and asked simple questions.

Several studies have shown that children and adults with autism struggle to recognize and **identify faces** and **emotions**. Although these deficits have become nearly synonymous with autism, the new study suggests that they are complex symptoms that may **vary with the experiment**.

The researchers showed 26 typically developing children photographs of social situations while the children were in a functional magnetic resonance imaging scanner. They asked the children whether the pictures made them feel good or bad, and how the people in the pictures felt. They also showed pictures of scenes, asking if these were taken inside or outside.

In this group, certain brain regions were active primarily when the children described emotions. These areas — which include the superior temporal sulcus and the inferior frontal gyrus — are well established as emotion-processing regions.

The researchers then performed the same experiment with another set of 16 controls and 17 children with autism, aged 10 to 18 years. They found no significant differences in activity in these same regions between the two groups.

Another study, published 11 September in *PLoS One*, likewise delved into the face-processing deficit in autism³. In this case, the researchers tried to distinguish deficits in the ability to remember faces from the ability to perceive the face in the first place. The researchers also compared face processing to that of cars, scenes and bodies. The study included 50 children with autism and 50 controls, aged 5 to 12 years.

Children with autism struggle to remember faces but are as good as controls at distinguishing a face they've seen before from one that is only slightly different, the study found. They have difficulties with both body memory and processing, but show no significant differences from controls for objects or scenes.

Children with more severe autism based on the Autism Diagnostic Observation Schedule are also worse at face memory than those who have milder symptoms.

The results show that the deficits in face recognition are specific to faces as opposed to objects, the researchers say. Children with autism may have trouble remembering features because they look at **different regions of the face** than controls do.

References:

- 1: **Vander Wyk B.C.** *et al. Dev. Cogn. Neurosci.* Epub ahead of print (2013) **PubMed**
- 2: Ochsner K.N. *et al. J. Cogn. Neurosci.* **16**, 1746-1772 (2004) **PubMed**
- 3: Weigelt S. *et al. PLoS One* **8**, e74541 (2013) **PubMed**