

NEWS

# Cognition and behavior: Brain response to faces could signal autism

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Family ties: 12-month-old siblings of children with autism pay more attention to a familiar face than to a new one.

At 12 months of age, infant siblings of children with autism have a **brain response to unfamiliar faces** that is characteristic of typical children at a younger age, according to a study published 26 March in *Brain Topography*. This developmental delay could be used as an early biomarker for autism.

Because autism has a strong inherited component, infant siblings of children with autism are considered at high risk of developing the disorder: 1 in 5 of these infants go on **to develop the disorder**, compared with 1 in 100 in the general population.

Several projects, including an **ongoing research program** that includes the new study, are studying the high-risk siblings to identify biomarkers that can predict autism risk and allow for early diagnosis.

Peaks of electrical or magnetic activity in the brain, measured using **imaging scans**, can indicate large numbers of neurons working together. Changes in activity at particular moments — after an individual sees a face, for example — are called event-related potentials, and can be standardized

to represent an expected brain response.

In the new study, researchers looked at three different event-related potentials specific for face processing. One of these, Nc, is believed to be a measure for attention. Individuals generally have a strong Nc response when seeing something new.

The researchers assessed Nc in 12-month-old children, including 32 who have siblings with autism and 24 controls. About 40 percent of high-risk infants have more interest in familiar faces, based on their Nc response in a middle-brain region. By contrast, only 17 percent of the controls prefer familiar faces, the study found.

Studies have shown that typical children younger than 12 months have a stronger Nc response to familiar faces than to unfamiliar ones, but **this preference reverses around the 12-month mark**. Children may be tuned into their mother's face at a young age, but start to care more about strangers as they get older, the researchers suggest.

Two other measures of face processing — N290 and P400 — do not show significant differences between the two groups.

According to another study published 31 March in the *Journal of Experimental Child Psychology*, however, older children with autism — averaging 10 years — show a delayed and lower response compared with controls when they look at faces expressing a range of emotions. This response is measured by P1, another event-related potential believed to be involved in recognizing emotions.