

# Looking through the broken mirror

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Researchers at The University of Nottingham are hoping to learn more about the causes of autism and Asperger's Syndrome, by putting a controversial theory to the test.

The team in the Social Cognition Group in the School of Psychology are looking for volunteers to take part in a series of tests that include computer tasks and puzzles, a short interview and a Magnetic Resonance brain scan (MRI).

At the heart of the research is the idea that people with autism may have difficulty understanding other people's everyday actions and thoughts. For example, if you see someone pick up a tea bag and a mug, you can guess that they want a cup of tea. People with autism may have trouble with these everyday situations.

The ability to understand everyday actions relies on a series of brain regions collectively known as the mirror neuron system (MNS). These brain regions are active when we act, but they also 'mirror' other people's actions. For example, the same 'mirror' brain region is active when you pick up a mug and when you see someone else pick up a mug. The 'mirror' brain regions allow people to interpret and imitate each other's actions, and have also been linked to social abilities like language and empathy.

Recently, some researchers in the USA have proposed a controversial 'broken mirror' theory, claiming that the mirror neuron brain regions are damaged in autism and cause people with autism to have social

difficulties. This hypothesis has attracted a lot of attention, but has not been fully tested.

The research team at The University of Nottingham plan to use brain scanning to look at how people with autism see and understand everyday actions. This work will be the first test of the 'broken mirror' theory, and it makes use of Nottingham's excellent brain scanners. Professor Sir Peter Mansfield at the University won a Nobel Prize in 2003 for developing Magnetic Resonance brain scanners and Nottingham continues to lead in this technology.

The team are looking for volunteers between the ages of 18 and 45, who have a diagnosis of autism, autistic spectrum disorders or Asperger's Syndrome. They must be generally healthy and, because of the MRI scans, have no metal in their body. Due to the nature of the tests, participants will have to come into the University to take part.

Participants will be expected to watch a series of simple films whilst in the scanner and their responses observed. The study will take up to four hours per person over two sessions.

Leading the research is Dr Antonia Hamilton from the School of Psychology: "We'll be looking to see if the responses of the mirror neuron brain regions in typically developing people are the same as in people with autism, or if they are different. If we can understand how the brains of people with autism respond to everyday social situations, we may be able to develop better ways to teach children with autism, and help them understand the social world."

The National Autistic Society estimates that more than half a million people in the UK are affected by autism.

Source: University of Nottingham

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