

Study Finds How the Brain Interprets the Intent of Others

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Two Dartmouth researchers have learned more about how the human brain interprets the actions and intentions of others.

Scott Grafton, professor of psychological and brain sciences, and Antonia Hamilton, a post-doctoral fellow, have learned that the brain's parietal cortex handles how we understand the goals of other people's actions. Their study was published on January 25 by *The Journal of Neuroscience*.

"We were able to find the part of the brain involved in interpreting the goal of another person, even if no words are spoken," says Hamilton.

"When you see another person reach for an object that they want, like a cookie, a bit of brain called the anterior intraparietal sulcus, which is found in the parietal lobe, is strongly activated."

She explains that their result is surprising because many would have predicted that the frontal cortex, normally associated with language and understanding, would be activated in this situation, not the parietal cortex, usually thought to be involved with space and movement. Also, Hamilton says that with this study, they have shown it's possible to localize abstract things, like goals, in the brain.

"So, as we learn more about how the brain responds to seeing other people do things, we can start to understand the neural basis of human social interactions. This may help us understand what goes wrong in impaired social interactions, like in children with autism, who sometimes

fail to interpret actions correctly."

The study involved twenty participants who watched a series of short movies, shown in a random order, while their brain activity was measured by functional magnetic resonance imaging (fMRI). The movies depicted a hand reaching, grasping, and taking one of two objects. For example, a hand takes a cookie or takes a computer disk. The participants then answered yes or no questions that elicited their understanding of the goals involved of the actions represented in movies.

Source: Dartmouth College

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