

Research shows the parts of the brain involved in judging mate potential

November 8 2012, by Bob Yirka



(Medical Xpress)—Researchers from Ireland's Trinity College and Caltech in the US have found after analyzing brain scans of young volunteers, that two brain regions appear to be involved the decision making process when people size up others of the opposite gender being viewed as potential mates. After undertaking trial studies involving volunteers from Trinity, the team has found, as they report in their paper published in *The Journal of Neuroscience*, that one part of the prefrontal cortex appears to gauge physical attractiveness, while another judges

likeability.

To find out what goes on in the [brain](#) when people view others of the opposite sex as potential mates, or in this case dates, the researchers enlisted the help of 73 male and 78 female volunteers from Trinity College – all were asked to participate in a speed dating exercise. Prior to the speed dating, 39 of the volunteers agreed to allow their brains to be scanned via fMRI machines as they were looking at pictures of people of the opposite sex and rating them on a scale of 1 to 4 regarding their desire to possibly date them. They were also asked to rate those they viewed on how attractive they found them and how likeable they thought they were.

The speed dating exercise was held in the traditional way, i.e. a group of male and female participants were paired up for five minutes at a time with all of the other opposite gender participants to gauge their potential as a real date. Included among the speed daters were the people that appeared in the pictures. Afterwards, both parties filled out forms where they could write down the names of those they were open to dating after the event.

The researchers found that people that were rated highly during the fMRI exam were chosen 62 percent of the time by those that had rated them, after the speed dating exercise. They also found that different parts of the [prefrontal cortex](#) appeared to be involved in coming to those decisions. Specifically, they noted that one part, the paracingulate cortex lit up when a volunteer was asked to judge attractiveness, indicating the region was highly involved in drawing conclusions about how attractive they found another person. But, they also found that the rostromedial prefrontal cortex lit up for some people when looking at someone that others didn't seem to find all that attractive, indicating that the individual found that they person they were looking at, was simply attractive to them, which the researchers suggest, is a measure of likeability.

More information: Dorsomedial Prefrontal Cortex Mediates Rapid Evaluations Predicting the Outcome of Romantic Interactions, *The Journal of Neuroscience*, 7 November 2012, 32(45): 15647-15656; [doi: 10.1523/JNEUROSCI.2558-12.2012](https://doi.org/10.1523/JNEUROSCI.2558-12.2012)

Abstract

Humans frequently make real-world decisions based on rapid evaluations of minimal information; for example, should we talk to an attractive stranger at a party? Little is known, however, about how the brain makes rapid evaluations with real and immediate social consequences. To address this question, we scanned participants with functional magnetic resonance imaging (fMRI) while they viewed photos of individuals that they subsequently met at real-life "speed-dating" events. Neural activity in two areas of dorsomedial prefrontal cortex (DMPFC), paracingulate cortex, and rostromedial prefrontal cortex (RMPFC) was predictive of whether each individual would be ultimately pursued for a romantic relationship or rejected. Activity in these areas was attributable to two distinct components of romantic evaluation: either consensus judgments about physical beauty (paracingulate cortex) or individualized preferences based on a partner's perceived personality (RMPFC). These data identify novel computational roles for these regions of the DMPFC in even very rapid social evaluations. Even a first glance, then, can accurately predict romantic desire, but that glance involves a mix of physical and psychological judgments that depend on specific regions of DMPFC.

[Press release](#)

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