

Are you an avid Facebook user? It's all about your nucleus accumbens

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A person's intensity of Facebook use can be predicted by activity in a reward-related area of the brain, according to a new study published in the open-access journal *Frontiers in Human Neuroscience*.

In the first study to relate [brain activity](#) to [social media](#) use, Meshi and colleagues observed activity in the brain's reward [circuitry](#), the nucleus accumbens, in 31 participants.

Researchers focused on the nucleus accumbens, a small but critical structure located deep in the center of the brain, because previous research has shown that rewards—including food, money, sex and gains in reputation—are processed in this region.

"As human beings, we evolved to care about our reputation. In today's world, one way we're able to manage our reputation is by using social media websites like Facebook," says Dar Meshi, lead author of the paper and a postdoctoral researcher at the Freie Universität, Berlin, Germany.

Facebook is the world's largest social media channel with 1.2 billion monthly active users. It was used in the study because interactions on the website are carried out in view of the user's friends or public and can affect their reputation. For example, Facebook consists of users "liking" posted information. This approval is positive social feedback, and can be considered related to their reputation.

All subjects completed the Facebook Intensity Scale to determine how

many friends each participant had, how many minutes they each spent on Facebook and general thoughts. The participants were selected to vary widely in their Facebook Intensity Scale scores.

Subjects participated in a video interview, and were then told whether people thought highly of them. They also saw what people thought of another participant. They also performed a card task to win money. Researchers recorded functional neuroimaging (fMRI) during these procedures.

Results showed that participants who received positive feedback about themselves produced stronger activation of the nucleus accumbens than when they saw the positive feedback that another person received. The strength of this difference corresponded to participants' reported intensity of Facebook use. But the nucleus accumbens response to monetary reward did not predict Facebook use.

"Our study reveals that the processing of social gains in reputation in the left nucleus accumbens predicts the intensity of Facebook use across individuals," says Meshi. "These findings expand upon our present knowledge of [nucleus accumbens](#) function as it relates to complex human behavior."

Recent research has shown effects of social media, including interrupting productivity in schools and reducing grade point averages, and also of addiction to Facebook. In the paper, the authors respond: "Our findings relating individual social media use to the individual response of the brain's reward system may also be relevant for both educational and clinical research in the future."

The authors point out, however, that their results do not determine if positive social feedback drives people to interact on social media, or if sustained use of social media changes the way positive [social feedback](#) is

processed by the brain.

More information: Nucleus accumbens response to gains in reputation for the self relative to gains for others predicts social media use, *Frontiers in Human Neuroscience*, DOI: [10.3389/fnhum.2013.00439](https://doi.org/10.3389/fnhum.2013.00439)

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