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# Dopamine-related drugs affect reward-seeking behavior

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Drugs that adjust dopamine levels in the brain greatly affect how people react to success and failure, according to research that will be presented at the American Academy of Neurology's 59th Annual Meeting in Boston.

In a first-of-its-kind study on humans, researchers measured how dopamine-related drugs affect the striatum, a part of the brain that is stimulated by rewards.

The study, conducted at the Wellcome Trust Centre for Neuroimaging in London, involved 39 healthy people between the ages of 18 and 39. Participants were divided into three groups. One group was given levodopa, a drug that increases dopamine levels in the brain. Another took haloperidol, a dopamine receptor blocker. The third was given a placebo. Dopamine is a chemical naturally produced by the body that transmits signals between nerve cells.

Researchers showed each group symbols associated with winning or losing different amounts of money. To "win" more money, participants had to learn through trial and error which symbols resulted in which outcomes.

The study found people who took levodopa were 95 percent more likely to choose symbols associated with higher monetary gains than those who took haloperidol. As a result, the levodopa group won more money, but they did not lose less money.

"The results show dopamine drives us to get what we want, but not avoid what we fear," said study author Mathias Pessiglione, PhD, who now works at the Salpetriere Hospital in Paris, France.

The findings may provide a better understanding of the side effects of dopamine-related drugs and the disorders they are used to treat, such as Parkinson's disease and schizophrenia. "This study may explain why dopamine depletion leads to the lack of motivation often described in people with Parkinson's disease," said Pessiglione, "and how dopamine replacement therapy can cause compulsive behaviors, such as overeating and gambling addictions, in the same people."

Source: American Academy of Neurology