

Possible tool to help cocaine users kick the habit

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A close up of a young woman snorting cocaine during the 1920s. Image by Hulton-Deutsch Collection/CORBIS. Credit: Foxtongue from Flickr

Medicines which increase levels of the brain chemical dopamine may hold the key to helping those addicted to cocaine and amphetamines kick the habit, researchers from the University of Cambridge have found.

Unlike heroin users who may benefit from [methadone](#) when attempting to quit, there is currently no medication which has proven to be an effective tool in assisting [cocaine](#) and amphetamines users when attempting to quit.

“Treatment for stimulant dependence is difficult and often individuals battling addiction relapse several times,” said Dr Karen Ersche, of the Behavioural and Clinical Neuroscience Institute (BCNI) at the University of Cambridge, who led the research.

“At the moment, the standard treatment for people dependent on cocaine and [amphetamines](#) mainly involves behavioural approaches such as counselling and cognitive-behavioural therapy – which are useful. However, our research provides important insight into the potential development of medications which could help curb the desire of those plagued with addiction, increasing the likelihood of a successful recovery.”

For the research, Dr. Ersche and her Cambridge colleagues asked stimulant-dependent individuals and volunteers who do not use drugs to perform a learning task while their brains were scanned. They found that stimulant-dependent people had problems with adjusting their behavior when one of the rules was changed – they persistently responded to the previously correct stimulus despite being repeatedly told that the rule had changed and their responses were wrong.

Dr. Ersche added: “Their inflexible performance on the task resembles their drug-taking habits in as much as stimulant-dependent people do almost everything to take drugs even when there are negative consequences such as job loss, debts, or relationship breakups.”

The brain scans which were conducted while the patients performed the learning task showed that this persistent behavior was directly linked with reduced activation in the [brain reward](#) system. However, when the drug users were given a medication that increased the [chemical dopamine](#) in the brain reward centre, their performance improved and their brain activation normalised.

Dr. Ersche concluded: “However, before this medication can be used for the treatment of stimulant-dependent individuals in clinical practice, more research would be needed using multiple doses over longer period of time.”

Previous research by the same research group had found that parts of the brain reward system where cocaine exerts its actions were significantly enlarged in cocaine users, which the scientists believe renders these individuals more vulnerable to the effects of the drugs.

Provided by University of Cambridge

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