

# Smoking changes brain the same way as drugs: study



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(Reuters) - Smoking causes long-lasting changes in the brain similar to changes seen in animals when they are given cocaine, heroin and other addictive drugs, U.S. researchers said on Tuesday.

A study of the brain tissue of smokers and nonsmokers who had died showed that smokers had the changes, even if they had quit years before, the team at the National Institute on Drug Abuse reported.

"The data show that there are long-lasting chemical changes in the brains of humans," said Michael Kuhar of Emory University in Atlanta, who was not involved in the study.

"The chemical changes alone suggest a physiological basis for nicotine addiction."

A team led by Bruce Hope of NIDA, one of the National Institutes of Health, analyzed levels of two enzymes found inside brain cells known as neurons.

These enzymes help the neurons use chemical signals such as those made by the message-carrying compound dopamine.

Smokers and former smokers had high levels of these enzymes, the researchers reported in the *Journal of Neuroscience*.

Hope said other studies had seen the same thing in animals given cocaine and heroin -- and it was clear that the drugs were causing the effects.

"This strongly suggests that the similar changes observed in smokers and former smokers contributed to their addiction," he added in a statement.

Experts on smoking have long said that nicotine is at least as addictive as heroin.

The U.S. Centers for Disease Control and Prevention estimates that 20.9 percent of all adults smoke in the United States, which adds up to 45 million people. And 23 percent of high school students smoke.