Chronic cocaine use may be linked with accelerated brain aging

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Cocaine use may accelerate the process of aging in the brain, according to a study published online this week in Molecular Psychiatry. The research, led by Dr Karen Ersche at the University of Cambridge, suggests that people who are dependent on cocaine may lose more brain volume per year than healthy people of the same age, gender and intelligence.

Cognitive decline, brain atrophy, and immunodeficiency are typical challenges of old age but these changes have also been observed in middle-aged cocaine users. To test whether cocaine use expedites aging effects, the authors scanned the brains of 120 individuals, aged between 18 and 50 years; half of the participants were cocaine-dependent, whereas the other half had no history of substance misuse disorders.

The researchers found that the cocaine users lost about 3.08 ml brain volume per year, which is almost twice the rate of healthy volunteers, who only lost about 1.69 ml per year. Concurrent abuse of alcohol in the cocaine group did not affect these findings. The effects of accelerated brain aging in the
cocaine group were most prominent in the prefrontal and temporal cortex, which are brain regions critically implicated in functions of attention, decision-making, self-control and memory.

The findings highlight the need for preventative strategies to address the risk of premature aging associated with cocaine abuse, the authors say. The research also sheds light on the largely neglected problem of the growing number of older drug users, whose needs are not so well catered for in drug treatment services.

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