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Occasional Marijuana Use May Change Structure of Young People’s Brains

Occasional marijuana use may change the brain structure in young adults, a new study suggests.

Marijuana may cause changes related to motivation, emotion and reward.

The changes occurred in the areas of the brain involved in processing emotion and forming long-term memories, and in reward and addiction, *HealthDay* reports.

The study included 40 college students ages 18 to 25. Half said they used marijuana at least weekly, and were not considered drug-dependent. The other half of the participants did not use marijuana. The participants underwent MRI brain scans. In marijuana smokers, the amygdala and nucleus accumbens regions of the brains were abnormally shaped, and the nucleus accumbens was larger. The more a person used marijuana, the more pronounced the brain changes.

Low-level marijuana use may make a person more vulnerable to addiction, or to changing their emotions or thought processes, according to the researchers. "These are two brain regions you do not want to mess around with," said study co-author Dr. Hans Breiter of Northwestern University Feinberg School of Medicine. "All parts of the brain are important, but some, like these, are more fundamental. It raises a very serious issue, given that we saw these changes in casual marijuana users."

While previous studies have indicated similar changes in brain structure in people who were heavy marijuana users, this is the first study to indicate that even casual marijuana use can change a person's brain, said study lead author Jodi Gilman of the Massachusetts General Hospital Center for Addiction Medicine. "We were interested in looking at these young adults who aren't addicted," she said. "They aren't reporting any problems from marijuana, and yet we still see these brain changes."

The study will appear in *The Journal of Neuroscience*.