

Researchers tie marijuana use to brain changes

As Illinois and other states are loosening restrictions on marijuana, a new study indicates that regular use could be linked to changes in the brain.

Researchers at Northwestern University, working with Massachusetts General Hospital and the Harvard Medical School, compared the brains of 20 young adults who smoked marijuana on a regular basis with those of 20 young adults who do not use the drug. Each group was made up of nine males and 11 females. Those who use marijuana underwent evaluations to determine that they were not dependent on the drug.

Scientists used neuroimaging to examine the nucleus accumbens and the amygdala, which are areas associated with emotion, motivation and addiction. Both regions were different in the brains of pot users. Researchers looked at volume, shape and density of brain matter in the regions.

"These are core, fundamental structures of the brain," Anne Blood, director of the Mood and Motor Control Laboratory at Massachusetts General and assistant professor of psychiatry at Harvard Medical School, said in a prepared statement. "They form the basis for how you assess positive and negative features about things in the environment and make decisions about them."

The degree of differences in the brain was directly related to the amount of marijuana used. The more a person smoked, the more abnormal the shape, volume and density of the brain regions were. However, changes were also apparent in participants who only smoked marijuana once or twice a week. "This study raises a strong challenge to the idea that casual marijuana use isn't associated with bad consequences," Hans Breiter, a professor of psychiatry and behavioral sciences at Northwestern University Feinberg School of Medicine and a psychiatrist at Northwestern



Memorial Hospital, said in a prepared statement. "People think a little recreational use shouldn't cause a problem, if someone is doing OK with work or school. Our data directly says this is not the case."

One factor researchers were unable to determine was the THC content of the marijuana being smoked. THC content can range from 5 percent to 9 percent or more.

Another recent study from Northwestern also linked long-term use of marijuana to brain abnormalities. Breiter said that the results from both studies cause concern about young people using the drug. "With the findings of these two papers," Breiter said, "I've developed a severe worry about whether we should be allowing anybody under age 30 to use pot unless they have a terminal illness and need it for pain."

Illinois is in the process of rolling out its medical marijuana pilot program. More than 20 states allow medical use of marijuana, and two states, Colorado and Washington, have legalized recreational use. Marijuana is still illegal at the federal level.

Jamey Dunn