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Researchers found that marijuana (cannabis) could be especially harmful for teenagers, since it affects the addiction processes in their developing brains. The findings are troubling since marijuana is a popular drug among teens, the researchers added. "Of the illicit drugs, cannabis is most used by teenagers since it is perceived by many to be of little harm. This perception has led to a growing number of states approving its legalization and increased accessibility. Most of the debates and ensuing policies regarding cannabis were done without consideration of its impact on one of the most vulnerable population, namely teens, or without consideration of scientific data," study authors Didier Jutras-Aswad, of the University of Montreal, and Dr. Yasmin Hurd, of New York's Icahn School of Medicine at Mount Sinai in New York City (Aug. 27, 2013) wrote in a news release from the University of Montreal. They added, "While it is clear that more systematic scientific studies are needed to understand the long-term impact of adolescent cannabis exposure on brain and behavior, the current evidence suggests that it has a far-reaching influence on adult addictive behaviors, particularly for certain subsets of vulnerable individuals.

" Marijuana interacts with the brain through chemical receptors situated in the areas responsible for learning and management of rewards, motivated behavior, decision-making, habit formation and motor function. Since the structure of the brain changes quickly during adolescence, marijuana can affect how these traits develop, the researchers noted. In their review, they examined more than 120 studies on various aspects of marijuana and the teenage brain, including the biology of the brain, the brain's chemical reaction to marijuana and the influence of teens' genetic make-up and environment. They also analyzed previous studies on the "gateway drug" phenomenon, or an association between marijuana use and later addiction to other serious drugs and psychosis. "When the first exposure occurs in younger versus older adolescents, the impact of cannabis seems to be worse in regard to many outcomes such as mental health, education attainment, delinquency and ability to conform to adult role," Jutras-Aswad explained.

One in four teenage marijuana users will become dependent on the drug, which suggests that certain genetic and behavioral factors play a role in whether or not the drug use will continue, the researchers found. They added that marijuana dependence can be inherited or result from other psychological factors. "Individuals who will develop cannabis dependence generally report a temperament characterized by negative affect, aggressivity and impulsivity, from an early age. Some of these traits are often exacerbated with years of cannabis use, which suggests that users become trapped in a vicious cycle of self-medication, which in turn becomes dependence," Jutras-Aswad said.

The researchers concluded that marijuana is not harmless, and genetic or psychological screening can help identify those at greatest risk of abusing the drug. "The objective is not to fuel the debate about whether cannabis is good or bad, but instead to identify those individuals who might most suffer from its deleterious effects and provide adequate measures to prevent this risk," Jutras Aswad said in the news release. "Continuing research should be performed to inform public policy in this area," added Hurd. "Without such systematic, evidenced-based

research to understand the long-term effects of cannabis on the developing brain, not only will the legal status of cannabis will be determined on uncertain ground, but we will not be able to innovate effective treatments such as the medicinal use of cannabis plant components that might be beneficial for treating specific disorders." More information The U.S. National Institutes of Health provides more information on marijuana.