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Why Supervisors Should Support Policies That Prohibit Marijuana Use

Based on the current trends in medical and/or recreational marijuana use, it is gaining greater acceptance in our society. Thus, it is particularly important for you as a supervisor to know the facts about the adverse health effects linked to marijuana use.

Because marijuana impairs short-term memory and judgment and distorts perception, it can impair performance at work and make it dangerous to drive an automobile or operate machinery. Also, contrary to popular belief, marijuana can be addictive. Whether smoking or otherwise consuming marijuana has therapeutic benefits that outweigh its health risks is still an open question that science has not been resolved.

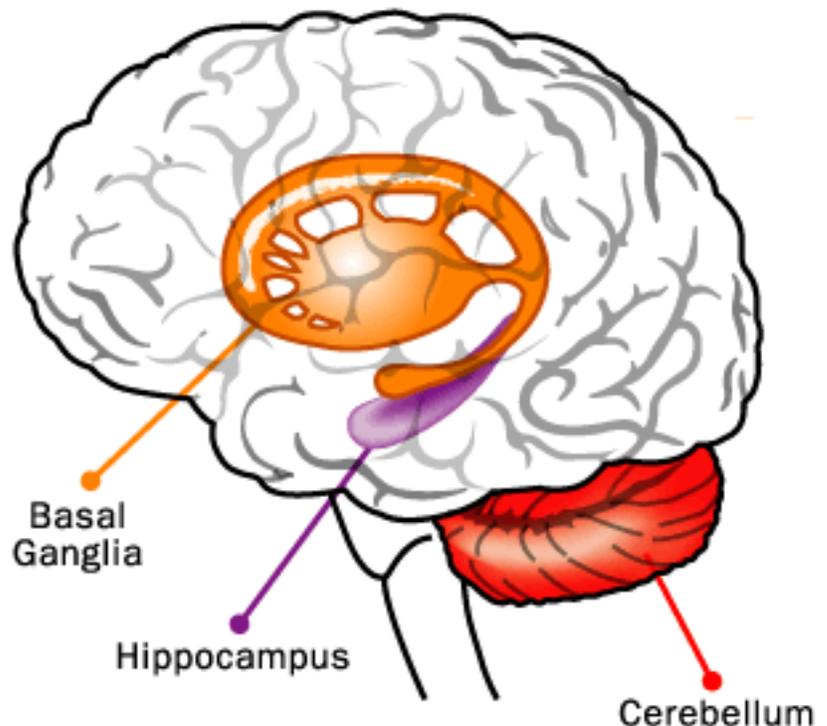
When a supervisor supports the prohibition of marijuana use the supervisor is supporting his/her employee's avoidance of another potential major problem—marijuana use disorder. Marijuana use can lead to the development of a problem known as a marijuana use disorder, which in severe cases takes the form of addiction. Recent data suggest that 30 percent of marijuana users may have some degree of marijuana use disorder. People who begin using marijuana before the age of 18 are four to seven times more likely to develop a marijuana use disorder than adults. Marijuana use disorders are often associated with dependence—in which a user feels withdrawal symptoms when not taking the drug. Frequent marijuana users often report irritability, mood and sleep difficulties, decreased appetite, cravings, restlessness, and/or various forms of physical discomfort that peak within the first week after quitting and last up to two weeks.

Marijuana dependence occurs when the brain adapts to large amounts of the drug by reducing production of and sensitivity to its own brain chemicals that aid with the normal functions of appetite, pain-sensation, mood, and memory. Marijuana use disorder becomes addiction when the

person cannot stop using the drug even though it interferes with many aspects of his or her life. Those studies suggest that nine percent of people who use marijuana will become dependent on it, rising to about 17 percent in those who start using young (in their teens). In 2014, over four-million people in the U.S. abused or were dependent on marijuana; 138,000 voluntarily sought treatment for their marijuana use.

Marijuana potency, as detected in confiscated samples, has steadily increased over the past few decades. In the early 1990s, the average chemical content that creates the high in confiscated cannabis samples was roughly 3.7 percent for marijuana and 7.5 percent for sinsemilla (a higher potency marijuana from specially tended female plants). In 2013, it was 9.6 percent for marijuana and 16 percent for sinsemilla. Also, newly popular methods of smoking or eating marijuana-rich hash oil extracted from the marijuana plant (a practice called

Cannabinoid Receptor Sites



“dabbing”) may deliver very high levels of marijuana chemicals to the user. The average marijuana extract contains over 50 percent of the chemicals, with some samples exceeding 80 percent. These trends raise concerns that the consequences of marijuana use could be worse than in the past, particularly among new users or in young people, whose brains are still developing.

Researchers do not yet know the full extent of the consequences when the body and brain (especially the developing brain) are exposed to high concentrations of chemical components in marijuana or whether the recent increases in emergency department visits by people testing positive for marijuana are related to rising potency. The extent to which marijuana users adjust for increased potency by using less or by smoking it differently is also unknown. Recent studies suggest that experienced users may adjust the amount they smoke and how much they inhale based on the believed strength of the marijuana they are using, but are not able to fully compensate for variations in potency.

Although many states now permit dispensing marijuana for medicinal purposes there are currently no FDA-approved indications for “medical marijuana.” However, safe medicines based on chemicals derived from the marijuana plant have been available for decades and more are being developed. Substantial evidence from animal research and a growing number of studies in humans indicate that marijuana exposure during development can cause long-term or possibly permanent adverse changes in the brain. Rats exposed to marijuana before birth, soon after birth, or during adolescence show notable problems with specific learning and memory tasks later in life.

Memory impairments in adult rats exposed to marijuana during adolescence are associated with structural and functional changes in the memory area of the brain. Studies in rats also show that exposure to marijuana is associated with an altered reward system, increasing the likelihood that an animal will self-administer other drugs (e.g., heroin) when given an opportunity. The endocannabinoid (brain chemicals) system is known to play an important role in the proper formation of synapses (the connections between neurons) during early brain development, and a similar role has been proposed for the refinement of neural connections during adolescence.

The ability to draw definitive conclusions about marijuana’s long-term impact on the human brain from past studies is often limited by the fact that study participants use multiple substances, and there is often limited data about the participants’ health or mental functioning prior to the study. Over the next decade, the National Institutes of Health is funding a major long term study that will track a large sample of Americans from late childhood (before first use of

drugs) to early adulthood. The study will use neuroimaging (brain scans) and other advanced tools to clarify precisely how and to what extent marijuana and other substances, alone and in combination, affect adolescent brain development.

Memory impairment from marijuana use occurs because the chemicals in marijuana alter how information is processed in the hippocampus, a brain area responsible for memory formation. As people age, they lose neurons in the hippocampus, which decreases their ability to learn new information. Chronic exposure to marijuana may quicken age-related loss of hippocampal neurons. In one study, rats exposed to THC every day for 8 months (approximately 30 percent of their life-span) showed a level of nerve cell loss (at 11 to 12 months of age) that equaled that of unexposed animals twice their age.

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