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2015 Substance Abuse in Canada Report: The Effects of Cannabis Use during Adolescence

The Effects of Cannabis Use during Adolescence is the sixth report in the *Substance Abuse in Canada* series published by the Canadian Centre on Substance Abuse (CCSA). While all psychoactive substances can harm the developing brain, this latest report summarizes the evidence on what is known about the effects of marijuana, particularly early and frequent use during adolescence. Its conclusions demonstrate that youth are at much greater risk when using marijuana than adults because of the significant changes and development occurring in the brain during adolescence. Highlights of the report are as follows:

- The **Introduction** reviews the extent of marijuana use in Canada and provides a context for understanding this issue's importance. Recent studies have reported that more than 40% of all Canadians have used marijuana in their lifetime, and about 10% have used it at least once in the past year. These levels are about 2.5 times higher for Canadian youth aged 15–24 years. In fact, Canadian adolescents have the highest rate of marijuana use in the developed world.
- **Chapter 1** examines how marijuana use affects the brain during adolescence, and discusses some of its behavioural effects. The acute effects of marijuana include problems with attention and focus, information processing, motor coordination and reaction time. There is consistent evidence that regular marijuana users do not perform as well in school and have a greater risk of dropping out than their non-using peers. A small number of studies also found that long-term, daily marijuana users suffered a decline in IQ, although some researchers have challenged these findings. The evidence is growing that early and frequent use can alter the structure and functioning of the developing brain, including areas responsible for cognitive processes such as planning, organizing, decision making, impulse control and working memory. Additionally, because of its effects on cognitive and motor functions, marijuana use doubles the risk of motor vehicle crashes — even more so when combined with alcohol.
- **Chapter 2** explores the link between marijuana and mental illness. While the relationship is complex and poorly understood, it is well known that there are high rates of substance use disorders among individuals who also suffer from mental illness. For individuals who are genetically vulnerable to developing schizophrenia, early and frequent marijuana use can lead to an earlier onset of symptoms and a worsened prognosis. Some studies have also revealed that regular adolescent marijuana use is associated with greater risk of depression in early adulthood, although it is not known whether this is caused by the drug itself or by some of its negative effects (e.g., poorer academic results compromising later-life success).
- **Chapter 3** underlines that marijuana can be addictive, especially if use starts in adolescence. Approximately 9% of marijuana users will develop a dependence, and this risk increases to 17% when use is initiated during adolescence. This compares to nicotine (32%), heroin (23%), cocaine (17%), alcohol (15%) and other stimulants (11%). Furthermore, stopping marijuana use can result



in withdrawal symptoms, such as irritability and sleeping difficulties. However, it is not clear whether marijuana consumption increases the risk of using other illegal drugs, an area that requires more research.

- **Chapter 4** reviews treatments that can help adolescents suffering from problematic marijuana use. It examines various school- and computer-based prevention programs, as well as proven substance abuse treatments such as cognitive behavioural and multidimensional family therapies. The report also looks at promising pharmacological treatments, cautioning that further research is needed into these therapeutic agents, as well as long-term follow-up studies of their efficacy.
- **Chapter 5**, the report's concluding chapter, centres on a call to action that provides recommendations on what further steps should be taken. CCSA believes that healthcare providers will benefit from further research aimed at analyzing what works and what does not work in the fields of prevention and treatment, and from research exploring new or improved tools to assist them in identifying problematic marijuana use in its early stage. In addition, due to the potentially deadly impacts of driving after marijuana use, better roadside screening methods and training should be developed for law enforcement agencies to reduce potential public safety hazards. Finally, the report recommends further research and better data to inform policy, practice and programs, including a longitudinal study of adolescent marijuana use and its effects and implications over a significant period of time

CCSA has a legislated mandate to provide national leadership and evidence-informed analysis and advice on substance abuse. *The Effects of Cannabis Use during Adolescence* puts forth a significant and timely contribution to the public discussion about this drug. The report should serve as a wake-up call to parents, teachers, healthcare providers and policy makers about the serious harms that can result from regular marijuana use during adolescence and early adulthood. Marijuana is not a harmless substance when used regularly by young people.

A detailed summary of findings can be accessed by reading the [Report in Short](#). Those interested in obtaining further information about marijuana are encouraged to visit the Topics links on the CCSA website, which makes available the *Clearing the Smoke on Cannabis* series, as well as specific research about marijuana and youth.

Media inquiries should be directed to media@ccsa.ca.



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