Canada's Lower-Risk Cannabis Use Guidelines (LRCUG)

CANADIAN RESEARCH INITIATIVE IN SUBSTANCE MISUSE | INITIATIVE CANADIENNE DE RECHERCHE EN ABUS DE SUBSTANCE

camh Centre for Addiction and Mental Health / Centre de toxicomanie et de santé mentale

[Evidence Brief]

An evidence-based tool to guide choices and improve the health of Canadians who use cannabis

Reference

Fischer, B., Russell, C., Sabioni, P., van den Brink, W., Le Foll, B., Hall, W., Rehm, J. & Room, R. (2017). Lower-Risk Cannabis Use Guidelines (LRCUG): An evidence-based update. *American Journal of Public Health, 107*(8). DOI: 10.2105/AJPH.2017.303818.

Endorsements

The LRCUG have been endorsed by the following organizations:

Association Médicale Canadienne / Canadian Medical Association

CPHA ACSP – Canadian Public Health Association / Association canadienne de santé publique

CSAM SMCA – Canadian Society of Addiction Medicine / La Société Médicale Canadienne sur l'Addiction

camh – Centre for Addiction and Mental Health / Centre de toxicomanie et de santé mentale

Canadian Centre on Substance Use and Addiction / Centre canadien sur les dépendances et l'usage de substances – Evidence. Engagement. Impact. / Données. Engagement. Résultats.

Council of Chief Medical Officers of Health (in principle)

Acknowledgment

The Lower-Risk Cannabis Use Guidelines (LRCUG) are an evidence-based intervention initiative by the Canadian Research Initiative in Substance Misuse (CRISM), funded by the Canadian Institutes of Health Research (CIHR).

A briefer version of the LRCUG, mainly aimed at people who use cannabis, is available at **camh.ca**.

Cannabis use and health

Cannabis use is common, especially among adolescents and young adults. There are well-documented risks from cannabis use to both immediate and long-term health. The main risks include cognitive, psychomotor and memory impairments; hallucinations and impaired perception; impaired driving and injuries (including fatalities); mental health problems (including psychosis); dependence; pulmonary/bronchial problems; and reproductive problems.

Why Lower-Risk Cannabis Use Guidelines?

Cannabis has been illegal for decades, but Canada is moving toward legalizing and regulating use and supply. The main goals of this policy are to protect public health and public safety. Towards that end, education, prevention and guidance on cannabis use and health are key elements for reducing cannabis use–related harms and problems in the population. Extensive data show that cannabis use has inherent health risks, but users can make choices as to how and what they use to modify their own risks. The main objective of Canada's Lower-Risk Cannabis Use Guidelines (LRCUG) is to provide science-based recommendations to enable people to reduce their health risks associated with cannabis use, similar to the intent of health-oriented guidelines for low-risk drinking, nutrition or sexual behavior.

How were the LRCUG developed?

The scientific version of the Lower-Risk Cannabis Use Guidelines was published in the American Journal of Public Health in 2017 (see "Reference" on back), where all data and sources can be found. The original LRCUG had been tabled in 2011; the current version has been updated by an international team of addiction and health experts.

Who are the LRCUG for?

The LRCUG are a health education and prevention tool for:

- anyone who is considering using cannabis or has made the choice to use, as well as their family, friends and peers.
- any professional, organization or government aiming to improve the health of Canadians who use cannabis through evidence-based information and education.

FAST FACTS

- **Canada has among the highest cannabis use rates in the world.**
- **Fatal and non-fatal injuries from motor-vehicle accidents, as well as dependence and other mental health problems, are the most common cannabis-related harms negatively impacting public health.**
- **About 1 in 5 people seeking substance use treatment have cannabis-related problems.**

The LRCUG recommendations

The following section presents context and evidence summaries, as well as the LRCUG's 10 recommendations for people who use cannabis. Note that these recommendations are mainly aimed at non-medical cannabis use.

Abstinence

As with any risky behaviour, the safest way to reduce risks is to avoid the behaviour altogether. The same is true for cannabis use.

- **Recommendation 1**
  The most effective way to avoid any risks of cannabis use is to abstain from use. Those who decide to use need to recognize that they incur risks of a variety of – acute and/or long-term – adverse health and social outcomes. These risks will vary in their likelihood and severity with user characteristics, use patterns and product qualities, and so may not be the same from user to user or use episode to another.

Age of initial use

Studies show that initiating cannabis at a young age—primarily before age 16—increases the risks for a variety of adverse health outcomes. For example, users who start young are more likely to develop related mental health and education problems, or to experience injuries or other substance use problems. A contributing factor may be the impact of cannabis use on brain development, which is not completed until the mid-20s. The younger a person is when starting cannabis use, the greater the likelihood of developing health problems that are also more severe. Therefore, deferring cannabis use at least until after adolescence is advised.

- **Recommendation 2**
  Early initiation of cannabis use (i.e., most clearly that which begins before age 16) is associated with multiple subsequent adverse health and social effects in young adult life. These effects are particularly pronounced in early-onset users who also engage in intensive/frequent use. This may be in part because frequent cannabis use affects the developing brain. Prevention messages should emphasize that, the later cannabis use is initiated, the lower the risks will be for adverse effects on the user's general health and welfare throughout later life.

Choice of cannabis products

Cannabis products vary greatly in cannabis' main psychoactive ingredient, tetrahydrocannabinol (THC). Higher THC potency is strongly related to increased acute and long-term problems, such as mental health problems, dependence or injuries. In particular, cannabis extract or concentrate products contain extremely high THC levels. Yet evidence suggests that other cannabinoid components, including cannabidiol (CBD), attenuate some of THC's effects. Using cannabis products with high CBD:THC ratios typically carries less severe health risks. Synthetic cannabinoids (e.g., K2, Spice) are a relatively new class of products. Synthetics generally have more severe psychoactive impacts and health risks, including cases of death.

- **Recommendation 3**
  High THC-content products are generally associated with higher risks for various (acute and chronic) mental and behavioural problem outcomes. Users should know the nature and composition of the cannabis products that they use, and ideally use cannabis products with low THC content. Given the evidence of CBD's attenuating effects on some THC-related outcomes, it is advisable to use cannabis containing high CBD:THC ratios.

- **Recommendation 4**
  Recent reviews on synthetic cannabinoids indicate markedly more acute and severe adverse health effects from the use of these products (including instances of death). The use of these products should be avoided.

Cannabis use methods and practices

Many alternative methods for consuming cannabis now exist. Evidence suggests that smoking combusted cannabis, especially combined with tobacco, results in various pulmonary-bronchial problems, possibly including lung cancer. In fact, smoking is likely the most hazardous method of cannabis use. The risks are exacerbated by practices such as deep inhalation. Alternative inhalation methods include vaporizers and e-cigarette devices. While these reduce key risks to health, they are not entirely risk-free alternatives. However, rigorous studies on health outcomes are largely lacking. Ingested or "edible" cannabis products bypass inhalation-related risks but delay the onset of psychoactive effects and may lead to use of higher doses. If accompanied by adequate cannabis product labeling and warnings, edibles may offer the safest method of cannabis use.

- **Recommendation 5**
  Regular inhalation of combusted cannabis adversely affects respiratory health outcomes. While alternative delivery methods come with their own risks, it is generally preferable to avoid routes of administration that involve smoking combusted cannabis material, e.g., by using vaporizers or edibles. Use of edibles eliminates respiratory risks, but the delayed onset of psychoactive effect may result in the use of larger than intended doses and subsequently increased (mainly acute, e.g., from impairment) adverse effects.

- **Recommendation 6**
  Users should avoid practices such as "deep-inhalation," breath-holding, or the Valsalva maneuver to increase psychoactive ingredient absorption when smoking cannabis, as these practices disproportionately increase the intake of toxic material into the pulmonary system.

Frequency and intensity of use

Frequent or intensive patterns of use increase the likelihood of developing multiple health problems, including changes in brain development or functioning (especially at a younger age), mental health problems, cannabis dependence, impaired driving and related injuries, educational outcomes and suicidality. Overall, based on scientific evidence, frequency and intensity are among the strongest and most consistent predictors of severe and/or long-term cannabis-related health problems.

- **Recommendation 7**
  Frequent or intensive (e.g., daily or near-daily) cannabis use is strongly associated with higher risks of experiencing adverse health and social outcomes related to cannabis use. Users should be aware and vigilant to keep their own cannabis use—and that of friends, peers or fellow users—occasional (e.g., use only on one day/week, weekend use only, etc.) at most.

Cannabis use and driving

Cannabis impairs cognition, attention, reaction and psychomotor control—all of which are critical skills for driving or operating machinery. Numerous studies have shown that the risk of accident involvement and driving-related injuries, both non-fatal and fatal, is two to three times higher among cannabis-impaired compared with non-impaired drivers. Acute impairments set in shortly after use and persist for up to about 6 hours, but they vary depending on the individual's characteristics and constitution, as well as on the potency and type of cannabis used. There is no evidence for safe levels of cannabis use for driving. Irrespective of legal stipulations, users should refrain from driving during the period of acute psychoactive effects from cannabis. The risk of an accident is even higher when cannabis and alcohol are used together, since these drugs result in multiplicative impairment effects.

- **Recommendation 8**
  Driving while impaired from cannabis is associated with an increased risk of involvement in motor-vehicle accidents. It is recommended that users categorically refrain from driving (or operating other machinery or mobility devices) for at least 6 hours after using cannabis. This wait time may need to be longer, depending on the user and the properties of the specific cannabis product used. Besides these behavioural recommendations, users are bound by locally applicable legal limits concerning cannabis impairment and driving. The use of both cannabis and alcohol results in multiply increased impairment and risks for driving, and categorically should be avoided.

Special-risk populations

Studies have identified subgroups of people who have higher or distinct risks for cannabis-related health problems. For example, a substantial proportion of cannabis-related psychosis, and possibly other mental health problems (especially cannabis use disorders), occurs among users who have their own or a family history of such problems. Furthermore, cannabis use during pregnancy increases the risk of adverse maternal and neonatal health outcomes, including low birthweight and growth reduction. These high-risk groups are advised to abstain from cannabis use altogether.

- **Recommendation 9**
  There are some populations at probable higher risk for cannabis-related adverse effects who should refrain from using cannabis. These include: individuals with predisposition for, or a first-degree family history of, psychosis and substance use disorders, as well as pregnant women (primarily to avoid adverse effects on the fetus or newborn). These recommendations, in part, are based on precautionary principles.

Combining risks or risk behaviours

Combining any of the higher-risk behaviours described above is likely to further increase and amplify the risks of adverse health outcomes from cannabis use.

- **Recommendation 10**
  While data are sparse, it is likely that the combination of some of the risk behaviours listed above will magnify the risk of adverse outcomes from cannabis use. For example, early-onset use involving frequent use of high-potency cannabis is likely to disproportionately increase the risks of experiencing acute and/or chronic problems. Preventing these combined high-risk patterns of use should be avoided by the user and a policy focus.