Ch7. **Cannabis Use Disorder** 大麻使用障碍

Context语境

Most of us have either seen the "stoner" stereotype portrayed in popular culture, or know someone who seems like they use cannabis to excess personally.

This class will explore the risks and reasons associated with Cannabis Use Disorder (CUD).

First, what is it about cannabis that makes (some) people want to use it often?

我们中的大多数人要么见过流行文化中描绘的“石头人”刻板印象，要么认识一个似乎个人过度使用大麻的人。

本课程将探讨与大麻使用障碍 (CUD) 相关的风险和原因。

首先，是什么让（一些）人想要经常使用大麻？

THC

The main draws to cannabis are the cannabinoids that create physical and mental effects, the primary two being THC and CBD.

对大麻的主要吸引力是产生身心影响的大麻素，主要的两种是 THC 和 CBD。

Some properties of Delta-9-tetrahydrocannabinol include:

- Psychoactive
- Euphoric, reinforcing, rewarding
- Anxiety-inducing
- Psychosis-inducing
-

Delta-9-四氢大麻酚的一些特性包括：

- 精神活性
- 欣快，强化，奖励
- 焦虑症
- 精神病诱发

CBD

Some properties of Cannabidiol include:

- Non-psychoactive
- Anxiolytic (Reduces anxiety)
- Anti-psychotic

- Anti-inflammatory
- Neuroprotective
- Anti-epileptic

大麻二酚的一些特性包括：

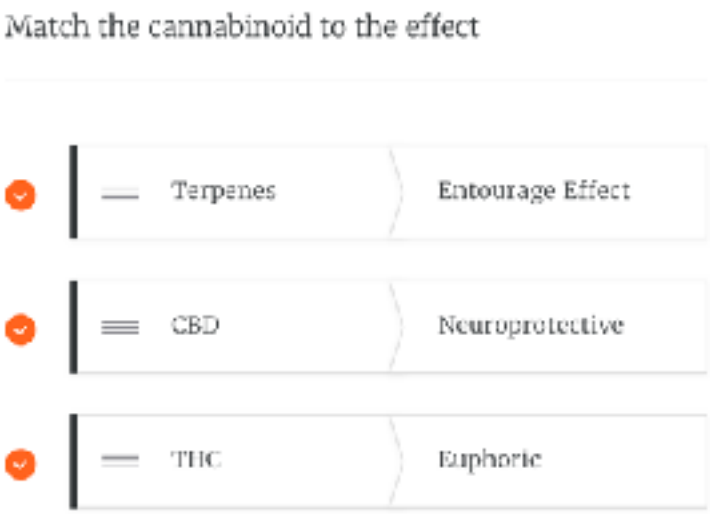
- 非精神活性
- 抗焦虑（减少焦虑）
- 抗精神病药
- 消炎（药
- 神经保护
- 抗癫痫

Terpenes

Terpenes: Compounds that have odor/aroma can produce additional effects
萜烯：具有气味/香气的化合物会产生额外的效果

Example: 例子
Myrcene: sedating 月桂叶：镇静
Limonene: energizing 柠檬烯：充满活力

Entourage Effect: Synergy among compounds to enhance effects of THC/CBD
随行人员效应：化合物之间的协同作用可增强 THC/CBD 的作用



Cannabis Intoxication大麻中毒

What counts as cannabis intoxication? The following are required:

1. **Recent use** of cannabis
2. Clinically significant problematic **behavioral or psychological changes** (e.g., impaired motor coordination, euphoria, anxiety, a sensation of slowed time, impaired judgment, social withdrawal) that developed during, or shortly after, cannabis use
3. At least two of the following signs, developing within 2 hours of cannabis use: conjunctival injection (red eyes), increased appetite, dry mouth, tachycardia (increased heart rate).
4. Symptoms not due to a general medical condition and not better accounted for by another mental disorder.
5. Specify if perceptual disturbances are present: hallucinations with intact reality testing or auditory, visual, or tactile illusions occur in the absence of delirium.

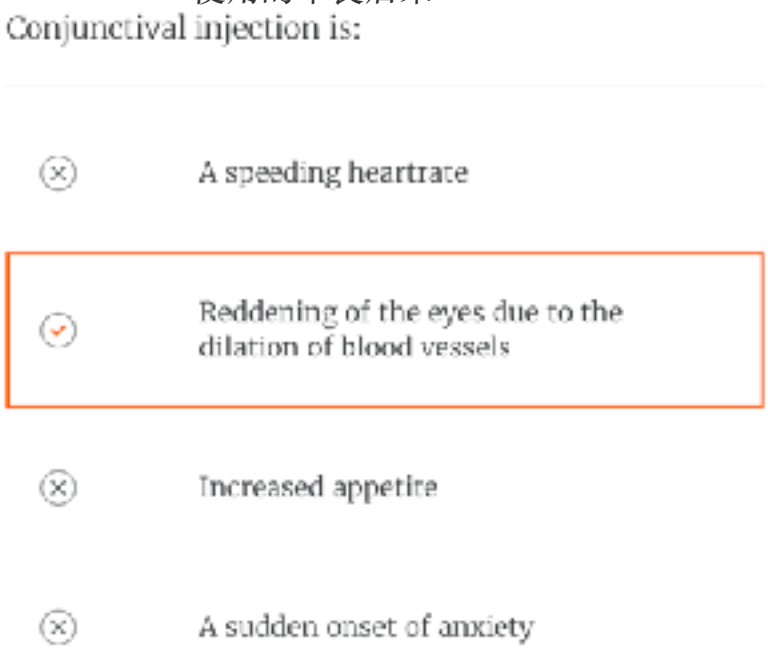
什么算作大麻中毒？以下是必需的：

1. 最近使用大麻
2. 在使用大麻期间或之后不久出现的具有临床意义的有问题的行为或心理 变化（例如，运动协调受损、欣快感、焦虑、时间变慢的感觉、判断力受损、社交退缩）
3. 使用大麻后 2 小时内至少出现以下两种迹象：结膜充血（眼睛发红）、食欲增加、口干、心动过速（心率加快）。
4. 症状不是由一般医疗状况引起的，也不是由另一种精神障碍引起的。
5. 说明是否存在知觉障碍：在没有谵妄的情况下，会出现具有完整现实测试的幻觉或听觉、视觉或触觉幻觉。

Cannabis Use is Increasing 大麻的使用正在增加

- Studies show that both adults and adolescents increasingly view cannabis as a drug that "some" can use without harm
- However, there are still significant risks associated with cannabis use

    - Increase in use
    - Adverse consequence of use
- 研究表明，成人和青少年越来越多地将大麻视为“某些人”可以使用而不会造成伤害的药物
- 然而，使用大麻仍然存在重大风险
    - 使用量增加
    - 使用的不良后果



What is Cannabis Addiction?

Is it real?
And if it is real, why doesn't it look like other types of addiction like alcoholism or heroin addiction?
如果这是真的，为什么它看起来不像其他类型的成瘾，如酗酒或海洛因成瘾?

What is Addiction? 什么是成瘾?

'Addiction' is a loaded construct with a complex history.

“成瘾”是一个具有复杂历史的加载结构。

It involves two components:

1. Biological Component (Dependence)
    - Physiological dependence

    - Tolerance/withdrawal
    - Changes in brain-reward circuitry
    - Cravings
2. Behavioral Component (Addiction)
    - Loss of control
    - Compulsive use
    - Negative consequences
    - 'Habit forming'
    - Functional impairment

它包括两个组成部分：

1. 生物成分（依赖）
    - 生理依赖
        - 容忍/退出
        - 大脑奖励回路的变化
        - 渴望
2. 行为成分（成瘾）
    - 失控
    - 强制使用
    - 负面后果
    - '习惯养成'
    - 功能障碍

It is important to find the distinction between dependence and addiction.

找到依赖和成瘾之间的区别很重要。

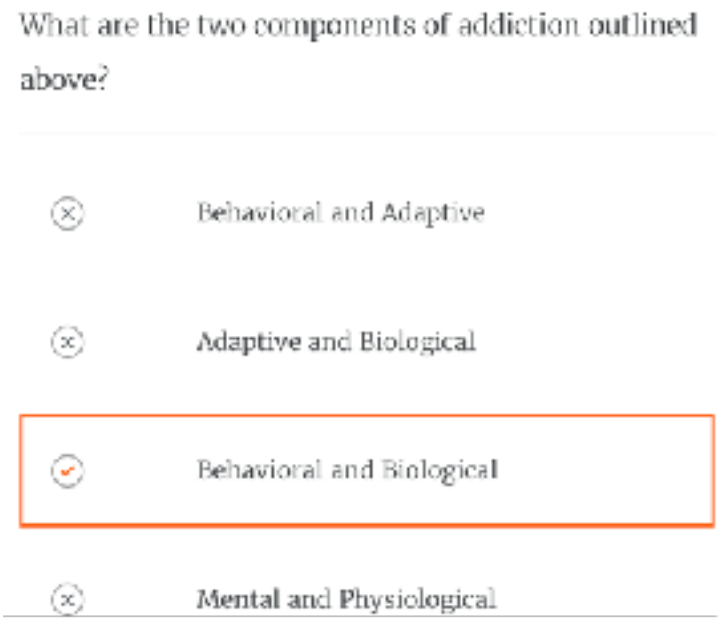
The DSM is a tool that can provide a standardized definition for what qualifies as addiction.

- **Diagnostic and Statistical Manual of Mental Disorders (DSM):** Publication by the APA to classify mental disorders
    - **DSM-IV (1994):** Cannabis Dependence and Cannabis Abuse

- **DSM-V (2012):** Cannabis addiction was deemed as Cannabis Use Disorder (CUD)

DSM 是一种工具，可以为什么是成瘾提供标准化定义。

- 精神障碍诊断和统计手册 **(DSM)**： 由 APA 出版，用于对精神障碍进行分类
  - **DSM-IV (1994)**：大麻依赖和大麻滥用
  - **DSM-V（2012）**：大麻成瘾被视为大麻使用障碍（CUD）



What is Cannabis Use Disorder (CUD)?
什么是大麻使用障碍

Cannabis Use Disorder describes **patterns of cannabis use** that lead to some form of **life impairment or hindrance**, such as health problems, persistent/increasing use, failure to meet daily responsibilities; these hindrances are generally brought on by one or more of the withdrawal symptoms

大麻使用障碍描述了导致某种形式的生活损害或障碍的大麻使用模式，例如健康问题、持续/增加使用、未能履行日常职责；这些障碍通常是由一种或多种戒断症状引起的

Cannabis Use Disorder - Patterns of Use　使用模式

- While patterns of cannabis use vary widely across individuals, most cannabis users who develop cannabis use disorder do so after several years of use and with at least weekly use.
- 虽然大麻的使用模式因人而异，但大多数出现大麻使用障碍的大麻使用者都是在使用几年后至少每周使用一次
- **Increased frequency** of cannabis use and use of **more potent cannabis** products are associated with **greater risk of cannabis use disorder**.
- 大麻使用频率的增加和更有效的大麻产品的使用与更大的大麻使用障碍风险有关。
- It takes about one week of using cannabis to become dependent.

  ⊗ True

  ✓ False

DSM-V Criteria for CUD [2]

A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

一种有问题的大麻使用模式导致临床上显着的损害或痛苦，表现为以下至少两种情况，发生在 12 个月内：

1. Taken in **larger amounts/over longer period** than intended.
2. **Persistent desire**/unsuccessful efforts to cut down/**control use**.
3. Great deal of **time spent** in activities necessary to **ob tain, use, or recover** from its effects.
4. **Craving**, or strong desire or urge to use.
5. Recurrent use resulting in **failure to fulfill** major role obligations at **work, school, or home**.
6. Continued use despite having persistent/recurrent **social/interpersonal problems** caused/exacerbated by the effects.
7. Important social/occupational/recreational **activities given up/reduced** because of use.
8. Recurrent use in situations in which it is **physically hazardous.**
9. Continued use despite persistent/recurrent **physical/psychological problems** likely to have been caused/exacerbated by cannabis.
10. **Tolerance** (i.e., need for increased amounts to achieve intoxication/desired effects or markedly diminished effect with continued use of same amount of cannabis).
11. **Withdrawal** (i.e., defined by the characteristic withdrawal syndrome or cannabis/closely related substance is taken to relieve/avoid withdrawal symptoms)

- 服用量比预期的更大/时间更长。
- 持续的愿望/不成功的努力减少/控制使用。
- 大量 时间花在获得、使用或从其影响中恢复所必需的活动上。
- 渴求，或强烈的使用欲望或冲动。
- 反复使用导致 未能履行工作、学校或家庭中的主要角色义务。
- 尽管有持续/反复出现的社会/人际关系问题，但仍继续使用。
- 重要的社会/职业/休闲活动， 放弃/减少因为使用。
- 在对 身体有害的情况下反复使用。
- 尽管可能由大麻引起/加剧持续/反复出现的身体/心理问题，但仍继续使用。
- 耐受性（即，需要增加数量才能达到中毒/预期效果，或继续使用相同数量的大麻会显着降低效果）。
- 戒断（即，由特征性戒断综合征定义或使用大麻/密切相关物质来缓解/避免戒断症状）

Severity specifiers: 严重性说明符

- Mild轻度: 2-3 symptoms
- Moderate中度: 4-5 symptoms
- Severe重度: 6 or more symptoms

禁欲几个月后，耐受性通常会丧失。

“Typical manifestations of cannabis use disorder include impairment in school or work function, giving up of previously enjoyed social and recreational activities, and persistent or recurrent interpersonal problems.”
Gorelick et al. (2021)
“大麻使用障碍的典型表现包括学校或工作功能受损、放弃以前喜欢的社交和娱乐活动，以及持续或反复出现的人际关系问题”

Cannabis Use Disorder大麻使用障碍

So according to the DSM-V, disordered use of cannabis is a very real thing.
In general, it is defined by the use of cannabis causing disruption or distress in multiple areas of an individual's life.
CUD however is different from dependence.

因此，根据 DSM-V，无序使用大麻是一件非常真实的事情。

一般来说，它的定义是使用大麻在个人生活的多个领域造成破坏或困扰。

然而，CUD 与依赖不同。

Cannabis Use Disorder – Prevalence 流行

- Nearly four percent of the global population was using cannabis in 2015.
- Hasin et al (2017) estimate that 20-30% of cannabis users qualify for CUD
- "Studies done over 25 years ago indicated that cannabis users rarely become dependent,[47] leading to a present-day common misconception that the risk of developing CUD among cannabis users is low.[48]
- However, recent national data indicate that approximately one out of five lifetime cannabis users meet criteria for DSM-5 CUD, and 23% are considered symptomatically severe."
- 2015年，全球近 4% 的人口使用大麻
- Hasin 等人 (2017) 估计 20-30% 的大麻使用者有资格获得 CUD
- “25 多年前进行的研究表明，大麻使用者很少变得依赖，[47]导致当今普遍的误解，即大麻使用者患 CUD 的风险很低。[48]
- 然而，最近的国家数据表明，大约五分之一的终生大麻使用者符合 DSM-5 CUD 的标准，23% 的人被认为症状严重。”

Cannabis use is an obvious precursor for CUD, but there is much more that goes into determining who is more likely to develop disordered use.

大麻的使用是 CUD 的一个明显先兆，但要确定谁更有可能发展为无序使用，还有很多事情要做。

- Genetic predisposition to have disordered use
- Environmental predisposition

    - Availability
    - Desirability
    - Social factors

- 使用障碍的遗传倾向
- 环境倾向
    - 可用性
    - 合意性
    - 社会因素

What is Cannabis Withdrawal? 什么是大麻戒断?

The last symptom outlined by the DSM-V is cannabis withdrawal.
However, cannabis is often referred to as a drug that does not have physical withdrawals like those of opioids or amphetamines.
Is cannabis withdrawal a real thing?

DSM-V 概述的最后一个症状是大麻戒断。

然而，大麻通常被称为一种没有像阿片类药物或安非他明那样身体戒断的药物。

大麻戒断是真的吗?

DSM-V Criteria for Cannabis Withdrawal
DSM-V 大麻戒断标准

There are four conditions required to qualify as cannabis withdrawal according to the DSM-V:

根据 DSM-V，有四个条件才能获得大麻戒断资格:

A. Cessation of use that has been heavy/prolonged (i.e., near daily over a period of a few months).
停止大量使用/长时间使用（即在几个月内几乎每天都使用）

B. 3 (or more) signs/symptoms develop within approx. 1 week of Criterion A:

- Irritability, anger, or aggression.
- Nervousness or anxiety.
- Sleep difficulty (e.g., insomnia, disturbing dreams).

- Decreased appetite or weight loss.
- Restlessness.
- Depressed mood.
- At least 1 of these physical symptoms causing significant discomfort: abdominal pain, shakiness/tremors, sweating, fever, chills, or headache.

大约 3 次（或更多）迹象/症状出现。标准 A 的 1 周：

- 易怒、愤怒或攻击性。
- 紧张或焦虑。
- 睡眠困难（例如，失眠、令人不安的梦）。
- 食欲下降或体重减轻。
- 烦躁不安。
- 心情郁闷。
- 这些身体症状中至少有 1 种会导致严重不适：腹痛、颤抖/颤抖、出汗、发烧、发冷或头痛。

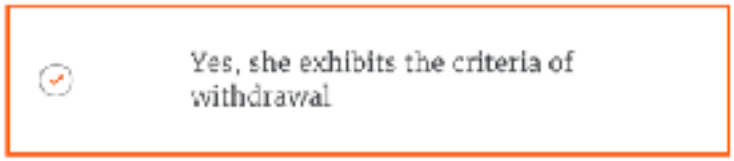
C. The signs/symptoms in Criterion B cause significant distress/impairment in social/occupational/other important areas of functioning.

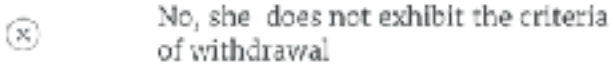
标准 B 中的迹象/症状在社会/职业/其他重要的功能领域造成严重的痛苦/损害。

D. The signs/symptoms are not attributable to another medical condition and not better explained by another mental disorder, including intoxication or withdrawal from another substance.

这些体征/症状不能归因于另一种医疗状况，也不能用另一种精神障碍更好地解释，包括中毒或戒断另一种物质。

Ariana was a heavy cannabis user. After stopping, she experienced sweating, irritability, anger, and anxiety. Is there a chance she is in cannabis withdrawals?



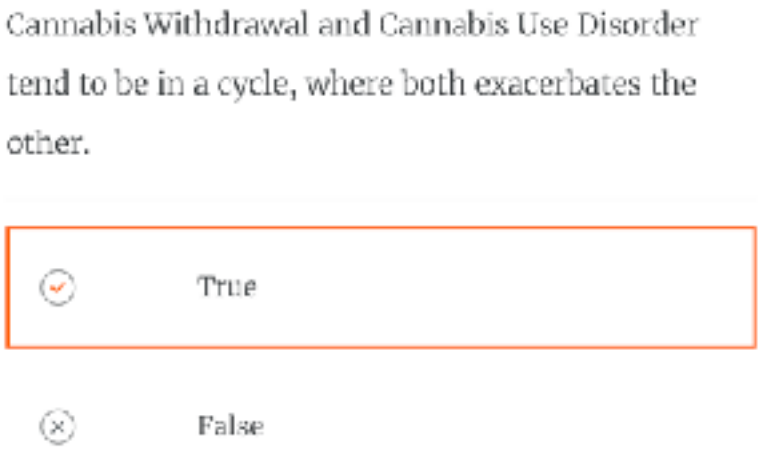


Cannabis Withdrawal

- Studies found that withdrawal symptoms were most intense the week after cessation, and could continue for as long as a month
- Users that experience withdrawal will have a harder time quitting with worsened treatment outcomes
- It is mildly heritable, with genetic and environmental factors affecting the experience and intensity

Cannabis Withdrawal - Prevalence

- Among cannabis users in the general population
  - One third
- Among heavy users
  - 50-95%
- "Approximately half of patients in treatment for cannabis use disorder experience a withdrawal syndrome on abrupt reduction or cessation of heavy or prolonged cannabis use." [11]
  - Negative reinforcement to begin cannabis use again



大麻戒断和大麻使用障碍往往处于一个循环中，两者都会加剧另一个。

Cannabis Use Disorder - Mood Disorders情绪障碍

Can CUD cause mood disorders? Can mood disorders cause CUD?

- **Major Depression:** Genetic studies find an underlying comorbidity between depression and CUD [11]
- **Psychosis:** Strongly associated with CUD and cannabis use in general. Research is unsure if it is causal or a predictor

Psychological problems are a symptom of CUD and withdrawal, indicating cannabis users should be wary of inducing/exacerbating mental health issues through cannabis.

- 重度抑郁症： 遗传研究发现抑郁症和 CUD [11]之间存在潜在的共病
- 精神病：通常与 CUD 和大麻使用密切相关。研究不确定这是因果关系还是预测因素

心理问题是 CUD 和戒断的症状，表明大麻使用者应该警惕通过大麻诱发/加剧心理健康问题。

Cannabis Use Disorder – Treatment治疗

The treatment goal for Cannabis Use Disorder is typically either:

- Sustained abstinence from cannabis
- Harm reduction: Reduced use that ameliorates cannabis-associated problems

Reducing frequency of use is associated with greater improvement than reducing quantity of use

大麻使用障碍的治疗目标通常是：

- 持续戒除大麻
- 减少危害：减少使用以改善大麻相关问题

减少使用频率比减少使用量带来更大的改善

Treatment for CUD is rare. CUD 的治疗很少见

- Current DSM 5 Cannabis Use Disorder diagnosis: 7.2%
- Lifetime DSM 5 Cannabis Use Disorder diagnosis: 13.7%
- 当前 DSM 5 大麻使用障碍诊断：7.2%
- 终生 DSM 5 大麻使用障碍诊断：13.7%

Despite overall increases in cannabis use, the proportion of adults who have received treatment for cannabis use has not changed since 2003.

尽管大麻使用总体上有所增加，但自 2003以来接受大麻使用治疗的成年人比例没有变化。

“Treatment for CUD typically occurs on an **outpatient** basis but may occur in an **inpatient** setting if a patient is acutely **psychotic, suicidal**, or requires **hospitalization** to treat a concurrent substance use or psychiatric disorder.

Evidence indicates that **psychosocial interventions** for CUD are most effective, while trials of **medication treatments** have inconsistent or weak results."
Aivadyan & Hasin, 2019
"CUD 的治疗通常在门诊进行，但如果患者患有急性精神病、有自杀倾向或需要住院治疗并发物质使用或精神障碍，则可能会在住院治疗中进行。
有证据表明，针对 CUD 的社会心理干预最有效，而药物治疗试验的结果不一致或微弱"

Psychosocial Interventions 心理社会干预

The best results come from:

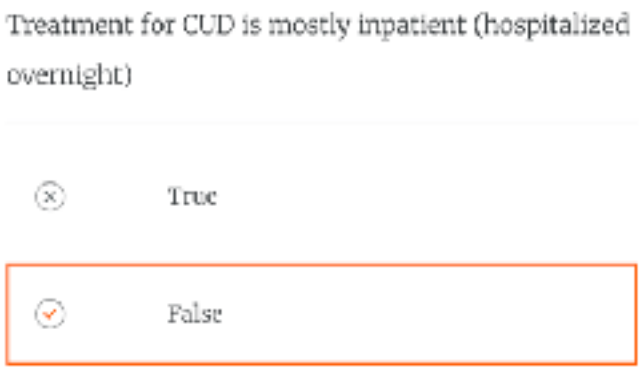
- Increasing awareness of cannabis' negative effects
- Enhancing motivation to decrease use
- Managing painful feelings
- Improving social skills
- Improving social support
- Improving interpersonal functioning

Either Cognitive Behavioral Treatment (CBT), Motivational Enhancement Theory (MET), or a mixture of the two has been proven effective.

最好的结果来自：

- 提高对大麻负面影响的认识
- 增强动机以减少使用
- 管理痛苦的感觉
- 提高社交技巧
- 改善社会支持
- 改善人际关系

认知行为治疗 (CBT)、动机增强理论 (MET) 或两者的混合已被证明是有效的。



Psychosocial Interventions心理社会干预

CBT: Helps individuals identify and cope with the overwhelming emotions that encourage substance abuse. CBT encourages replacing negative thoughts with healthier alternatives.

- Research shows that even one session of CBT can help those with CUD abstain.
- "CBT has the most robust evidence of efficacy for this disorder"

帮助个人识别和应对鼓励滥用药物的压倒性情绪。CBT 鼓励用更健康的替代品代替消极的想法。

- 研究表明，即使是一节 CBT 也可以帮助那些患有 CUD 的人戒烟。
- “CBT 有最有力的证据证明对这种疾病的疗效”

MET: helps to motivate individuals to abstain by providing personalized empathetic, educational support alongside Motivational Interviewing (MI).

- The patient is encouraged to explicitly identify the pros and cons of their cannabis use and balance them.
- MET lessens cannabis use and CUD severity.
- The combination of MET and CBT is more helpful than either alone

通过提供个性化的同理心、教育支持以及动机访谈 (MI)，帮助激励个人弃权。

- 鼓励患者明确确定他们使用大麻的利弊并平衡它们
- MET 减少了大麻的使用和 CUD 的严重程度。
- MET 和 CBT 的结合比单独使用更有帮助

MI: "a directive, patient-centered psychotherapy approach that helps individuals resolve ambivalence and increase motivation to reduce substance use through an empathic, supportive counseling style."

一种指导性的、以患者为中心的心理治疗方法，可通过移情、支持性的咨询方式帮助个人解决矛盾心理并增加减少药物使用的动力。

Pharmacological Treatments 药物治疗

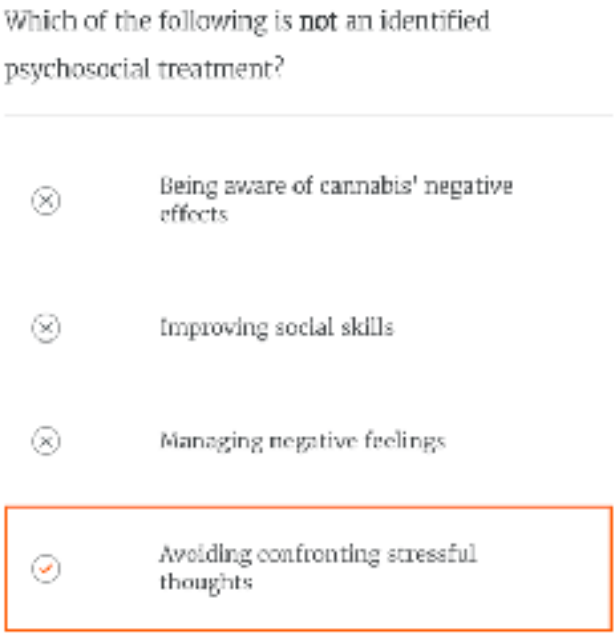
- Treating cannabis addiction with pharmaceuticals is very different from treating other substance addictions. The medications used to help opioid or nicotine addicts have not been found to be effective.
- **N-acetylcysteine** and **gabapentin** are two drugs that have shown promising results, but no medications are approved by the US FDA.
    - We will not go into detail with these drugs in this course

- 用药物治疗大麻成瘾与治疗其他物质成瘾非常不同。用于帮助阿片类药物或尼古丁成瘾者的药物尚未发现有效。
- **N-**乙酰半胱氨酸和加巴喷丁是两种显示出令人鼓舞的结果的药物，但没有药物获得美国 FDA 的批准。
    - 我们不会在本课程中详细介绍这些药物

Finding Alternatives 寻找替代品

- "Adoption of stable roles at school or work is associated with reduction in or cessation of cannabis use."
- Spending more time with friends and family, exploring passions, curating new hobbies, focusing on work or school (etc) are all great ways to reduce use

- “在学校或工作中采用稳定的角色与减少或停止使用大麻有关。”
- 花更多的时间与朋友和家人在一起，探索激情，培养新的爱好，专注于工作或学校（等）都是减少使用的好方法



视频：
Stop Smoking Weed: Why it's Hard to Quit

Summary

- Cannabis Use Disorder and Cannabis Withdrawal are real issues outlined in the DSM5
- Treatment is not yet fully explored, but some pharmacological interventions seem promising
- Either CBT, MET, or a combination of both has been proven to help CUD

- 大麻使用障碍和大麻戒断是 DSM5 中概述的实际问题
- 治疗尚未完全探索，但一些药物干预似乎有希望
- CBT、MET 或两者的组合已被证明有助于 CUD

8. Cannabis and Youth

Objectives

- Dierentiate inadvertent cannabis use among preteens (9-12 years), teenagers (13-16 years) and young adults (18 to 22 years)

- To understand perceptions of cannabis use by youth and why they use it

- To know the statistics associated of using cannabis in Canada

- To describe the variables used in research to identify cannabis use patterns

- Be aware of the risks associated with cannabis consumption for youth

Background

What is happening during adolescence that makes them more susceptible to harm from cannabis?

ADOLESCENCE

Adolescence: Transitional stage from childhood to adulthood that occurs between ages 13 and 19

- Starts in puberty and ends in when individuals become independent

- The brain during adolescence undergoes neuronmaturation - a period of "finetuning"

○ Particularly in areas of brain involving cognition, emotional regulation and decision-making

- White matter volume increases

- Grey matter volume peaks late childhood then decreases
  - "Pruning"

- Numbers of dendritic trees

- Number of synapses

- Mesolimbic circuit

- Prefrontal cortex

Reminder of the Laws:

What does The Cannabis Act do to protect youth?

Find out in the tabs below about what age restrictions, promotions, and possession limits are placed on Canadian minors under the law.

Age Restrictions

No person may sell or provide cannabis to any person under the age of 18. There are 2 criminal oences related to providing cannabis to youth, with maximum penalties of 14 years in jail:

- giving or selling cannabis to youth
- using a youth to commit a cannabis-related oence

○ From Government of Canada, D. of J. (2021, February 3). Cannabis Legalization and Regulation. Government of Canada, Department of Justice, Electronic Communications. https://www.justice.gc.ca/eng/cj-jp/cannabis/.

- **Underage by province:**
  - Alberta: under 18
  - All other provinces and territories: under 19

- Quebec: under 21 ○
- ○

Restricting Promotion and Enticement

The Cannabis Act helps discourage youth cannabis use by prohibiting:

- products that are appealing to youth

- packaging or labelling cannabis in a way that makes it appealing to youth

- selling cannabis through self-service displays or vending machines

- promoting cannabis, except in narrow circumstances where young
people could not see the promotion

Penalties for violating these prohibitions include a fine of up to $5 million or 3 years in jail.

What does The Cannabis Act say about underage possession?

"Individuals under the age of 18 years would not face criminal prosecution for possessing or sharing very small amounts of cannabis (up to 5 grams). Provinces and territories have the flexibility to prohibit the possession of any amount of cannabis by youth, thereby permitting police to seize any cannabis that a youth may possess. All provinces and territories will be including such prohibitions in their cannabis legislation."

Possession over 5 grams is subject to Criminal Code.

If a 19 year old in BC passed a join to their 18 year old friend, they could be charged with providing cannabis to a minor even if their

friend is only a few weeks younger.
True

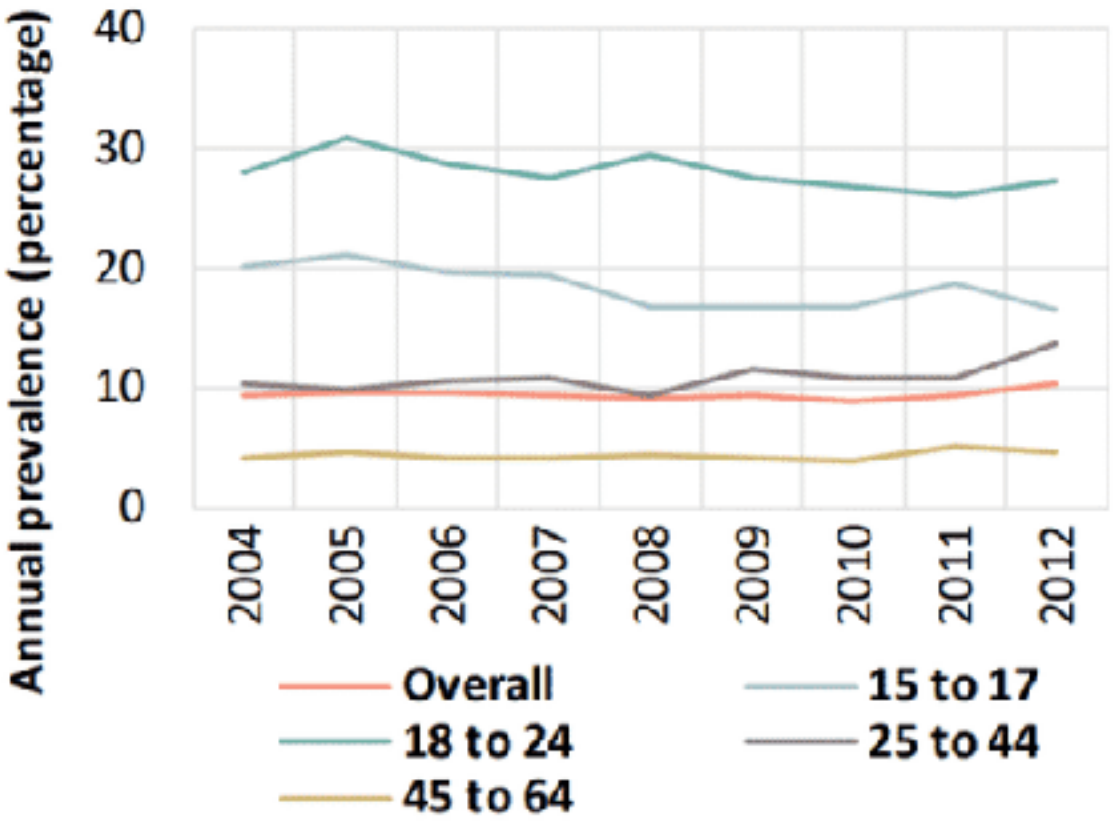
Cannabis is not permitted to be sold in vending machines for the sole reason that cannabis products cannot be sold unsupervised.
False

Prevalence of Underage Use

Despite the laws, we know that both young adults and underage minors use cannabis in Canada. In what proportions are they using cannabis?

In 2010, Canadian youth reported the highest cannabis use out of 43 countries across Europe and North America. [45]

FIG. 19 Cannabis use in Canada, by age group, 2004–2012



Source: Canadian drug use monitoring survey (CADUMS), 2004–2012.

In what proportions are Canada's youth using recreational cannabis?

- Past-year use of cannabis is highest among young people ages 15–19 (19 %) and ages 20–24 (33%) [39]

- 2.3% of users aged 12-17 have a cannabis use disorder, while 7.5% of users aged 18-29 have a CUD [14]

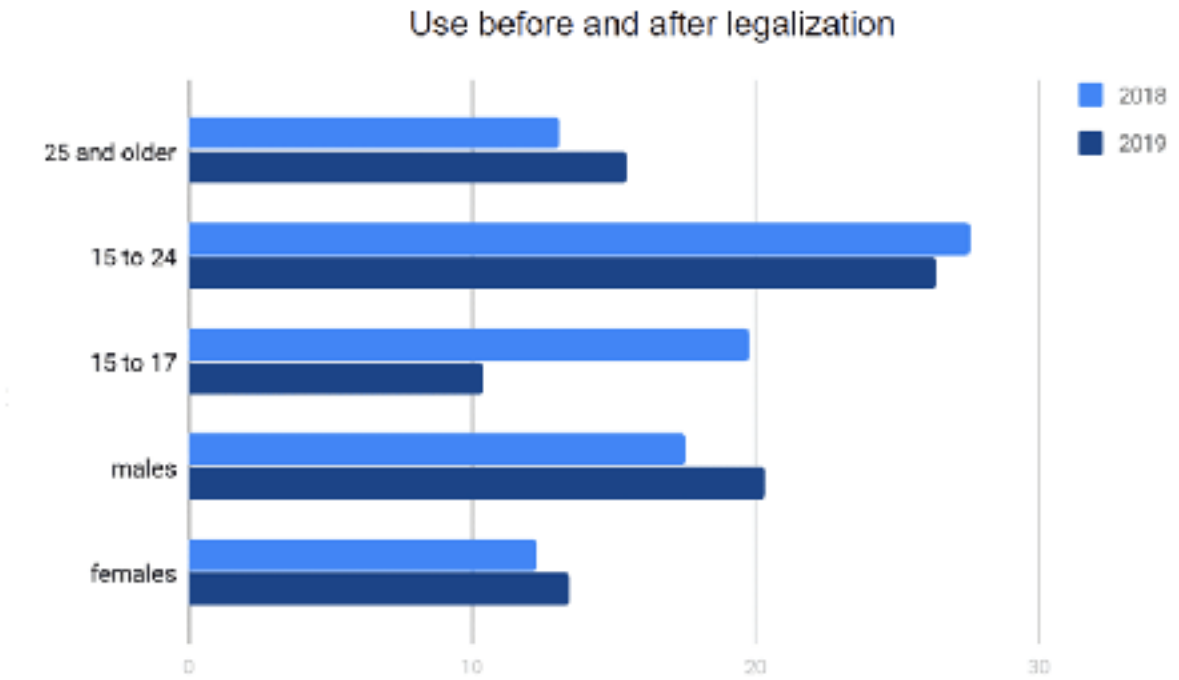
- First use occurs on average at age 15-16 [10] Prevalence of Underage Use

How was use aected by legalization?

- "2018-2019 use increase: The corresponding rates for 15- to 24-year-olds (27.6% to 26.4%) and females (12.3% to 13.4%) remained constant. Whereas use among 15- to 17-year-olds declined (19.8% to 10.4%)." [35]

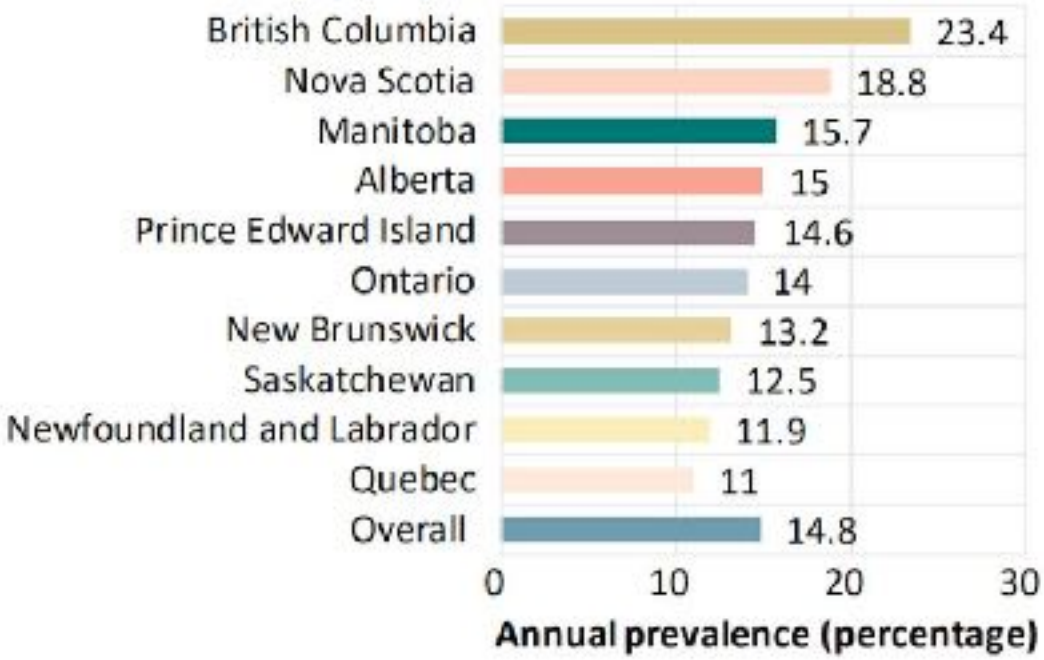
- The decline may in fact be due to legalization, or just a continuation of the
steady decrease that has been happening since the 2010s.
  -

Graph adapted from Statistics Canada. (2020, February 19). Table 1 . Government of Canada. https://www150.statcan.gc.ca/n1/pub/82-003-x/2020002/article/00002/tbl/tbl01-eng.htm.



Prevalence of cannabis use and daily or almost daily use in the past 3 months, by before or after legalization and selected demographics, household population aged 15 or older, Canada (provinces only), 2018 and 2019

FIG. 18 Cannabis use among the population aged 15 and older in Canada, by province, 2017



Match the age group to their average past year cannabis use (%)

● 15-19 19% ●
● 20-24 33% ●

● 45-64 About 5%
●
● Overall About 10%

Despite the legalities, minors actually report the highest prevalence of past year cannabis use in Canada.
False

Why do youth use cannabis?

In Canada, 19% of 15 to 19-year-olds report past year use, with first use occurring at the average age of 15/16.

But what prompts minors and young adults to use cannabis? Why do youth use cannabis?

Why do young people use cannabis recreationally?

Generally, [42]

- To relieve boredom
- To satisfy curiosity
- To experiment
- To feel good/better

- Tofitin

“It is thought that generally, males are more likely to use substances for the positive

reward, or the high experience, whereas females use substances to avoid a negative feeling, to cope or self-medicate” [42]

Why do youth use cannabis?

Cannabis and Youth

How do they perceive cannabis use?

Overall, young people seem to be misinformed about cannabis. In many studies they express perceptions that: [30, 33, 9]

- Cannabis is not harmful, especially when compared to other drugs, because it is a natural plant.

- Cannabis improves driving because it heightens focus

- Cannabis is not addictive and does not cause withdrawal

- The eects of cannabis depend more on the person than on the substance

- That all youth use cannabis, with their estimated rates ranging from 30-98.8%

The main reason females use cannabis is to avoid a negative feeling, to cope or self-medicate. True

Why do youth use cannabis?

What aects the proportion of recreational use of cannabis among youth?

- CUD in fathers is correlated with earlier age of use in daughters (14.6 vs 17.2 years) but not sons. [11]

- Conduct problems predict peer cannabis use, which predicts increasing levels of youth cannabis use, which ultimately predicts CUD. [16]

- Other important factors that increase use include availability, mental disorders, trauma, parental absence or divorce. [37]

- Positive parental relationships and peer relationships that avoid cannabis is associated with at least 2x lower prevalence of past-month cannabis use among adolescents. [5]

- A higher frequency of use is associated with the male gender, lower economic status, maternal aective problems and openness towards/ consumption of other drugs.[37]

Family situations, like divorce, parental CUD, relationships etc... are shown to have a huge impact on youth cannabis use.

True

Why do youth use cannabis?

Cannabis and Youth: Self Medication

Why do youth self-administer cannabis? [8]

- Many youth report using cannabis to “feel better”, and not for the high
    - Self-medicated users (ages 16-24) have been found to have lower mental health, higher psychopathology, more psychosocial distress and more stressful life events than non-cannabis-using youth
    - Reasons behind use ranged from childhood trauma, ADHD, depression, insomnia, to stress
    - While self-medicated users did have measured doses, they lacked a lot of knowledge about medical cannabis, despite presenting themselves as sophisticated cannabis users

How does cannabis use aect youth?

The use of cannabis on a developing brain is not recommended, as shown by the laws protecting minors in The Cannabis Act. But how does it actually impact the mind and body of young cannabis users?

Cannabis and Youth: Recreational

How does cannabis exposure aect the developing

brain?

- The brain is still maturing, driven by changes in **brain grey matter (GM**) due to synaptic pruning, until the mid-20s [38]

- **Cannabinoid receptors** modulate **neurotransmitters** that have significant effects on the brain. As such, they are susceptible to THC

- The **frontal cortex** is going through rapid change and more susceptible to THC

- **"Structural changes on MRI** have also been documented in youth who use cannabis
regularly. They show **lower brain volumes,** different **folding patterns** and **thinning** of the **cortex**, less **neural connectivity** and lower **white matter integrity**, all of which indicate damage by THC" [45]

What are the consequences of damage to a developing brain?

- Regular cannabis use in youth and young adults can aect aspects of **cognition,** including **attention**, **memory**, **processing speed**, **visuospatial functioning** and overall **intelligence** [38]

- "Cannabis use in the teenage years is associated with a **disruption to the brain's reward system**, impaired memory and cognition, and the potential for structural brain changes" [42]

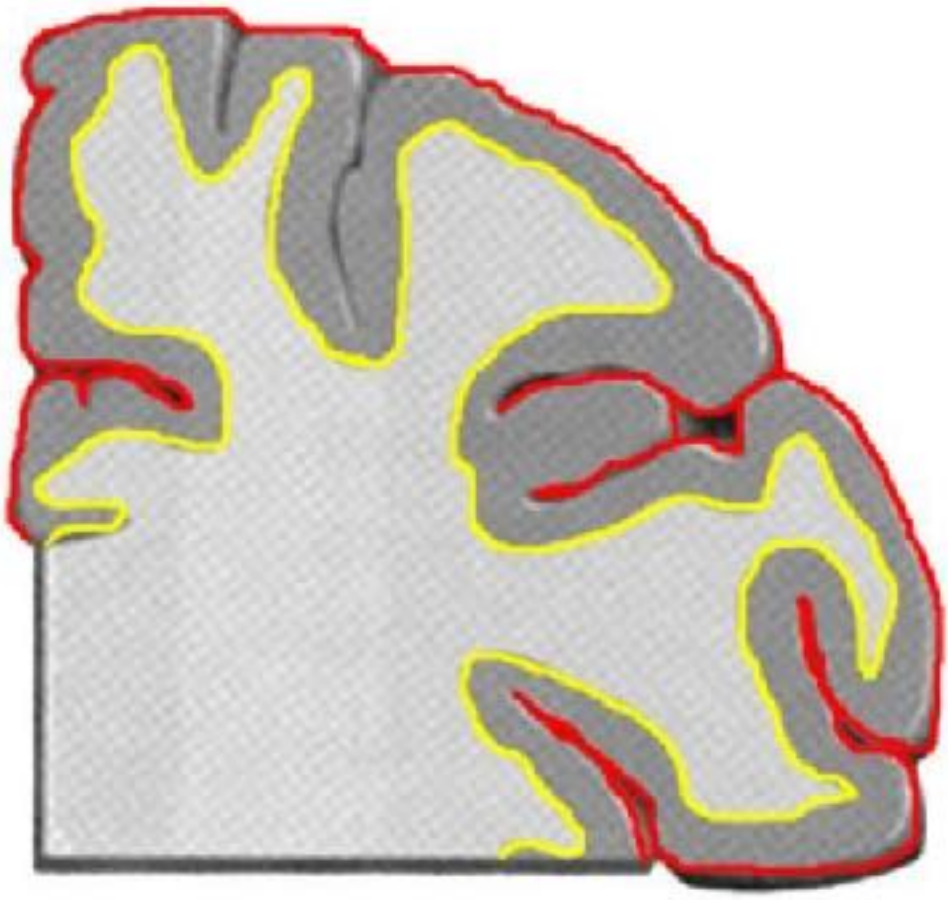
- Cannabis is suggested to **negatively aect IQ**, although this is dicult to prove because earlier onset of use is associated with lower baseline IQ [29]

Ogre, G. D. (2007). Human cerebral cortex. Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Human_cerebral_cortex.png.

Cannabis and Youth: Recreational

Can Cannabis Cause Mental Disorders?

- Earlier and higher frequency of use increases the risk of developing mental health disorders in vulnerable individuals [38]



○ High THC content is strongly related to mental disorders

● The onset of many mental disorders occur before the brain is done developing.

(Anxiety, depression, bipolar disorder, psychosis/schizophrenia)
○ Using cannabis could increase the risk for predisposed illnesses

Cannabis use in teenagers has **not** been tied to worsened academic performance.
False

Cannabis and Youth: Recreational

Is the damage permanent?

- Abstinence following regular use may improve some, but not all, of cognitive consequences [38]

- A study reported that having greater days of abstinence from alcohol and drugs was associated with improved executive functioning [27]

- Continued abstinence is expected to improve attention, verbal memory, and neuronal processing speed [27]

The most important thing is prevention, with the key detrimental factors being high frequency, high THC content, and young age of onset.

UNODC. (2019). Cannabis use among the population aged 15 and older in Canada, by province, 2017. Retrieved from https://wdr.unodc.org/wdr2019/prelaunch/WD R19_Booklet_5_CANNABIS_ HALLUCINOGENS.pdf

Cannabis and Youth: Recreational

Complexities:

- "Heavy marijuana use in adolescence or early adulthood has been associated with a dismal set of life outcomes including **poor school performance**, **higher dropout rates**, **increased welfare dependence, greater unemployment** and **lower life satisfaction**."[44]

- This seems extremely condemning, HOWEVER:

- Researchers acknowledge that those predisposed to try and enjoy cannabis in the first place may be predisposed to a variety of vulnerability factors.

○ Correlation does not equal causation

In the past few years, teenagers have also been increasingly vaping and dabbing, with often unregulated cannabis products that can have very high THC contents. This is a major cause for concern. True

Some of the aspects that impact the developing brain **most** are age of onset, regularity of use, and THC content.
True

Other concerns: Cannabis as a Gateway Drug

One reason that parents or programs advice youth against cannabis is because it is supposedly a "gateway drug" in that it can lead to more intense and dangerous experimentation.

The gateway drug hypothesis is a general causal model. The *correlation* between cannabis use and

later substance use is *significant*, but we can not be sure that it is **cannabis use** that **causes other drug use**. [46]

(*Correlation does not equal causation*)

Is the notion of cannabis as a gateway drug myth or a real concern?

Cannabis and Youth: Recreational

Cannabis as a Gateway Drug:

Research shows that there are 3 reasons that cannabis may be seen as a gateway drug: [44]

1. The desire to use cannabis may have a pre-existing (potentially genetic) trait that would predispose them to use other drugs as well as cannabis

2. That using cannabis makes the individual more likely to be with peers and in settings that "provide more opportunities to

use other illicit drugs at an earlier age"

3. That "socialization into an illicit drug subculture" could promote favorable attitudes towards the use of other drugs.

However, certain animal studies do correlate regular cannabis use with detrimental eects on the brain that increase the likelihood of using other drugs.

While certain animal studies do show that cannabis is a gateway drug, human research cannot conclude that cannabis is the causal factor in the desire to use harder drugs. True

Which one of these wasn't an explanation for the fact that cannabis use may result in other drug use?

1. Exposure to drug-positive subculture Incorrectly selected

2. Individuals may be genetically predisposed to use both cannabis and other drugs Correctly unselected

3. Peers and settings that use cannabis may provide other opportunities to use drugs

Correctly unselected
4. Cannabis results in a tolerance that only harder drugs can satisfy (对)

Other concerns: Cannabis and Driving

While the danger of driving while high on cannabis is not isolated to adolescents, as discussed, teenagers have many misconceptions about the activity. It is an issue that aects every age group, especially as it is often touted as safer than driving drunk.

In reality, driving while under the influence of any substance is incredibly irresponsible and endangers the life of the driver, the passengers, and strangers.

Cannabis and Youth: Driving

Prevalence [1]

- Among those who have used cannabis, 28% reported they have operated a vehicle while under the influence

- One in three Canadians (33%) report that they have ridden in a vehicle operated by a driver who was under the eects of cannabis

Cannabis and Youth: Driving

Impairment [1]

Cannabis can impair each person dierently. The impairment on individuals can depend on:

- The method of consumption, for example how cannabis was consumed (smoked, inhaled, ingested)

- The quantity of cannabis consumed

- The variety of cannabis and its THC levels, including cannabis prescribed
for medical use.

Cannabis and Youth: Driving

Impairment [1]

Cannabis use, in any amount can:

- Aect motor skills

- Slow reaction time

- Impair short term memory and concentration

- Cause drivers to vary speed and to wander

- Reduce the ability to make decisions quickly or handle unexpected events

"Evidence suggests recent smoking and/or blood THC concentrations 2–5 ng/mL are associated with substantial driving

impairment, particularly in occasional smokers." (Hartmann & Huestis, 2012)[3]

Cannabis and Youth: Driving

High vs Drunk Driving [2]

- Drunk drivers are involved in 25% of motor vehicle fatalities

- Many drivers from alcohol-related accidents also test positive for
cannabis.

- Cannabis and alcohol acutely impair several driving-related skills in a
dose-related fashion

- The eects of cannabis vary more between individuals than they do with
alcohol due to
  - Tolerance

  - Dierences in smoking technique

  - Dierent absorptions of THC

Experts recommend driving high over driving drunk False

Cannabis and Youth: Driving

The Diculty of Testing [4]

- Testing at the side of the road for impairment is not as simple with cannabis as it is with alcohol

- When ingesting cannabis, THC is distributed to body tissue, where it is absorbed and still detectable even after impairment has resolved

- Due to accumulation of THC in body tissue, drivers (especially frequent cannabis users) will test positive for cannabis even if they are not impaired at the time of driving, and for example, had smoked the day before driving

- The law requires less than 2 nanograms of THC per ml of blood within two hours of driving
    - For reference, blood THC levels peak around 50 ng/mL after smoking (10 mins).

    - Frequent users will often have 2 ng/mL lingering in their system

Cannabis and Youth: Driving

Expert recommendations:

- Wait several hours before driving

- Avoid combining alcohol and cannabis

- Risk of using both higher than either alone

- Risk of using one or other or higher than none

A study conducted (mentioned previously) found that adolescents believed cannabis to improve driving as it heightened focus.

True

Cannabis and Youth: Medical

So far, we have focused on the concerns of recreational (or self-dosed "medicinal") use on the developing brain.

However, with proper research and regulations, there are benefits to underage *medical* cannabis use.

The majority of the research regarding pediatric medical cannabis use highlights its impact on epilepsy. Please watch the following videos about medical cannabis case studies:

While there are plenty of anecdotal claims that medical cannabis can help the suering of children, the research is not yet developed about the long term dangers and eects.

True

Epilepsy

Most of the research about underage medical cannabis use has revolved around epilepsy.

- More specifically, Dravet Syndrome.

- The famous case of young Charlotte Figi who used high CBD low THC cannabis
to find relief from 300 seizures a week.

○ With CBD, she was down to one a week.

● Charlotte was a pioneer, and now many epileptic children are treated with CBD.

● Growers named a strain after her, called Charlotte's Web. It is 13% CBD and 1%
THC

Cannabis and Youth: Medical

Other Treatments

As you saw in the video "Medical marijuana for kids?", cannabis is also being dosed to children for a variety of ailments, including:

● Cancer treatment (high THC) ● Autism
● ADHD

However, there has not been enough research to substantiate these anecdotal claims that medical cannabis is purely beneficial and safe for children.

Nevertheless, many

Reflection:

Given what you now know about cannabis use, do you think the legal age in Alberta should be changed to age 19 or even 21 like in Quebec?

Youth ages 16 to 24 are surprisingly sophisticated when it comes to knowledge about medical cannabis.
False

Historically, cannabis use is associated with the male gender and lower economic status. The same is true today. True

Researchers do not yet know if the use of cannabis causes the use of other drugs, even though it does seem correlated. True

Smoking under the age of 25 is recommended by researchers, as it can stimulate a developing brain.
False

Summary

Here is a summary of what we learned about underage cannabis use:

- **Prevalence:** 19% of Canadians age 15-19 report past year cannabis use

- **What is known:** brain development is incomplete until late emerging adulthood (25 years)

- **What is hypothesized:** Cannabis may aect neuromaturation that occurs normally in adolescence

- **Data suggests**: Cognitive performance may improve in cannabis users following a period of abstinence (Hanson et al., 2010)

  - Age of onset, frequency, dose of cannabis use impact cognitive performance (Gruber et al., 2011)

  - Before age 16 (early onset), after age 16 (late onset)

- **Complexities:** Adolescents who use cannabis, also commonly use other drugs like tobacco and alcohol, with the use of both typically onset during teenage years

- **Exceptions:** Some youth seem to benefit from the use of cannabinoids, although the research has not yet caught up to the individual testimonials

Ch9. Vulnerable Populations

Objectives

- Understand the effects of cannabis consumption for various groups (couples that are not able to conceive, those with: bipolar disorder, major depression, anxiety disorders, schizophrenia, OCD, ADHD and antisocial disorders)
- Gain a better understanding of the reasons why certain populations consume cannabis at a greater rate
- Understand cannabis use and its comorbidity, and related causality, with these groups
- Be able to explain why cannabis is not recommended for certain groups of people
- 了解大麻消费对不同群体的影响（无法怀孕的夫妇，患有：躁郁症、重性抑郁症、焦虑症、精神分裂症、强迫症、多动症和反社会障碍的夫妇）
- 更好地了解某些人群以更高的速度消费大麻的原因
- 了解这些群体的大麻使用及其合并症和相关因果关系
- 能够解释为什么不建议某些人群使用大麻

Vulnerable Populations　弱势群体

We have been exploring the positive and negative effects of cannabis on the human body and mind. At this point, you should know the uses, situations, and circumstances where cannabis can be employed to benefit a user (medicinally or recreationally).
In this section we will learn about the individuals who are especially vulnerable to cannabis use.
我们一直在探索大麻对人体和心灵的正面和负面影响。在这一点上，您应该知道可以使用大麻来使用户受益（医学上或娱乐上）的用途、情况和情况。
在本节中，我们将了解特别容易受到大麻使用影响的个人。

Vulnerable Populations: We will study the following groups of individuals

1. Those at greater risk for the detrimental effects of cannabis
2. Those statistically more likely to use and abuse cannabis

弱势群体：我们将研究以下人群

1. 那些受大麻有害影响风险更大的人
2. 统计上更有可能使用和滥用大麻的人

Part 1: Individuals that are recommended to avoid cannabis.　第 1 部分：建议避免使用大麻的个人。

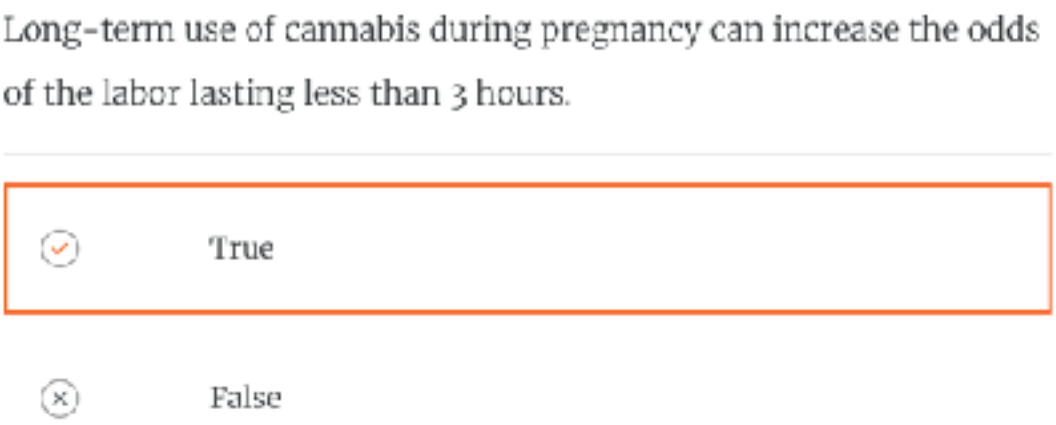
These vulnerable populations include pregnant women, babies, couples trying to conceive, and those with certain physical and mental health complications.
这些弱势群体包括孕妇、婴儿、试图怀孕的夫妇以及患有某些身心健康并发症的人。

Pregnancy

- In Western societies, pregnant women consume cannabis more frequently than any other illicit drug (at a rate of 2-6%)[43], although this is probably an underestimation
    - An estimated 4.0% of women use cannabis in the first trimester, 3.5% in the second, and 2.7% in the third [22]
    - Cannabis is mostly used during pregnancy to treat morning sickness, despite lack of research
- 在西方社会，孕妇吸食大麻的频率高于任何其他非法药物（比例为 2-6%）[43]，尽管这可能被 低估了
    - 估计有 4.0% 的女性在孕早期使用大麻，在孕中期使用大麻的比例为 3.5%，在孕晚期使用大麻的比例为 2.7% [22]
    - 尽管缺乏研究，大麻主要在怀孕期间用于治疗孕吐

- Short-term effects of consuming cannabis during pregnancy: [23]
    - Cannabis decreases blood pressure, which may cause dizziness or fainting, potentially resulting in an injury to mother or fetus
    - May cause anxiety, paranoia, confusion or forgetfulness
- 怀孕期间食用大麻的短期影响：
    - 大麻降低血压，这可能会导致头晕或昏厥，可能对母亲或胎儿造成伤害
    - 可能导致焦虑、偏执、困惑或健忘

- Long-term effects of consuming cannabis during pregnancy:
    - Increases odds of anemia
    - May increase odds of precipitous labor and manual placenta removal
- 怀孕期间食用大麻的长期影响：
    - 增加贫血的几率
    - 可能会增加急产和人工取出胎盘的几率



Long-term use of cannabis during pregnancy can increase the odds of the labor lasting less than 3 hours. 怀孕期间长期使用大麻会增加分娩持续不到 3 小时的几率。

Prenatal 产前

How does cannabis exposure by way of the pregnant mother affect the fetus?

- THC is lipophilic, resulting in an estimated one-third of THC in the plasma crossing the fetoplacental barrier [6]
- A study found that the placentas of cannabis users were heavier, suggesting more grams of placental/gram fetal tissue were needed to support development [43]

Pregnant women using cannabis are also more likely to use other substances, which can create a synergistic effect

孕妇接触大麻对胎儿有何影响?

- THC 是亲脂性的，导致血浆中估计有三分之一的 THC 穿过胎盘屏障[6]
- 一项研究发现大麻使用者的胎盘更重，这表明需要更多克胎盘/克胎儿组织来支持发育[43]

使用大麻的孕妇也更有可能使用其他物质，这些物质可以产生协同效应[5]

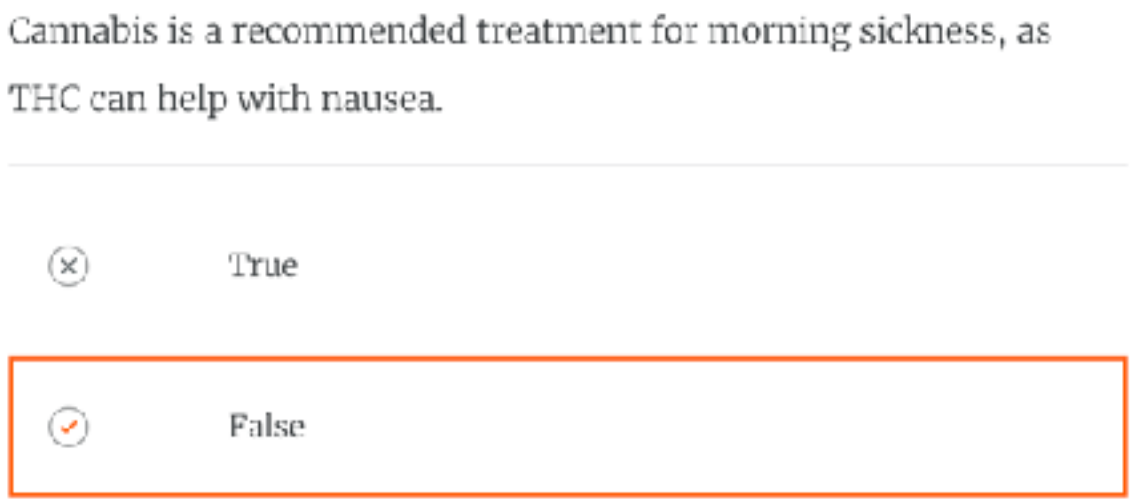
Newborns新生儿

How does cannabis exposure by way of the pregnant mother affect the newborn? [22]

- Cannabis use negatively affects birth weight, [6] neonatal length, head circumference at birth and size for gestational age
- Cannabis use increases the odds of fetal LBW (Low Birth Weight)[6], PTB (Preterm Birth), and placement in ICU/NICU [6]
    - At least weekly cannabis use during pregnancy resulted in a lighter birth weight of an average of 84.2 grams when compared to the offspring of women who did not use cannabis [31]
- Newborns demonstrated withdrawal-like symptoms [5]
- However, studies are often confounded by polysubstance use

孕妇接触大麻对新生儿有何影响?

- 大麻负面影响使用出生体重，[6]新生儿长度，头围在出生时和大小胎龄
- 大麻的使用会增加胎儿 LBW（低出生体重）[6]、PTB（早产）和入住 ICU/NICU的几率[6]
    - 与未使用大麻的妇女的后代相比，怀孕期间至少每周使用大麻导致出生体重较轻，平均为 84.2 克[31]
- 新生儿表现出戒断样症状[5]
- 然而，研究经常被多物质使用所混淆



Cannabis is a recommended treatment for morning sickness, as THC can help with nausea. 大麻是治疗孕吐的推荐疗法，因为 THC 可以帮助缓解恶心。（✗）

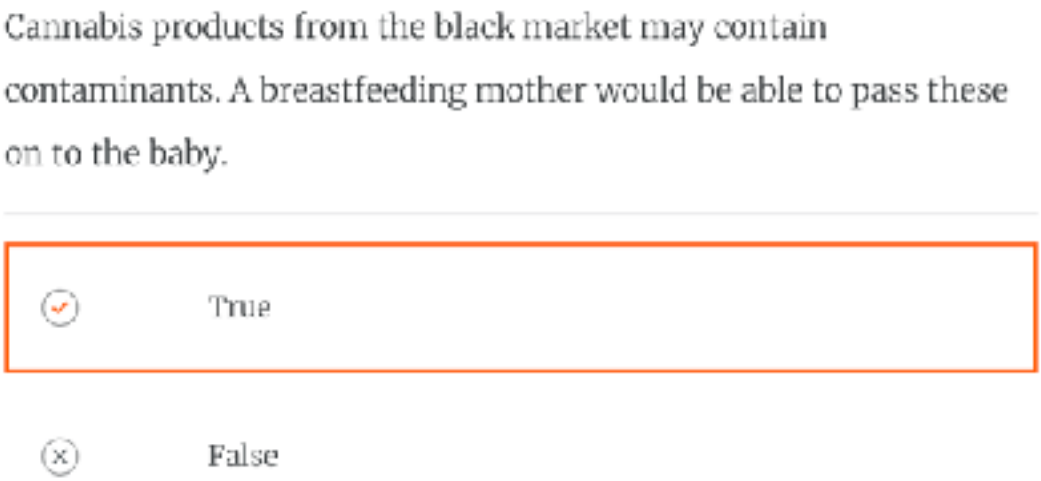
Nursing Babies 护理婴儿

How does cannabis exposure by way of the pregnant mother's milk affect the baby?

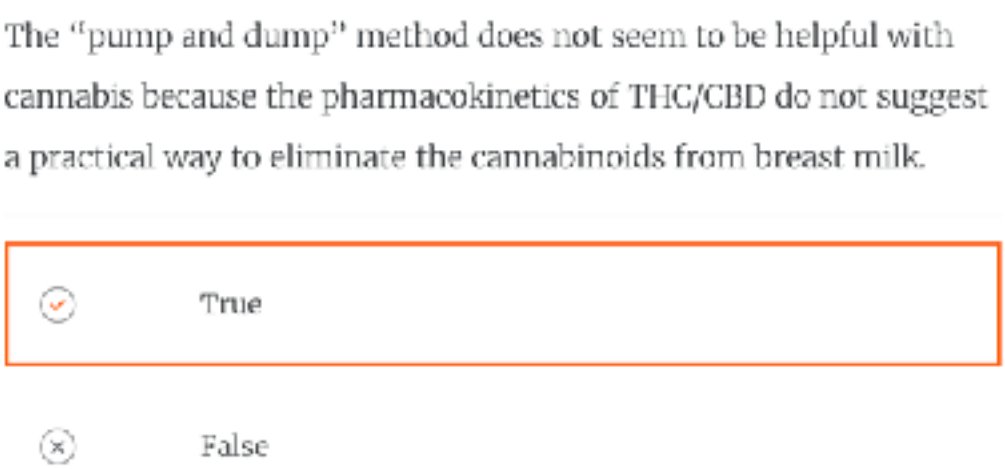
- Research shows that 0.8 to 2.5% of the mother's THC dose enters the breast milk. [14]
- "In chronic, heavy users the milk-to-plasma ratio can be as high as 8:1 and metabolites of cannabis are found in infant feces and urine, suggesting that it may have been absorbed and metabolized by the infant." [5]
- THC exposure in babies may result in drowsiness and poor suckling, impeding breast feeding and nutrient intake. [23]
- THC may impede lactation by stopping prolactin secretion.

通过孕妇母乳接触大麻对婴儿有何影响?

- 研究表明，母亲摄入的 THC 剂量的 0.8% 至 2.5% 会进入母乳。[14]
- "在慢性、重度吸食者中，牛奶与血浆的比例可高达 8:1，并且在婴儿粪便和尿液中发现了大麻的代谢物，这表明它可能已被婴儿吸收和代谢。" [5]
- 婴儿接触四氢大麻酚可能会导致困倦和吸吮不良，阻碍母乳喂养和营养摄入。[23]
- THC 可能会通过阻止催乳素分泌来阻碍泌乳。[14]



Cannabis products from the black market may contain contaminants. A breastfeeding mother would be able to pass these on to the baby. 来自黑市的大麻产品可能含有污染物。母乳喂养的母亲可以将这些传给婴儿。



The "pump and dump" method does not seem to be helpful with cannabis because the pharmacokinetics of THC/CBD do not suggest a practical way to eliminate the cannabinoids from breast milk. "抽吸和倾倒"方法似乎对大麻没有帮助，因为 THC/CBD 的药代动力学并未提出从母乳中消除大麻素的实用方法。

Babies婴儿

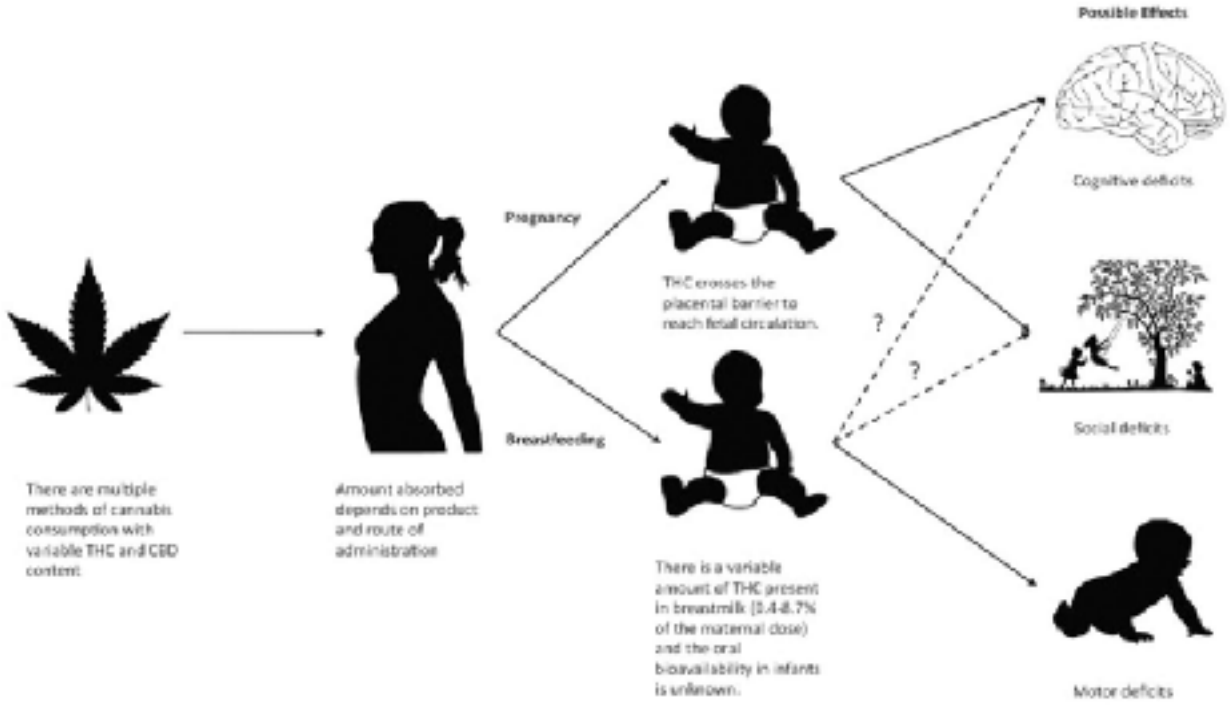
How does THC exposure effect babies?

- "Second hand cannabis exposure is an independent risk factor for sudden infant death syndrome". [5]
- A positive test for THC in a child's system may have negative legal implications, especially in certain states. [3]

- Additionally, babies may be indirectly affected by THC if their caregiver is impaired and unable to properly care for them.

THC 暴露如何影响婴儿?

- “二手大麻暴露是婴儿猝死综合征的独立危险因素”。[5]
- 儿童系统中 THC 的阳性测试可能会产生负面的法律影响，尤其是在某些州。[3]
- 此外，如果婴儿的照顾者有障碍并且无法妥善照顾他们，婴儿可能会间接受到 THC 的影响。



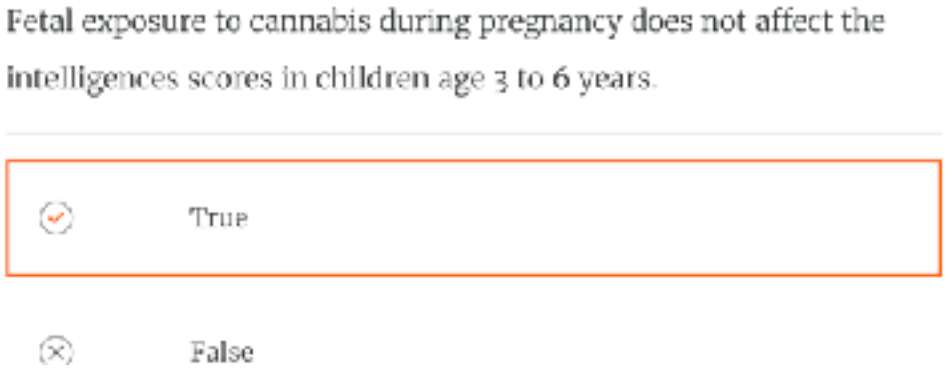
Long term effects of cannabis exposure during pregnancy
怀孕期间接触大麻的长期影响

The following charts describe the effects of cannabis use for children as they develop.
以下图表描述了使用大麻对儿童发育的影响。

Toddlers (9-18 months)	Preschool children (3-4 years)	Children (5-6 years)
• Worse mental scores on developmental test at 9 months, although difference disappeared by 18 months [43] • Increased aggression [33] • Decreased attention in females [33]	• Decreased verbal and perceptual skills [43, 33] • Decreased verbal and visual reasoning [43, 33] • Decreased short-term memory [43, 33] • Increased hyperactivity, attention deficits, and impulsivity [33] • Unaffected intelligence scores [43]	• Short-term memory deficits [43, 33] • Increased hyperactivity and impulsivity [43, 33] • Impaired vigilance [33] • Unaffected intelligence scores [43]

Preteens (9-12 years)	Teenagers (13-16 years)	Young Adults (18-22 years)
• Reduced cortical gray matter and parenchymal volume (ages 10-14)[43] • Deficits in executive functioning, reading, spelling, abstract and visual reasoning [43, 33] • Increased hyperactivity, depressive and anxious symptoms, inattention and impulsivity [43, 33]	• Deficits in executive functions, visual memory, visual-cognitive functioning, academic achievement, information processing speed, and visual-motor coordination [43, 33] • Increased delinquency [43, 33] and inattention [43]	• Deficits in executive functioning, response inhibition, and visuospatial working memory [43, 33] • Increased rates of smoking, substance use, and early initiation of substance use [33]

幼儿（9-18 个月）	学龄前儿童（3-4 岁）	儿童（5-6 岁）
• 9 个月时发育测试的心理评分更差，尽管差异在 18 个月时消失[43] • 增加攻击性[33] • 女性注意力下降[33]	• 语言和感知能力下降[43, 33] • 减少口头和视觉推理[43, 33] • 短期记忆力下降[43, 33] • 多动、注意力缺陷和冲动增加[33] • 未受影响的智力得分[43]	• 短期记忆缺陷[43, 33] • 多动和冲动增加[43, 33] • 警觉性降低[33] • 未受影响的智力得分[43]
青春期前（9-12 岁）	**青少年（13-16 岁）**	**年轻人（18-22 岁）**
• 皮质灰质和实质体积减少（10-14 岁）[43] • 执行功能、阅读、拼写、抽象和视觉推理方面的缺陷[43, 33] • 多动、抑郁和焦虑症状、注意力不集中和冲动增加[43, 33]	• 执行功能、视觉记忆、视觉认知功能、学业成绩、信息处理速度和视觉运动协调的缺陷[43, 33] • 增加拖欠[43, 33]和注意力不集中[43]	• 执行功能、反应抑制和视觉空间工作记忆缺陷[43, 33] • 吸烟、吸毒和提早开始吸毒的比率增加[33]



Fetal exposure to cannabis during pregnancy does not affect the intelligences scores in children age 3 to 6 years.胎儿在怀孕期间接触大麻不会影响 3 至 6 岁儿童的智力评分。

Couples trying to conceive试图怀孕的夫妇

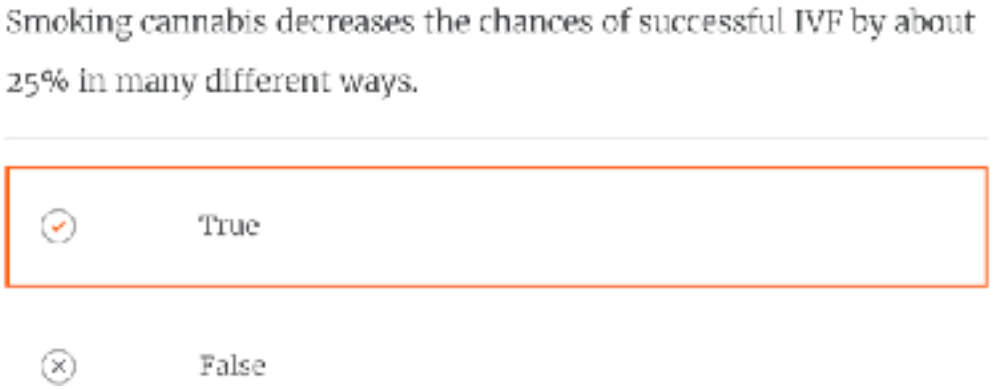
Men: 男性

- Sperm concentration (28% lower), count (28% lower), motility, and percentage of morphologically normal forms were all decreased in men who reported smoking more than once per week

- CB1 receptors have been identified in the testis, vas deferens, and human sperm cells
- However, men who smoke more cannabis tend to lead less healthy lifestyles
- 每周吸烟超过一次的男性的精子浓度（降低 28%）、数量（降低 28%）、活力和形态正常形式的百分比均降低
- 已在睾丸、输精管和人类精子细胞中鉴定出 CB1 受体
- 然而，吸食更多大麻的男性往往过着不太健康的生活方式

Women: 女性
- Cannabis may disrupt menstrual cycles or decrease egg implantation
- 大麻可能会扰乱月经周期或减少卵子着床

In Vitro: 体外
- Smoking at least 90 times over a lifetime resulted in 27% fewer oocytes retrieved and 1 fewer embryo transferred
- Smoking 1 year before IVF resulted in 25% fewer oocytes retrieved and 28% fewer oocytes fertilized.
- Smoking cannabis reduces IVF success chances
- 一生中至少吸烟 90 次导致取卵的卵母细胞减少 27%，移植的胚胎减少 1 个
- 在试管婴儿前 1 年吸烟导致取回的卵母细胞减少 25%，受精卵母细胞减少 28%。
- 吸食大麻会降低试管婴儿成功的机会



Smoking cannabis decreases the chances of successful IVF by about 25% in many different ways.吸食大麻会以多种不同方式将试管婴儿成功的几率降低约 25%。

Physical Health Complications 身体健康并发症

Individuals with the following conditions are statistically more likely to have adverse effects when using cannabis.
统计上，具有以下条件的个人在使用大麻时更有可能产生不良影响。

1). Lungs 肺

Individuals should avoid cannabis if they

- Have respiratory diseases such as asthma or **chronic obstructive pulmonary disease** (COPD)[1]
    - Bramnes & Soest (2019) found that "cannabis is a risk factor for **bronchial asthma** or use of asthma medication" [7]
    - The association between smoking cannabis and cancer, specifically lung cancer, remains unclear [2]

个人应避免使用大麻，如果他们

- 患有呼吸系统疾病，例如哮喘或**慢性阻塞性肺病e** (COPD) [1]
    - Bramnes & Soest (2019) 发现“大麻是支气管哮喘或使用哮喘药物的危险因素” [7]
    - 吸食大麻与癌症（特别是肺癌）之间的关联仍不清楚[2]

2). Heart 心脏

Individuals should avoid cannabis if they have severe **cardio-pulmonary disease** with: [1]

- Occasional hypotension (low blood pressure),
- Possible hypertension (high blood pressure),
- Syncope (loss of consciousness) or
- Tachycardia (rapid heart rate)

Risk factors for **cardiovascular disease** (heart disease and stroke) show that it does not mix well with cannabis.[1]

患有严重**心肺疾病的**人应避免使用大麻：[1]

- 偶尔低血压（低血压），
- 可能的高血压（高血压），
- 晕厥（意识丧失）或
- 心动过速（快速心率）

心血管疾病（心脏病和中风）的危险因素表明它与大麻不能很好地混合。[1]

3). Liver and Kidney肝脏和肾脏

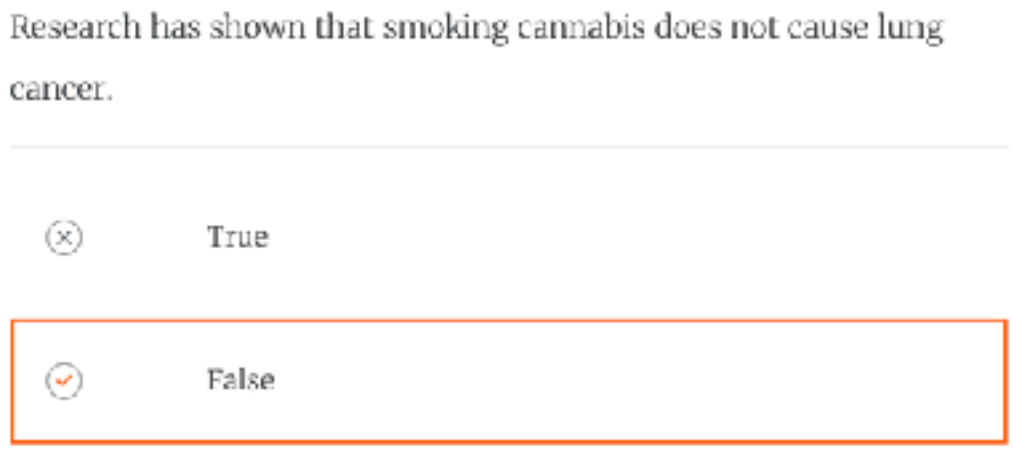
Individuals should avoid cannabis if they have:

- Severe liver or renal disease, including chronic hepatitis C [1]

- Cannabis has been found to worsen conditions for patients with Chronic hepatitis C virus (HCV)[8]
- Use should be carefully monitored for those with Chronic kidney disease (CKD) and smoking should be avoided [9]
- "Cannabis use may delay [kidney] transplant candidate listing or contribute to ineligibility" [9]

有以下情况的个人应避免使用大麻：

- 严重的肝脏或肾脏疾病，包括慢性丙型肝炎[1]
  - 已发现大麻会使慢性丙型肝炎病毒 (HCV) [8]患者的病情恶化
  - 对于慢性肾病 (CKD) 患者，应仔细监测其使用情况，并应避免吸烟[9]
  - “大麻的使用可能会延迟 [肾脏] 移植候选者的名单或导致不合格” [9]



Research has shown that smoking cannabis does not cause lung cancer.研究表明，吸食大麻不会导致肺癌。 (✗)

Smoking cannabis is not recommended for those with Chronic Kidney Disease. 慢性肾病患者不建议吸食大麻。

People Taking Other Medications 服用其他药物的人

Cannabis can have potential reactions with many prescription drugs, non-prescription drugs, and herbal products.

大麻可能与许多处方药、非处方药和草药产品产生潜在反应。

Individuals should be especially careful if they are taking any:

- Sleeping pills
- High doses of opioids [1]
- Tranquilizers (specifically benzodiazepines[1])
- (Some) pain medications
- (Some) allergy or cold medications
- Anti-seizure medications

个人在服用以下药物时应特别小心：

- 安眠药
- 高剂量的阿片类药物[1]
- 镇静剂（特别是苯二氮卓类药物[1]）
- （一些）止痛药
- （一些）过敏或感冒药
- 抗癫痫药物

"Other products that may interact with cannabis include: antiretroviral drugs used to treat HIV/AIDS, certain anti-depressants, stomach acid inhibitors, certain antibiotic and antifungal medications, certain heart medications, and Saint John's Wort."

“其他可能与大麻相互作用的产品包括：用于治疗 HIV/AIDS 的抗逆转录病毒药物、某些抗抑郁药、胃酸抑制剂、某些抗生素和抗真菌药物、某些心脏药物和圣约翰草。”

Part 2: Populations that are statistically more likely to consume cannabis.

第 2 部分：统计上更有可能消费大麻的人群。

Research has found that individuals with certain mental health afflictions are more likely to consume cannabis.

Potential reasons for increased use may be that they are self-medicating, that the drug and disorder have a positive feedback loop, or that the individual was predisposed to use.

研究发现，有某些心理健康问题的人更有可能吸食大麻。

增加使用的潜在原因可能是它们是自我治疗的，药物和疾病有一个正反馈循环，或者个人倾向于使用。

1).Bipolar Disorder 躁郁症

- Cross-sectional studies have found that the comorbidity rate of bipolar disorder and lifetime cannabis use is 70%, with the rate of bipolar disorder and CUD as 30% [14]
- Cannabis use is associated with **higher levels of levels of mood symptoms** [14]
    - Studies have found that cannabis use has a threefold increased risk for a new onset of manic symptoms [14]
- Current cannabis users had a lower remission, recovery, higher recurrence and greater impairment from a manic episode [46]
- 横断面研究发现，双相情感障碍和终生使用大麻的共病率为 70%，双相情感障碍和 CUD 的患病率为 30% [14]
- 大麻的使用与较高水平的情绪症状有关 [14]
    - 研究发现，使用大麻会使新发躁狂症状的风险增加三倍[14]

- 当前的大麻使用者在躁狂发作后的缓解率、恢复率、复发率和损伤程度都较低[46]

2). Major Depression 严重抑郁

- In comparison to light/non users, heavy cannabis users had an odds ratio of 1.62 for developing clinically diagnosed major depression or depressive symptoms [14]
- However, cannabis use does not seem to be a causal factor in depression
    - A twin study found concluded that the comorbidity was most likely due to genetic and environmental factors that predispose individuals to both smoking and depression [14]

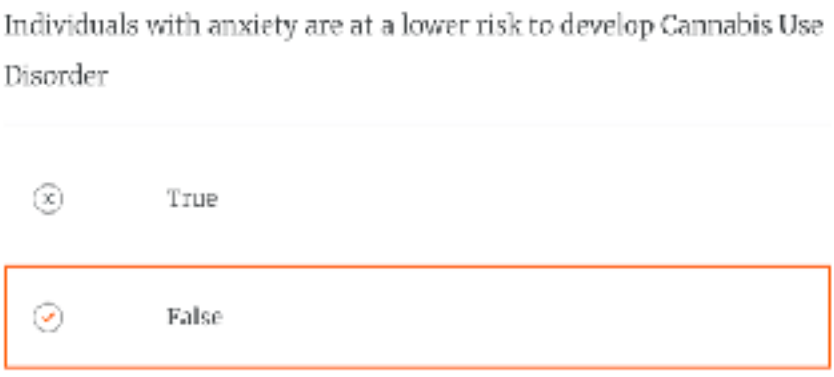
A different study found no correlation between depression and cannabis use

- 与轻度/非吸食者相比，重度吸食大麻者出现临床诊断的重度抑郁症或抑郁症状的比值比为 1.62 [14]
- 然而，大麻的使用似乎并不是抑郁症的诱因
    - 一项双胞胎研究发现，合并症最有可能是由于遗传和环境因素导致个体易患吸烟和抑郁症[14]

另一项研究发现抑郁症和大麻使用之间没有相关性

3). Anxiety焦虑

- A meta-analysis with 112 000 individuals found the odds ratio of anxiety and cannabis use to be 1.24 and the odds ratio of anxiety and cannabis use disorder to be 1.68 [14]
- Individuals with a lifetime of anxiety disorder were 2-3x more likely to have lifetime cannabis use, and more likely to develop CUD after initial use than those without any psychiatric disorder [14]
- However, an additional study found that cannabis users are at no further risk for developing an anxiety disorder, suggesting anxiety may cause cannabis use instead of cannabis use causing anxiety
- 一项对 112 000 人的荟萃分析发现，焦虑和大麻使用的优势比为 1.24，焦虑和大麻使用障碍的优势比为 1.68 [14]
- 与没有任何精神障碍的人相比，终生患有焦虑症的人终生使用大麻的可能性高出 2-3 倍，并且在初次使用后更容易患上 CUD [14]
- 然而，另一项研究发现，大麻使用者不会再有患焦虑症的风险，这表明焦虑可能会导致使用大麻，而不是使用大麻会导致焦虑



Individuals with anxiety are at a lower risk to develop Cannabis Use Disorder

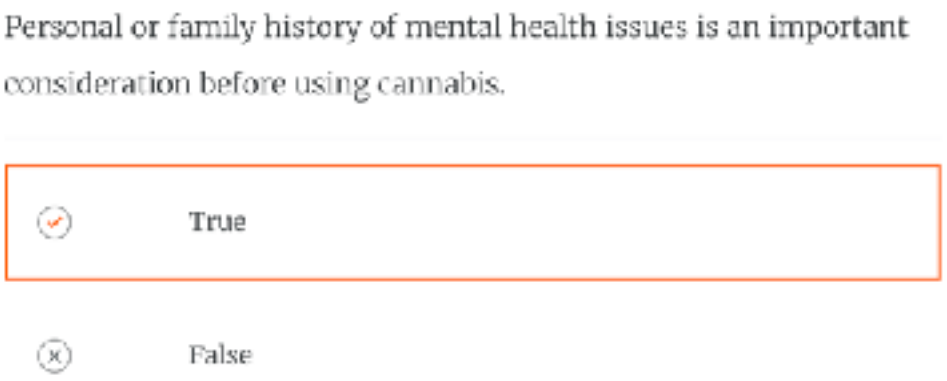
有焦虑症的人患大麻使用障碍的风险较低 （❌）

4). Schizophrenia 精神分裂症

- 42.2% of schizophrenic patients reported lifetime use, with 27.1% reporting lifetime cannabis use disorder
- 23.1% reporting use within the past 6 months, with 16.0% reporting current cannabis use disorder
- There is a considerable comorbidity between schizophrenia and cannabis use
    - Many experts believe cannabis use may cause schizophrenia
- 42.2% 的精神分裂症患者报告终生使用大麻，27.1% 报告终生大麻使用障碍
- 23.1% 的人报告在过去 6 个月内使用过大麻，16.0% 的人报告当前的大麻使用障碍
- 精神分裂症和大麻使用之间存在相当大的合并症
    - 许多专家认为使用大麻可能会导致精神分裂症

- Cross-sectional studies reveal a 2-3x increase of developing schizophrenia in cannabis users when compared to non-users
    - Increased chances are correlated with early onset, regular use and high THC content
- 横断面研究显示，与非吸食者相比，吸食大麻者患精神分裂症的几率增加了 2-3 倍
    - 增加的机会与早发、经常使用和高 THC 含量相关

- However, causality tests reveal that schizophrenia most likely has a causal effect on cannabis use, meaning current/ developing schizophrenia increases the individual's odds of trying cannabis [4]
- 然而，因果关系测试表明，精神分裂症最有可能对大麻的使用产生因果影响，这意味着当前/发展中的精神分裂症会增加个人尝试大麻的几率[4]



Personal or family history of mental health issues is an important consideration before using cannabis.
在使用大麻之前，个人或家族精神健康问题史是一个重要的考虑因素。

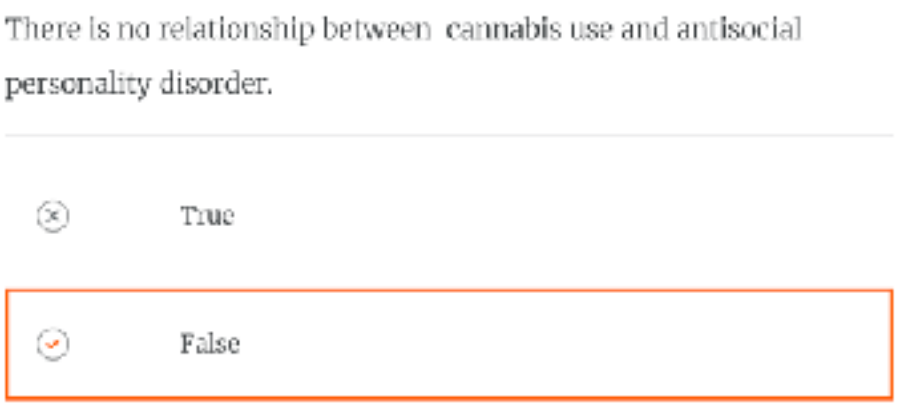
5). Obsessive Compulsive Disorder 强迫症

- A cross-sectional Australian study found that 19.9% of individuals with CUD had OCD, that 4.6% of cannabis users had OCD, and that only 2.4% of non-users had OCD [14]
    - However, the odds ratios for having OCD did not change depending on cannabis use [14]
- A siblings study found that OCD patients experienced higher cravings than their siblings,
    - This may suggest that individuals with OCD may crave cannabis more due to their symptoms [18]
    - Cannabis may offer relief for OCD symptoms, as the endocannabinoid system may have a role in OCD
- 澳大利亚的一项横断面研究发现，19.9% 的 CUD 患者患有强迫症，4.6% 的大麻使用者患有强迫症，只有 2.4% 的非使用者患有强迫症[14]
    - 然而，患有强迫症的几率并没有因使用大麻而改变[14]
- 兄弟姐妹的一项研究发现，强迫症患者比他们的兄弟姐妹有更高的渴望，
    - 这可能表明患有强迫症的人可能会因为他们的症状而更渴望大麻 [18]
    - 大麻可以缓解强迫症的症状，因为内源性大麻素系统可能在强迫症中起作用[25]

6). ADHD多动症

- Studies suggest that there is a comorbidity rate of 20-30% between ADHD and cannabis use disorder [14]
    - Prevalence of cannabis use among ADHD patients depends on the ADHD subtype (inattentive, hyperactive-impulsive or combined)

    - A US study found a 30% lifetime cannabis use among ADHD patients, as opposed to 5% for those without ADHD
- The effects of cannabis on ADHD are currently unknown. Some suggest that it may be used to combat the anxiety and insomnia of ADHD medication, although the combination of the drugs together has not been studied [19]
- However, a study found that 25% of ADHD related online discussion posts discussed its benefits, with only 8% and 2% of posts discussing negative outcomes and no/neutral outcomes respectively. The public opinion seems to think cannabis is therapeutic
- 研究表明，多动症和大麻使用障碍之间的共病率为 20-30% [14]
    - ADHD 患者使用大麻的流行率取决于 ADHD 亚型（注意力不集中、多动冲动或合并）
    - 美国的一项研究发现，多动症患者终生使用大麻的比例为 30%，而没有多动症的患者则为 5%
- 大麻对 ADHD 的影响目前尚不清楚。有些人认为它可以用来对抗 ADHD 药物的焦虑和失眠，尽管尚未研究将这些药物联合使用[19]
- 然而，一项研究发现，25% 的 ADHD 相关在线讨论帖子讨论了它的好处，只有 8% 和 2% 的帖子分别讨论了负面结果和无/中性结果。舆论似乎认为大麻具有治疗作用



There is no relationship between cannabis use and antisocial personality disorder.
大麻使用与反社会人格障碍之间没有关系。(❌)

7). Antisocial Personality Disorder反社会人格障碍

- A study found that respondents with lifetime cannabis use disorder were 10x more likely to have lifetime antisocial personality disorder than those without CUD [14]
- A twin study found that genetics explained 32-60% of the differences in cannabis use/ CUD for personality disorders (APD and BPD)[14]
- Antisocial personality disorder has been found to be one of the most common psychiatric disorders among substance abusers [12]
- The most common substance abused is alcohol, followed by cannabis
- 一项研究发现，有终生大麻使用障碍的受访者比没有 CUD 的受访者患终生反社会人格障碍的可能性高 10 倍 [14]
- 一项双胞胎研究发现，遗传学解释了大麻使用/ CUD 对人格障碍（APD 和 BPD）的 32-60% 差异[14]
- 反社会人格障碍已被发现是药物滥用者中最常见的精神障碍之一[12]
- 最常见的滥用药物是酒精，其次是大麻 [12]

Summary

The college position states cannabis use is not appropriate when a patient is:

- Under 25 years old
- Personal or family history of strong psychosis
- Past or current cannabis use disorder (dependency), or other substance use disorder
- Cardiovascular or respiratory disease
- Pregnant (or planning to) or breastfeeding

In this section a few medical conditions have been included (there are many more and some of them will be covered in the medical cannabis section). People with these diagnoses are statistically more likely to consume cannabis. Note there is a chicken and egg effect. Did a person use cannabis because they were anxious and then did they use cannabis to calm their anxiety….or after frequent and heavy use in the anxiety/cannabis cycle, did they develop a diagnosis of anxiety disorder?

The caveat is that there are many factors contributing to a health condition including genetics, environmental influences, diet etc. Cannabis is only one influence.

大学职位指出，当患者出现以下情况时，不适合使用大麻：

- 25岁以下

- 强烈精神病的个人或家族史
- 过去或现在的大麻使用障碍（依赖），或其他物质使用障碍
- 心血管或呼吸系统疾病
- 怀孕（或计划）或哺乳

在本节中包括了一些医疗条件（还有更多，其中一些将包含在医用大麻部分）。有这些诊断的人在统计上更有可能消费大麻。请注意，有鸡和蛋的效果。一个人是否因为焦虑而使用大麻，然后他们是否使用大麻来平息他们的焦虑.....或者在焦虑/大麻循环中频繁和大量使用之后，他们是否诊断出焦虑症?

需要注意的是，影响健康状况的因素有很多，包括遗传、环境影响、饮食等。大麻只是一种影响。

Ch10. Medical Cannabis

“Comparing cannabis medicine to traditional medicine is like comparing impressionism to photography. Both are beautiful and can be profound, while neither is confused for the other.

Medical cannabis enhances, alters and exploits what is there, creating something new to restore balance. Traditional medicine suppresses and replaces what is there to restore function.”
(Moskowitz, 2017, p. 64-65)

将大麻药物与传统医学进行比较就像将印象派与摄影进行比较。两者都是美丽的，可以是深刻的，而两者都不相互混淆。

医用大麻可以增强、改变和利用现有的东西，创造新的东西来恢复平衡。传统医学抑制和替代恢复功能的物质。
（莫斯科维茨，2017 年，第 64-65 页）

Learning Objectives

By the end of this module students will:

- Gain a basic sense of the global medical cannabis policies, and understand the medical cannabis framework in place for Canadian patients.
- Understand the current medical cannabinoid products and their uses.
- Understand some of the risks and harms of medical cannabis.
- Visualize the future of medical cannabis as a product and research entity, in terms of both challenges and prospects.
- Have an overview of some of the barriers interfering with full medical cannabis access in Canada, given the current system.

Pre-Reading

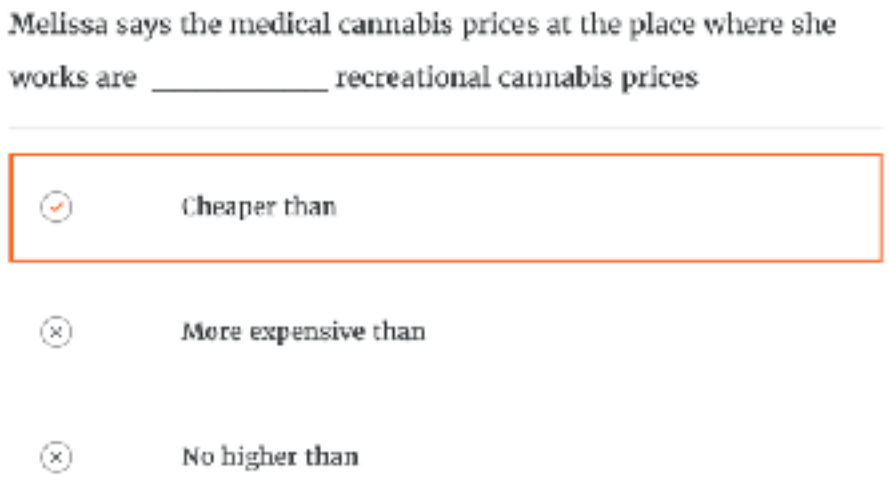
- Park, J. Y., & Wu, L. T. (2017). Prevalence, reasons, perceived effects, and correlates of medical marijuana use: A review. Drug and alcohol dependence, 177, 1–13. https://doi.org/10.1016/j.drugalcdep.2017.03.009

What is medical cannabis? 什么是医用大麻?

Medical Cannabis: Using cannabis and cannabinoids to treat symptoms of illnesses and other conditions.
医用大麻：使用大麻和大麻素来治疗疾病和其他病症的症状

The recent trend is to equate evidence-based medicine with only the large and expensive randomized, double-blind, placebo-controlled trials… the history of medicine shows that its major advances come from individual practitioners pushing the boundaries of the status quo to discover such life-changing treatments as anesthesia, new surgical techniques, antibiotics, and epidemic control.
最近的趋势是将循证医学仅等同于大型且昂贵的随机、双盲、安慰剂对照试验……医学史表明，其主要进步来自个体从业者突破现状的界限以发现此类改变生活的治疗方法，如麻醉、新手术技术、抗生素和流行病控制。

(Moskowitz, 2017, p. 65)



Medical Cannabis 医用大麻

In this class we will explore:

- Current State of Use
- Medical Cannabis Uses
  - Symptoms
  - Conditions and Diseases
  - Neurological Conditions
- Cannabinoid Derivative Associated Products
- Risks and Harms
- Barriers to Receiving Treatment

在本课程中，我们将探索：

- 当前使用状态
- 医用大麻用途
  - 症状
  - 条件和疾病
  - 神经系统疾病
- 大麻素衍生物相关产品

- 风险和危害
- 接受治疗的障碍

Current State of Use 当前使用状态

Let's review the way cannabis is used medically, specifically in North America.

Globally, the countries that have legalized cannabis for medical purposes include: [15]

Argentina, Australia, Barbados, Brazil, Canada, Chile, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Ecuador, Finland, Germany, Greece, Ireland, Israel, Italy, Jamaica, Lebanon, Lithuania, Luxembourg, Malawi, Malta, the Netherlands, New Zealand, North Macedonia, Norway, Panama, Peru, Poland, Portugal, Rwanda, Saint Vincent and the Grenadines, San Marino, Sri Lanka, Switzerland, Thailand, the United Kingdom, Uruguay, Vanuatu, Zambia, and Zimbabwe
(You do not need to memorize this list)

让我们回顾一下大麻在医学上的使用方式，特别是在北美。

在全球范围内，已将医用大麻合法化的国家包括：[15]

阿根廷、澳大利亚、巴巴多斯、巴西、加拿大、智利、哥伦比亚、克罗地亚、塞浦路斯、捷克共和国、丹麦、厄瓜多尔、芬兰、德国、希腊、爱尔兰、以色列、意大利、牙买加、黎巴嫩、立陶宛、卢森堡、马拉维、马耳他、荷兰、新西兰、北马其顿、挪威、巴拿马、秘鲁、波兰、葡萄牙、卢旺达、圣文森特和格林纳丁斯、圣马力诺、斯里兰卡、瑞士、泰国、英国、乌拉圭、瓦努阿图、赞比亚和津巴布韦
（你不需要记住这个列表）

The United States 美国

- Cannabis is classified as a Schedule 1 drug under the Controlled Substances Act
    - High potential for abuse and no medical use
- However, cannabis for medicinal purposes is legal in many states
    - California was the first in 1996
    - "The use of cannabis for medical purposes is legal in 36 states, four out of five permanently inhabited U.S. territories, and the District of Columbia, as of May 2021. " [13]
- As cannabis is not legal federally, the research on the health effects of cannabis and cannabinoids is limited in the United States
- 根据《管制物质法》，大麻被归类为附表 1 药物
    - 滥用可能性高且无医疗用途
- 然而，药用大麻在许多州是合法的
    - 加利福尼亚是 1996 年的第一个

    - “截至 2021年5 月，在 36 个州、五分之四的永久有人居住的美国领土和哥伦比亚特区，出于医疗目的使用大麻是合法的。” [13]
- 由于大麻在联邦范围内不合法，美国对大麻和大麻素对健康影响的研究有限

Canada加拿大

- 2001: Marihuana Medical Access Regulations (MMAR)
    - Permitted cannabis for severe illnesses [14]
- 2014: the new Marihuana for Medical Purposes Regulations (MMPR)
    - Enabled medical practitioners to prescribe medical cannabis [14]
- 2001 年：大麻医疗准入条例 (MMAR)
    - 严重疾病允许使用大麻 [14]
- 2014 年：新的医用大麻法规 (MMPR)
    - 使医生能够开具医用大麻处方 [14]
    -

Medical Cannabis Uses 医用大麻用途

Cannabis is not only used for the "fun" psychoactive effects - it is also gaining traction as a drug that can treat a variety of ailments, including some of the following **symptoms**, **conditions and diseases**, and **neurological conditions.**
大麻不仅用于“好玩”的精神效应-它也获得牵引力，可以治疗多种疾病，包括一些药物以下的小号**ymptoms**，条件和疾病，和神经系统疾病。

Symptoms 症状

There are certain symptoms that can be improved with medical cannabis. These ailments have been identified as "symptoms" instead of diseases because they can be treated even if they are the result of a variety of different conditions.
使用医用大麻可以改善某些症状。这些疾病已被确定为“症状”而不是疾病，因为即使它们是各种不同状况的结果，它们也可以得到治疗。

1). Appetite Loss 食欲不振

Cannabis is an **appetite stimulant** - you'll have heard of the common side effect called the "munchies" where getting high results in craving food.

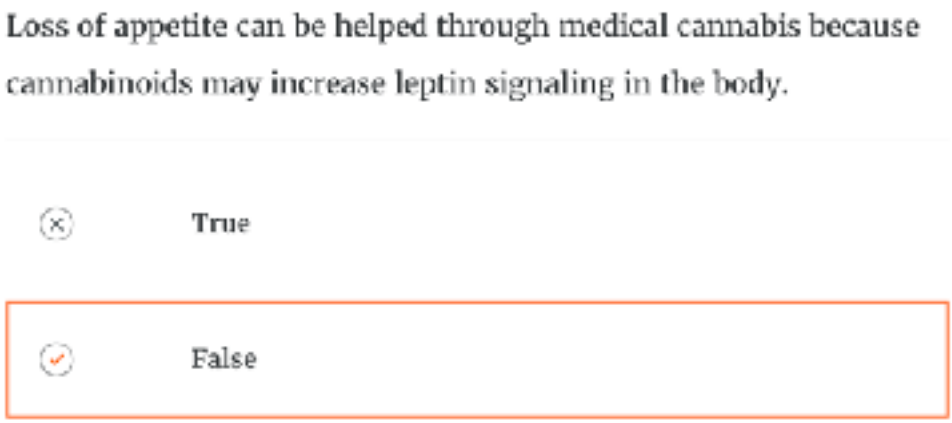
- Using cannabis can be helpful for individuals with certain eating disorders
- Dronabinol is a medication with cannabinoids that is approved for AIDS-related anorexia treatment (Government of Canada, 2018)

大麻是一种食欲兴奋剂 - 你会听说过一种常见的副作用，称为“零食”，在这种情况下，人们对食物的渴望程度很高。

- 使用大麻对患有某些饮食失调的人有帮助
- Dronabinol 是一种含有大麻素的药物，被批准用于治疗与艾滋病相关的厌食症（加拿大政府，2018 年）

How does it work? 它是如何工作的?

Some studies suggest that endocannabinoids may interfere with normal leptin signaling (the appetite suppressing hormone) (Iverson, 2003)
一些研究表明，内源性大麻素可能会干扰正常的瘦素信号（抑制食欲的激素）



Loss of appetite can be helped through medical cannabis because cannabinoids may increase leptin signaling in the body. 医用大麻可以帮助食欲不振，因为大麻素可能会增加体内瘦素信号。 (❌)

Leptin suppresses appetite, so cannabinoids impede the leptin signaling, they don't increase it.
瘦素抑制食欲，因此大麻素会阻碍瘦素信号传导，而不会增加它。

2). Nausea and Vomiting 恶心和呕吐

Nausea is a common side effect of many illnesses and treatment plans, including Cancer and HIV/AIDS, which will be explored further below.
恶心是许多疾病和治疗计划的常见副作用，包括癌症和艾滋病毒/艾滋病，下面将进一步探讨。

How does it work?

- "Considerable evidence demonstrates that manipulation of the endocannabinoid system regulates nausea and vomiting in humans and other animals." [6]
- Certain synthetic cannabinoid medications have been approved to help with nausea

它是如何工作的?

- “大量证据表明，操纵内源性大麻素系统可以调节人类和其他动物的恶心和呕吐。”[6]
- 某些合成大麻素药物已被批准用于缓解恶心

3). Pain Management (Analgesia) 疼痛管理（镇痛）

- Pain is the most common reason for Canadians using the health care system and it is estimated that one in five adults experience chronic pain (Hogan, Taddio, Katz, Shah & Krahn 2016).
- A large percentage of adults looking to use medical cannabis cite pain relief as their reasoning.
- 疼痛是加拿大人使用医疗保健系统的最常见原因，据估计，五分之一的成年人会经历慢性疼痛（Hogan、Taddio、Katz、Shah & Krahn 2016）。
- 很大一部分希望使用医用大麻的成年人将缓解疼痛作为他们的理由。

How does it work?

- Endocannabinoids such as anandamide and 2-arahidonoyl-sn-glycerol (2-AG) are produced in injured tissues, and activate the cannabinoid receptors (CB1 and CB2) and suppress neural pain signal conduction (Hill et al., 2017).
- Several studies show that medium-low doses of THC helped to reduce pain, while high doses actually increased pain.

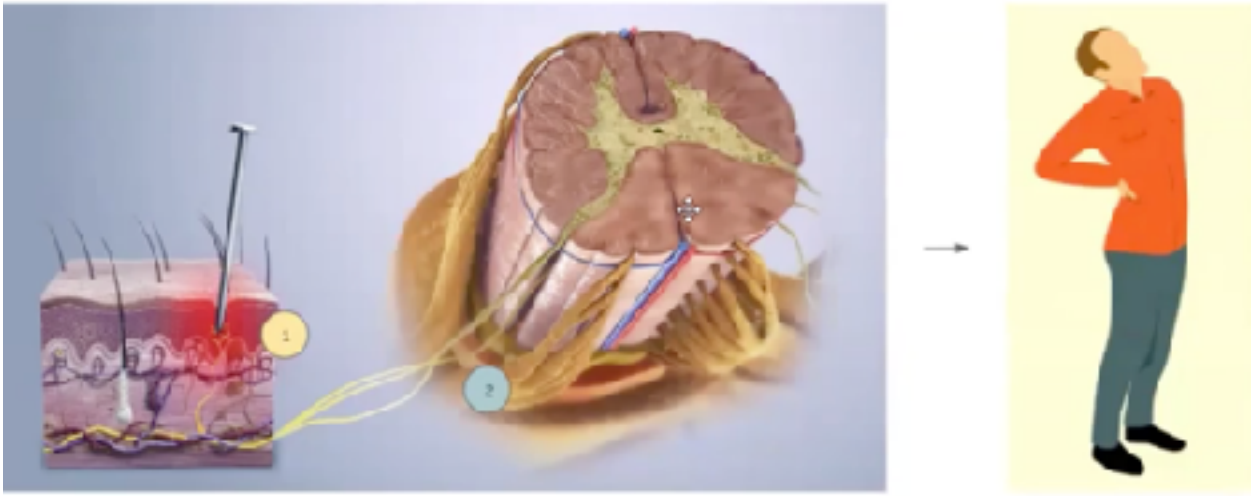
它是如何工作的?

- 内源性大麻素如 anandamide 和 2-arahidonoyl-sn-glycerol (2-AG) 在受伤组织中产生，并激活大麻素受体（CB1 和 CB2）并抑制神经疼痛信号传导（Hill 等，2017）。
- 几项研究表明，中低剂量的 THC 有助于减轻疼痛，而高剂量实际上会增加疼痛。

视频 How does cannabis help pain

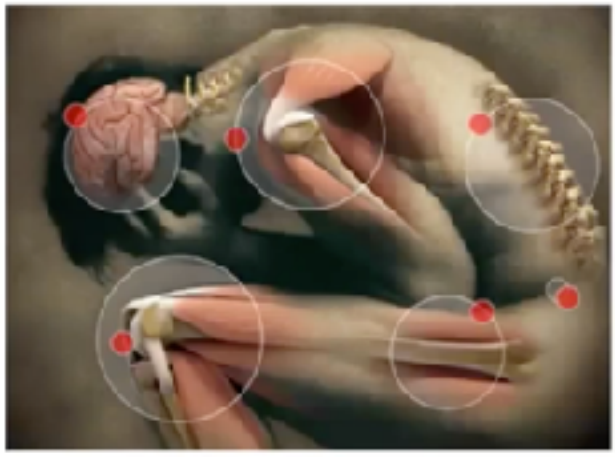
1). Nociceptive Pain

1. Nociceptive Pain



2). Neuropathic Pain

2. Neuropathic Pain



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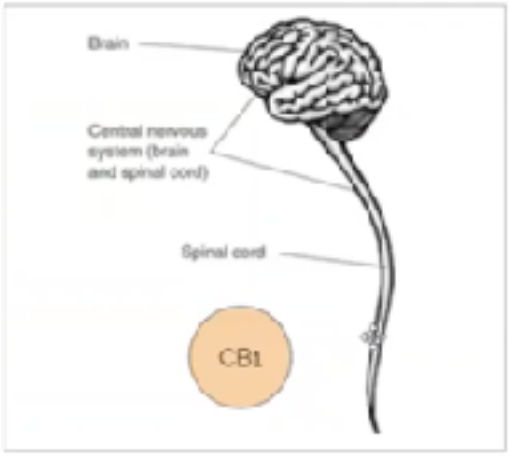

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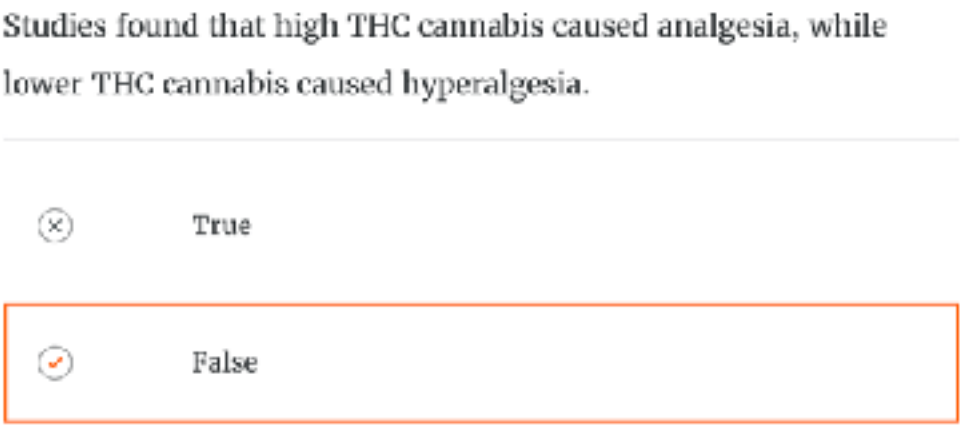


Studies found that high THC cannabis caused analgesia, while lower THC cannabis caused hyperalgesia. 研究发现，高 THC 大麻引起镇痛，而低 THC 大麻引起痛觉过敏。
(❌)

Hyperalgesia is the opposite of analgesia (pain reduction).
痛觉过敏与镇痛（减轻疼痛）相反。

Conditions and Diseases条件和疾病

There is substantial evidence that medical cannabis has an effect on the following conditions and diseases:
有大量证据表明医用大麻对以下病症和疾病有影响：

1).Glaucoma 青光眼

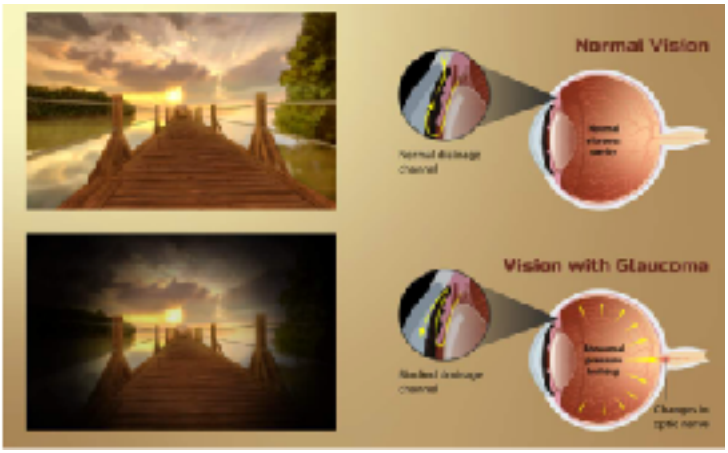
1975 case study: American man arrested for growing marijuana for medicating his glaucoma, charges were dropped, physician confirmed his patient had to smoke 5 joints per day to avoid blindness, and joints were eventually supplied by government; began one of the first “compassionate use” / “expanded access” programs (Hart & Ksir, 2015; U.S. Food and Drug Administration, 2019).
1975 年案例研究： 美国男子因种植大麻治疗青光眼而被捕，指控被撤销，医生证实他的病人每天必须吸 5 个关节以避免失明，关节最终由政府提供；开始了第一个“同情使用”/“扩大访问”计划（Hart & Ksir，2015 年；美国食品和药物管理局，2019 年）。

What is glaucoma? 什么是青光眼?
Glaucoma: A disorder of the eye that is a leading cause of blindness worldwide. Cells in the retina and optic nerve are destroyed, progressively constricting the field of view.

- Age, race, and heightened intraocular pressure increase the risk of glaucoma.

青光眼：一种眼部疾病，是全球失明的主要原因。视网膜和视神经中的细胞被破坏，逐渐缩小视野。

- 年龄、种族和眼压升高会增加青光眼的风险。

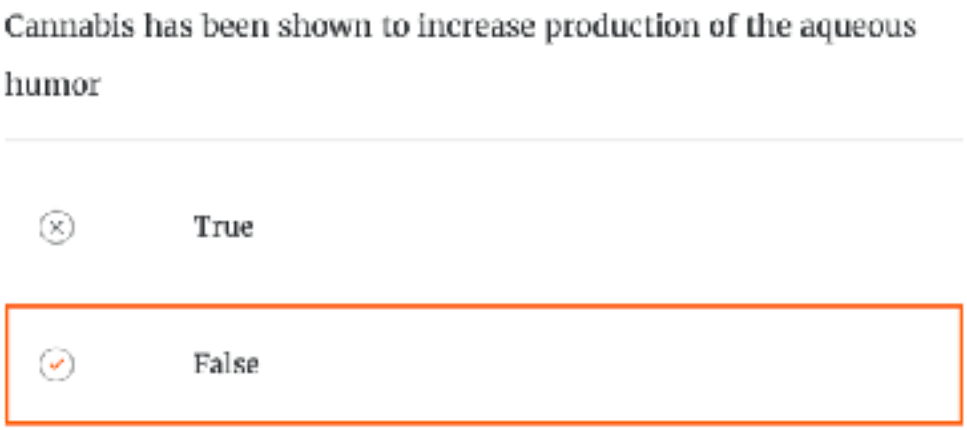


How does it work?

- Several studies have found that cannabis reduces intraocular pressure (IOP)
    - By lowering production of the aqueous humor
- "Smoked or eaten marijuana, THC and synthetic cannabinoids in pill form, and intravenous injections of several natural cannabinoids have all been shown to reduce IOP significantly in both glaucoma patients and healthy adults with normal IOP."
- Effects lasted on average 3 to 4 hours

它是如何工作的?

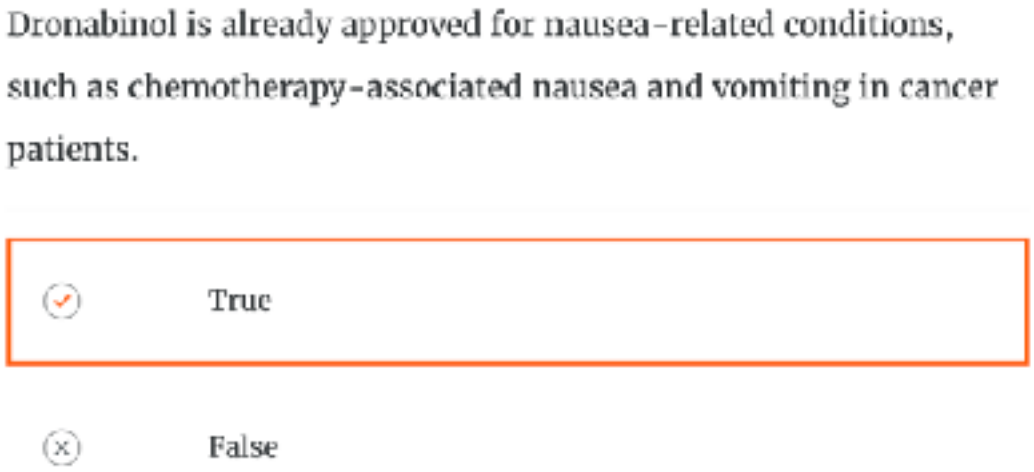
- 多项研究发现大麻可降低眼内压 (IOP)
    - 通过降低房水的产生
- “吸食或食用大麻、药丸形式的THC和合成大麻素，以及静脉注射几种天然大麻素，均已证明可以显着降低青光眼患者和眼压正常的健康成年人的眼压。”
- 效果平均持续 3 至 4 小时



Cannabis has been shown to increase production of the aqueous humor
大麻已被证明可以增加房水的产生（❌）

2). Cancer癌症

- THC as the licensed drug **Dronabinol** is prescribed to help with the **nausea and vomiting** associated with **chemotherapy** [7]
- There are suggestions that cannabis could do more good than just easing nausea, including **antitumor activity**, although the findings are only preliminary [7]
- Prevalence: A study found that 43% of cancer patient respondents had lifetime cannabis use [8]
    - 46% of respondents reported use for cancer-related pain, with 34% reporting use for nausea.
    - 31% and 56% reported use for other cancer symptoms and non-cancer-related reasons respectively 8
- THC 作为获得许可的药物屈大麻酚用于帮助缓解与化疗相关的恶心和呕吐 [7]
- 有迹象表明，大麻不仅可以缓解恶心，还包括抗肿瘤活性，尽管这些发现只是初步的[7]
- 流行率：一项研究发现，43% 的癌症患者受访者终生使用大麻[8]
    - 46% 的受访者报告用于癌症相关疼痛，34% 报告用于恶心。
    - 31% 和 56% 分别报告因其他癌症症状和非癌症相关原因使用药物 8



Dronabinol is already approved for nausea-related conditions, such as chemotherapy-associated nausea and vomiting in cancer patients. Dronabinol 已经被批准用于与恶心相关的疾病，例如癌症患者与化疗相关的恶心和呕吐。

3).HIV/AIDS艾滋病毒/艾滋病

In addition to appetite stimulation, marijuana-based medicines may prove helpful in treating a variety of painful symptoms associated with AIDS. [9]

- An estimated 62% of people living with HIV report lifetime cannabis use, indicating that cannabis is very prevalent among this population
- However, cannabis is frequently used among people living with HIV due to the symptoms from both HIV itself and the medication
    - A study found 27% of respondents had used cannabis to treat symptoms including nausea, loss of appetite, pain, weight loss, anxiety and depression

除了刺激食欲之外，基于大麻的药物可能有助于治疗与艾滋病相关的各种疼痛症状。[9]

- 估计有 62% 的 HIV 感染者报告终生使用大麻，这表明大麻在这一人群中非常普遍
- 然而，由于艾滋病毒本身和药物的症状，大麻经常在艾滋病毒感染者中使用
    - 一项研究发现，27% 的受访者曾使用大麻来治疗恶心、食欲不振、疼痛、体重减轻、焦虑和抑郁等症状

Neurological Conditions 神经系统疾病

Neurological Condition: A condition that affects the brain, spinal cord, or nervous system.

Several neurological conditions have been improved through the use of cannabis for medicinal purposes. We will explore some of these below.

(MS, Alzheimers, Epilepsy, Headaches)

神经系统疾病：影响大脑、脊髓或神经系统的疾病 。

通过将大麻用于医疗目的，一些神经系统疾病得到了改善。我们将在下面探讨其中的一些。

（多发性硬化症、老年痴呆症、癫痫症、头痛）

1). Multiple Sclerosis 多发性硬化症

Multiple Sclerosis (MS): An inflammatory, autoimmune, degenerative disease of the brain and spinal cord (central nervous system) [2]

- Prevalence: A study found
    - 47% of respondents with MS report considering using cannabis,
    - 26% have used cannabis, and
    - 16% are currently using cannabis to treat symptoms [24]

多发性硬化症 (MS)：一种炎症性、自身免疫性、脑和脊髓（中枢神经系统）退行性疾病[2]

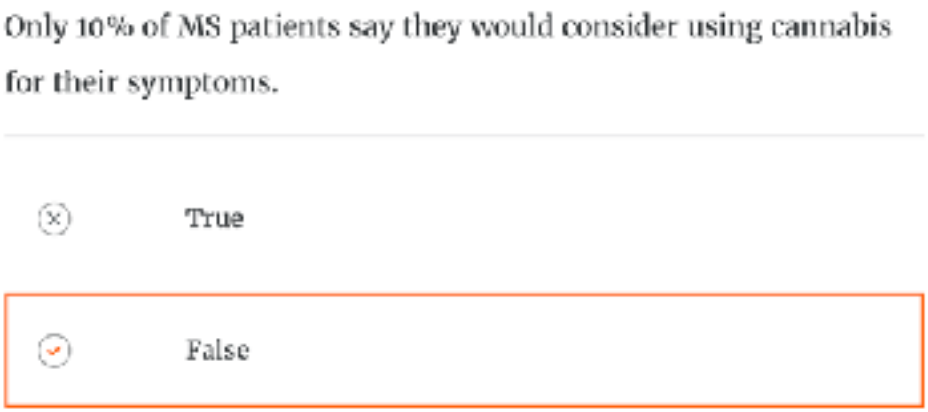
- 流行率：一项研究发现
    - 47% 的 MS 受访者表示考虑使用大麻，
    - 26% 使用过大麻，并且
    - 16% 目前正在使用大麻来治疗症状

How does it work?

- Cannabinoids are suggested to help with muscle stiffness* [3], spacity, tremors, pain, relaxation, sleep and anxiety [24]
- Cannabis is being studied for its beneficial properties regarding MS, due to its anti-inflammatory properties that may suppress disease activity and potentially even promote remyelination [24]
- However, certain studies show that cannabis may increase cognitive impairment in individuals with MS[2]

它是如何工作的?

- 建议使用大麻素来帮助缓解肌肉僵硬* [3]、松弛、颤抖、疼痛、放松、睡眠和焦虑[24]
- 正在研究大麻对 MS 的有益特性，因为它具有抗炎特性，可以抑制疾病活动，甚至可能促进髓鞘再生[24]
- 然而，某些研究表明，大麻可能会增加 MS [2]患者的认知障碍



Only 10% of MS patients say they would consider using cannabis for their symptoms.
只有 10% 的 MS 患者表示他们会考虑使用大麻来缓解症状。(❌)

2). Epilepsy 癫痫

- As discussed in our "Cannabis and Youth" section, there are plenty of accounts of how cannabis helps individuals with epileptic disorders.
- Below is the story of Charlotte Figi, a young girl with Dravet syndrome who used CBD to treat her seizures. This video is **examinable.**
- 正如我们在“大麻和青年”部分所讨论的，有很多关于大麻如何帮助患有癫痫症的人的描述。
- 下面是 Charlotte Figi 的故事，她是一位患有 Dravet 综合征的年轻女孩，她使用 CBD 治疗癫痫发作。这个视频是可以检查的 。
- **视频：CNN documentary on Charlotte's Web, medical marijuana treating seizure disorders**
-

How does it work?

"Endocannabinoids (cannabinoids synthesized normally within the central nervous system (CNS)) have a role in decreasing the release of excitatory neurotransmitter in CNS, hence preventing from seizures"[5]

- The US FDA has approved medical cannabis (Epidiolex) for two forms of epilepsy: Dravet Syndrome and Lennox-Gastaut Syndrome
- Definitive research is still lacking, but the amount of individual success stories seems promising

它是如何工作的?

“内源性大麻素（在中枢神经系统 (CNS) 内正常合成的大麻素）具有减少 CNS 中兴奋性神经递质释放的作用，从而防止癫痫发作” [5]

- 美国 FDA 已批准医用大麻 (Epidiolex) 用于治疗两种形式的癫痫：Dravet 综合征和 Lennox-Gastaut 综合征

- 仍然缺乏明确的研究，但个人成功案例的数量似乎很有希望

3). Post Traumatic Stress Disorder 创伤后应激障碍

- Cannabis was associated with a 75% reduction in 3 areas of PTSD symptoms (reexperiencing, avoidance, arousal) compared to cannabis abstinent participants. (Greer, Grob, & Halberstadt, 2014)
- Nabilone, a synthetic cannabinoid, has been shown to be effective in reducing PTSD symptoms including nightmares and insomnia. (Fraser, 2009; Cameron, Watson, & Robinson, 2014)
- 与戒除大麻的参与者相比，大麻与 PTSD 症状的 3 个方面（重新体验、回避、唤醒）减少了 75% 相关。（格里尔、格罗布和哈尔伯施塔特，2014 年）
- Nabilone 是一种合成大麻素，已被证明可有效减少 PTSD 症状，包括噩梦和失眠。（弗雷泽，2009 年；卡梅伦、沃森和罗宾逊，2014 年）

Risks and Harms of Medical Cannabis
医用大麻的风险和危害

We discussed many of the risks of using cannabis in our Vulnerable Populations section. But cannabis is not a drug that comes without side effects, so the following must be taken into consideration before using medical cannabis:
我们在弱势群体部分讨论了使用大麻的许多风险。但大麻并不是没有副作用的药物，因此在使用医用大麻之前必须考虑以下几点：

Cannabinoid Derivative Associated Products
大麻素衍生物相关产品

Synthetic cannabinoid products, including:

1. Rimonabant
2. Epidiolex
3. Nabilone (Cesamet)
4. Dronabinol (Marinol)
5. Nabiximols (Sativex)

合成大麻素产品，包括：

1. 利莫那班
2. Epidiolex
3. Nabilone (Cesamet)
4. 屈大麻酚（Marinol）
5. Nabiximols (Sativex)

Rimonabant	Epidiolex	Nabilone (Cesamet)	Dronabinol (Marinol)	Nabiximols (Sativex)
This is a direct **CB1 receptor antagonist** which means it **blocks** cannabinoid and endocannabinoid activity.	This is a **CBD**-based liquid oral medication approved by the FDA in June **2018**.	This is a synthetic **THC** analog drug, approved by FDA in **1985** but marketed since 2006 (DrugBank, 2019)Cell 3	This is a synthetic **THC** derivative drug, approved in **1985**. It is taken **orally.**	A **mouth spray** that contains equal parts **THC and CBD**
It was once approved in the European Union (EU) and other countries (excluding the United States of America (USA) as an **anti-obesity drug**	It was approved for the treatment of **childhood epilepsy conditions**: **Dravet syndrome** and **Lennox-Gastaut syndrome**.	It is approved as an **anti-nausea/ anti-emetic** drug for **chemotherapy** patients (who fail to respond to other anti-emetic medication).	It is similar to Nabilone; approved for **anti-nausea during chemotherapy**, and for **appetite stimulation in AIDS patients**	It was approved in the United Kingdom, Canada, and parts of Europe, but not in the USA (ie. by FDA).

Rimonabant	Epidiolex	Nabilone (Cesamet)	Dronabinol (Marinol)	Nabiximols (Sativex)
It was never approved by the Food and Drug Administration (FDA) in the USA due to concerns of **psychological side effects** (anxiety/ depression).	It is the first drug that is a purified substance derived from cannabis (Food and Drug Administration, 2018) and contains nearly pure CBD (>98%)	Nabilone is currently **approved for use in Canada** (Government of Canada, 2018).	As well, it shows similar signs as an agonist substitute for patients dealing with **cannabis withdrawal symptoms**	It is used in the treatment of **muscle control issues in MS patients**
It was removed from the global market in 2009 because of depressive and suicidal side effects (Schrot & Hubbard, 2016; Hart & Ksir, 2015; PubChem 2019).	Evidence shows that for Dravet syndrome and Lennox-Gastaut syndrome, **20 mg/kg** is effective (NIDA, 2018).	It is also marketed as an **appetite stimulant for AIDS patients**, and is also helpful for **sleep, arthritis, and pain.**	In Canada, the drug is approved but has been discontinued by the manufacturer since 2012 (for non-safety related reasons).	It may also be used as a **supplement to opioids** as an **analgesic** in patients with advanced **cancer** (Government of Canada, 2018).

利莫那班	Epidiolex	Nabilone (Cesamet)	屈大麻酚 (Marinol)	Nabiximols (Sativex)
这是一种直接的**CB1受体拮抗剂**，这意味着它可以阻断 大麻素和内源性大麻素的活性。	这是一种基于**CBD**的液体口服药物，于**2018** 年6 月获得FDA 批准。	这是一种合成**THC**类似药物，于**1985** 年获得 FDA 批准，但自2006年开始上市（DrugBank，2019）Cell 3	这是一种合成的**THC**衍生药物，于**1 985** 年获得批准。它是口服的。	一个口腔喷雾包含等份**THC**和**CBD**
曾在欧盟（EU）和其他国家（不包括美国（USA））批准作为抗肥胖药	它被批准用于治疗儿童癫痫病：**Dravet**综合征 和**Lennox-Gastaut** 综合征。	它被批准作为一种用于**化疗患者**（对其他止吐药物无效）**的止恶心/止吐药。**	它类似于Nabilone；被批准用于**化疗期间的抗恶心，**以及用于**AIDS 患者的食欲刺激**	它已在英国、加拿大和欧洲部分地区获得批准，但未在美国获得批准（即由FDA）。
由于担心**心理副作用**（焦虑/抑郁），它从未被美国食品和药物管理局 (FDA) 批准。	它是第一种从大麻中提取的纯化物质的药物（食品和药物管理局，2018年）并且含有几乎纯的 CBD（>98%）	Nabilone 目前已获准在加拿大使用（加拿大政府，2018年）。	同样，它显示出与处理大麻戒断症状的患者的激动剂替代品相似的迹象	它用于治疗**MS患者的肌肉控制问题**

利莫那班	Epidiolex	Nabilone (Cesamet)	屈大麻酚 (Marinol)	Nabiximols (Sativex)
由于抑郁和自杀副作用，它于 2009 年从全球市场上撤下 (Schrot & Hubbard, 2016; Hart & Ksir, 2015; PubChem 2019)。	有证据表明，对于 Dravet 综合征和 Lennox-Gastaut 综合征，**20mg/kg**是有效的（NIDA，2018）。	它还作为艾滋病患者的食欲兴奋剂销售，也有助于睡眠、关节炎和疼痛。	在加拿大，该药物已获批准，但自 2012 年以来制造商已停产（出于非安全相关原因）。	它也可以用作 补充阿片类药物作为晚期癌症患者的镇痛剂 （加拿大政府，2018 年）。

Risks and Harms 风险和危害

General adverse **THC** effects to be aware of include:

- increased heart rate
- increased appetite
- decreased blood pressure
- dizziness
- sleepiness
- paranoia/anxiety/hallucinations
- impaired attention/memory/psychomotor ability
    - (Journal of Nursing Regulation, 2018).
- This indicates concern for those with pre-existing conditions, such as diseases involving heart rate/blood pressure, depression/anxiety, or risks of psychosis (Journal of Nursing Regulation, 2018; Sharma et al., 2012)
    - We have already examined many of these conditions and the effect cannabis has on them

需要注意的一般不良**THC**影响包括：

- 心率加快
- 食欲增加
- 血压下降
- 头晕
- 困倦

- 偏执/焦虑/幻觉
- 注意力/记忆力/精神运动能力受损
    - （《护理条例》，2018 年）。
- 这表明对那些已有疾病的人表示关注，例如涉及心率/血压、抑郁/焦虑或精神病风险的疾病（护理监管杂志，2018 年；Sharma 等人，2012 年）
    - 我们已经检查了许多这些条件以及大麻对它们的影响

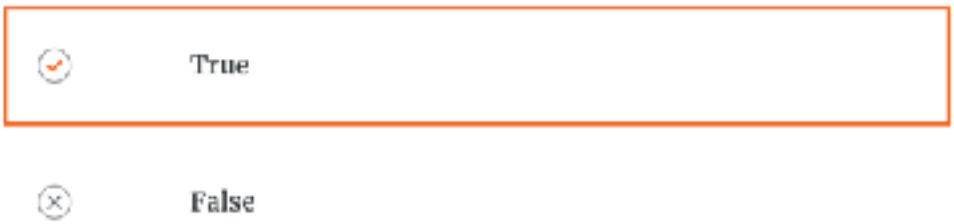
General adverse effects of **CBD** to be aware of include:

- increased heart rate
- increased appetite
- decreased blood pressure
- dizziness
- sleepiness
- paranoia/anxiety/hallucinations, and impaired attention/memory/psychomotor ability.

要注意的**CBD** 的一般不利影响包括：

- 心率加快
- 食欲增加
- 血压下降
- 头晕
- 困倦
- 偏执/焦虑/幻觉，以及注意力/记忆力/精神运动能力受损。

Some conditions where using cannabis is not recommended include: asthma, bronchitis, emphysema, or other pulmonary diseases (for these, smoking is the primary concern); heart disease; alcohol or other drug dependence.



Some conditions where using cannabis is not recommended include: asthma, bronchitis, emphysema, or other pulmonary diseases (for these, smoking is the primary concern); heart disease; alcohol or other drug dependence.
不推荐使用大麻的一些情况包括：哮喘、支气管炎、肺气肿或其他肺部疾病（对于这些，吸烟是主要问题）；心脏疾病; 酒精或其他药物依赖。

Risks and Harms 风险和危害

- If people have a pre-existing condition there are some potential risks to their health.
- In immunocompromised patients, there is a significant risk in using cannabis prepared in non-sterile environments.
    - Many regions that offer medical marijuana programs require lab testing of medical cannabis and other quality assurance measures to ensure there is no contamination.
- Chronic cannabis use puts patients at risk for psychosis development (Schrot & Hubbard, 2016).
- 如果人们已有疾病，他们的健康就会面临一些潜在风险。
- 在免疫功能低下的患者中，使用在非无菌环境中制备的大麻存在重大风险。
    - 许多提供医用大麻计划的地区都需要对医用大麻进行实验室测试和其他质量保证措施，以确保没有污染。
- 长期使用大麻会使患者面临患精神病的风险（Schrot 和 Hubbard，2016 年）。

Some individuals who are prescribed medical cannabis may not know what to expect.

- First time users can experience reactions that differ from the normal “high” such as panic, anxiety, and psychosis (Schrot & Hubbard, 2016).
- Some preparations or routes of administration can result in unexpected and/or delayed effects that the patient does not realize; this can lead to serious dangers

concerning falls/physical injury, motor vehicle accidents, etc. (Schrot & Hubbard, 2016).
- Large doses and/or high THC concentrations can lead to unexpected effects as well:
    - Hyperemesis (Government of Canada, 2018): vomiting
    - High THC can induce paranoia and hallucination and potential for hypersensitivity or allergic reactions, depending on the preparation, composition, or contamination of the medical product (Government of Canada, 2018).

一些开具医用大麻处方的人可能不知道会发生什么。

- 首次使用的用户可能会经历与正常“高”不同的反应，例如恐慌、焦虑和精神病（Schrot & Hubbard，2016）。
- 某些制剂或给药途径可能会导致患者没有意识到的意外和/或延迟效应；这可能导致跌倒/身体伤害、机动车事故等的严重危险（Schrot & Hubbard，2016 年）。
- 大剂量和/或高 THC 浓度也会导致意想不到的影响：
    - 剧吐（加拿大政府，2018 年）：呕吐
    - 取决于医疗产品的制备、成分或污染，高 THC 会导致偏执和幻觉，并可能导致超敏反应或过敏反应（加拿大政府，2018 年）。
    -

Some conditions where using cannabis is not recommended include:

- asthma
- bronchitis
- emphysema or other pulmonary diseases
    - (for these, smoking is the primary concern)
- heart disease
- alcohol or other drug dependence

不推荐使用大麻的一些情况包括：

- 哮喘
- 支气管炎
- 肺气肿或其他肺部疾病
    - （对于这些，吸烟是首要问题）
- 心脏疾病
- 酒精或其他药物依赖

There is a worry for immunocompromised patients using non-regulated cannabis for medical purposes.

There is a worry for immunocompromised patients using non-regulated cannabis for medical purposes. 使用不受管制的大麻用于医疗目的的免疫功能低下的患者令人担忧。

Barriers to Receiving Cannabis Treatment
接受大麻治疗的障碍

Reflection questions:

- What barriers do you think stand in the way of patients getting medical cannabis treatment?
- Are there firsthand experiences you know of?
- Are there certain populations in societies/communities that have more barriers than others?

反思题：

- 您认为阻碍患者接受医用大麻治疗的障碍是什么？
- 有你知道的第一手经验吗？
- 社会/社区中是否有某些人群比其他人群有更多障碍？

1). H.A.S.H. 哈希值

Ko, Bober, Mindra and Moreau (2016) identified H.A.S.H. as the common concerns patients have before trying medical cannabis.

Ko、Bober、Mindra 和 Moreau（2016 年）将 HASH 确定为患者在尝试医用大麻之前的常见问题。

H: The "high feeling" “高感”

A: Acquisition costs 收购成本

S: Stigma 污名

H: How to

2). Monetary货币

In a study conducted by Isle-Belle and Walsh (2014) before federal legalization,

- Many reported that their physicians recommended cannabis, but refused to endorse applications for the patient to be federally authorized to possess it.
- As well many physicians had charged patients for the service of application (anywhere from $10 to $800).
- Median amount spent per month was $200 and greater than half of survey respondents reported they only sometimes, or never, were able to **afford sufficient cannabis** quantities for their needs.

Financial status will remain a barrier to access. In one survey, more than half of the respondents in the low income groups reported **choosing between medical cannabis and other necessities.**

在 Isle-Belle 和 Walsh (2014) 在联邦合法化之前进行的一项研究中，

- 许多人报告说，他们的医生推荐使用大麻，但拒绝批准患者申请获得联邦授权拥有大麻的申请。

- 许多医生还向患者收取了申请服务费用（从 10 美元到 800 美元不等）。
- 每月花费的中位数为 200 美元，超过一半的调查受访者表示，他们只是有时或永远无法负担足够的大麻数量来满足他们的需求。

财务状况仍将是获取的障碍。在一项调查中，低收入群体中超过一半的受访者表示会在医用大麻和其他必需品之间做出选择。

3). Patient - Physician Communication患者 - 医生沟通

Many physicians are reluctant to prescribe medical cannabis.

- There is currently a lack of a good body of research and clinical evidence for its benefits;
- physicians appear to be more comfortable supporting cannabis if the patient is
    - in poorer health, or
    - if other treatment options have already failed
- In places that don't have physicians properly educated on the full scope of cannabis, there can exist a 'bottleneck' where the few truly qualified physicians are over capacity and cannot serve the full patient cases.

许多医生不愿意开药用大麻。

- 目前缺乏关于其益处的良好研究和临床证据；
- 如果患者是，医生似乎更愿意支持大麻
    - 健康状况不佳，或
    - 如果其他治疗方案已经失败
- 在没有医生对大麻的全部范围进行适当教育的地方，可能存在"瓶颈"，少数真正合格的医生能力过剩，无法为全部患者提供服务。

5 major factors that cause problems according to Temple, Lampert and Ewigman (2019):

- Inadequate scientific knowledge about the dosage,
- Administration, medical indications, drug-drug interactions, and overall effectiveness;
- Lack of a standard for education and training for medical staff and dispensaries
- Lack of communication and coordination for patient care
- Amount of options for dosing, as well as their complexity and inconsistencies in their availability

根据 Temple、Lampert 和 Ewigman (2019) 的说法，导致问题的 5 个主要因素：

- 关于剂量的科学知识不足，
- 管理、医学适应症、药物相互作用和整体有效性；
- 缺乏对医务人员和药房的教育和培训标准
- 缺乏对患者护理的沟通和协调
- 剂量选择的数量，以及它们的复杂性和可用性的不一致

4). Other Boundaries 其他边界

- Not only that, there are barriers involving **travel** with cannabis medication, should they need to.
- There is a **lack of education/understanding,** since many patients have limited experience with cannabis.
- Methods of growing or otherwise obtaining cannabis can be **complex**, as well as the multiple products, strains and methods of administration available.
- 不仅如此，如果需要，还存在涉及携带大麻药物旅行的障碍。
- 有一个/缺乏教育的理解，因为许多患者有吸食大麻经验有限。
- 种植或以其他方式获得大麻的方法可能很复杂，而且可用的多种产品、菌株和给药方法也很复杂。

Summary

Reflection questions:

- Is there something you learned from doing this module that you didn't know before? Did this module change your outlook on medical cannabis?
- Is it more appropriate to be optimistic or cautious when thinking about the future of medical cannabis?
- How do you think the full legalization of recreational adult-use will affect the medical cannabis "environment" (for example, stigma, patient-physician relationships, illicit use or diversion, etc.)

概括

反思题:

- 你从这个模块中学到了一些你以前不知道的东西吗？该模块是否改变了您对医用大麻的看法？
- 在考虑医用大麻的未来时，乐观还是谨慎更合适？
- 您认为娱乐性成人使用的完全合法化将如何影响医用大麻"环境"（例如，污名、医患关系、非法使用或转移等）？

Ch11. Cannabis in the Workplace / Universities

How does the legalization of cannabis in Canada impact our places of work and places of learning?
加拿大大麻合法化对我们的工作场所和学习场所有何影响?

Cannabis in the Workplace Pre-Reading

https://www.ccohs.ca/products/publications/cannabis_whitepaper.pdf

Learning Outcomes - Workplace

- Understand the rights of medical cannabis users
- Understand the duties of the employer and employee
- Describe the conditions for drug testing, disclosure, and the employees' rights to privacy
- Explain the difficulties in proving cannabis impairment in workers
- Know the University of Alberta's policies on cannabis use as an employee, volunteer or as a student
- 了解医用大麻使用者的权利
- 了解雇主和雇员的职责
- 描述药物测试、披露和员工隐私权的条件
- 解释证明工人大麻受损的困难
- 了解阿尔伯塔大学关于作为雇员、志愿者或学生使用大麻的政策

Fitness to Practice/ Duty/ Work 适合练习/职责/工作

Fit for duty: An individual is in a physical, mental, and emotional state which enables the employee to perform the essential tasks of their work assignment in a manner which does NOT threaten the safety or health of oneself, co-workers, property, or the public at large.
适合工作： 个人处于身体、精神和情绪状态，使员工能够以不会威胁到自己、同事、财产或财产的安全或健康的方式执行其工作任务的基本任务。广大公众。

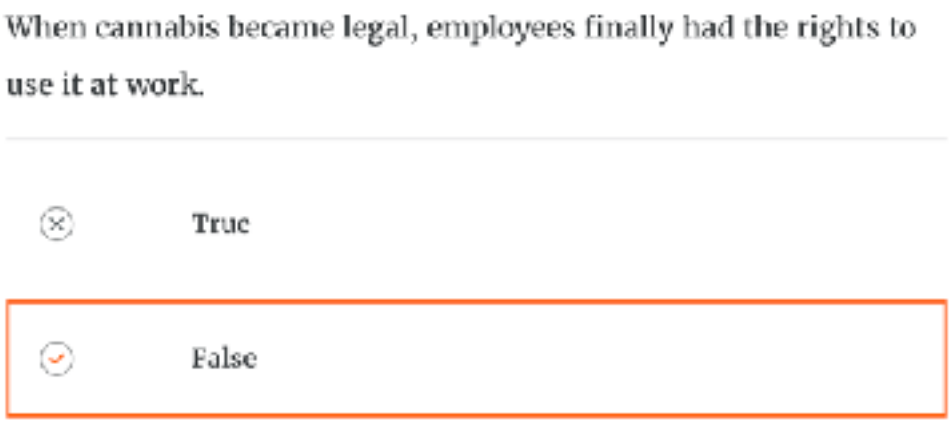
Unfit for work: An individual has a physical disability or sickness which renders them unable to have gainful employment.
不适合工作：个人因身体残疾或疾病而无法从事有报酬的工作。

Who determines this fitness?

- If possible an independent assessment (medical, psychologist, their party vendor)

谁决定了这种适应性?

- 如果可能，进行独立评估（医疗、心理学家、他们的派对供应商）



When cannabis became legal, employees finally had the rights to use it at work. (❌)

How can Cannabis Affect the Workplace? 大麻如何影响工作场所?

Could cannabis legalization make the workplace more dangerous?

- Cannabis use, especially in safety sensitive positions, may lead to **inattention, injuries**, or even **workplace fatalities**
- Due to cannabis's properties and effects, the Occupational and Environmental Medicine Association of Canada recommends a wait time of at least **24 hours** before engaging in **safety-sensitive work**
- Legalized recreational cannabis may result in more workers consuming cannabis, as well as confusion over the laws in the workplace

大麻合法化会使工作场所更加危险吗?

- 大麻的使用，尤其是在安全敏感的位置，可能会导致注意力不集中、受伤甚至工作场所死亡
- 由于大麻的特性和作用，加拿大职业与环境医学协会建议在从事安全敏感工作前至少等待**24**小时
- 合法的 休闲大麻可能会导致更多的工人吸食大麻，以及对工作场所法律的混淆

The Pre-Hire Process 预聘流程

A pre-hire drug test will only be justified in one of these two contexts:

1. The workplace or position has important safety concerns
2. The employer has reasonable grounds to believe that the employee may have a drug problem, or if the employee has admitted to having one

仅在以下两种情况中的一种情况下才可以进行租用前药物测试:

1. 工作场所或职位有重要的安全问题
2. 雇主有合理的理由相信雇员可能有毒品问题，或者雇员承认有毒品问题

Testing 测试

Random or Systematic Drug Tests are Prohibited Unless:

1. The employer has reasonable grounds to believe that an employee is impaired
2. The employee was involved in a major incident, near miss or work-related accident
3. The employee resumes work after having been absent due to problems related to consumption or for purposes of following a treatment aimed at curing them of the substance

禁止随机或系统药物测试，除非：

1. 雇主有合理理由相信雇员受到损害
2. 该员工卷入了重大事故、险情或与工作有关的事故
3. 员工在因消费相关问题或为了治愈该物质而进行的治疗而缺勤后恢复工作

录音： Olive recording: Testing for Cannabis

Testing

Types of Testing

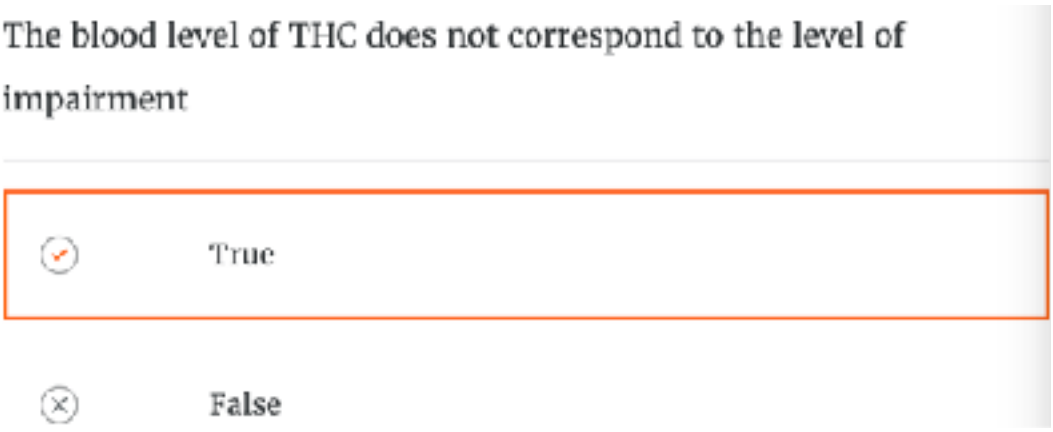
1. **Urine:** detects THC a few days to several weeks after use, low cost, 2 to 8 hours must elapse before the test will turn positive. Most frequently used in pre employment
2. **Blood:** detects THC up to several weeks following usage. Results more dependent on frequency of use versus level of impairment, it is expensive, invasive and requires trained personnel to administer
3. **Saliva:** samples can be taken at site, window for testing is 48 hours, variable results, false positives
4. **Hair:** won't test positive for 5 to 7 days after use and then will stay positive for 90 days following use
5. **Breath testing:** is the newest form of testing. It will test positive immediately and the window is only 2 to 3 hours. However, breath testing is relatively expensive and still needs more testing

测试类型

6. 尿液： 在使用后几天到几周内检测 THC，成本低，必须经过 2 到 8 小时才能变为阳性。最常用于就业前
7. 血液： 在使用后长达数周内检测 THC。结果更多地取决于使用频率与损伤程度，这是昂贵的、侵入性的并且需要经过培训的人员来管理
8. 唾液：可现场取样，检测时间为48小时，结果多变，误报
9. 头发：使用后 5 至 7 天不会检测为阳性，使用后 90 天仍会保持阳性
10. 呼气测试： 是最新的测试形式。它将立即测试为阳性，窗口只有 2 到 3 小时。然而，呼气测试相对昂贵，仍需要更多测试

Conclusion: At this time there is not a universal valid test. The current tests indicate the person has THC in their body but that does not necessarily mean they are presently under the influence.

结论：目前还没有一个普遍有效的测试。目前的测试表明该人体内有 THC，但这并不一定意味着他们目前受到影响。



The blood level of THC does not correspond to the level of impairment（☑）

THC 的血液水平与损伤水平不对应

Long time users have a different profile; someone who used a week ago but is showing impairment - this might be due to another drug and cannabis

长期用户有不同的个人资料；一周前使用过但出现损伤的人 - 这可能是由于另一种药物和大麻

Testing

- Each province has its own legislation in the area of testing
- In Alberta, the courts have been less protective of individual privacy rights and have allowed drug testing in the oil and gas sector
- BC and Ontario do not do drug testing as freely as Alberta
- An employee can agree to drug testing as part of the accommodation or a return-to-work plan following addiction
- An employer in a safety-sensitive position must establish that there was a very serious problem with drug use to drug-test (rare)
- 每个省在检测领域都有自己的立法
- 在阿尔伯塔省，法院对个人隐私权的保护较少，并允许在石油和天然气部门进行药物测试
- BC 省和安大略省不像阿尔伯塔省那样自由地进行药物测试
- 员工可以同意将药物测试作为住宿或成瘾后重返工作计划的一部分
- 处于安全敏感职位的雇主必须证明药物使用存在非常严重的问题以进行药物测试（罕见）

The Duties of the Employer雇主的职责

Duties of the Employer 雇主的职责

- Employers must **outline the requirements of the positions**, including the safety-sensitivity and related cannabis regulations. **Their policies should be clear.**
- Employers have the **‘duty to inquire’** if they suspect an employee to be impaired or addicted.
- Employers must **accommodate** employees who are addicted to cannabis, as this as seen as a disability. Failure to help would be considered discrimination.

    - In their duty to accommodate, employers must make arrangements that allow the dependent employee to continue working within the company.

- 雇主必须概述职位要求，包括安全敏感性和相关的大麻法规。他们的政策应该是明确的。
- 雇主有“义务询问”他们是否怀疑雇员有障碍或上瘾。
- 雇主必须 接纳 对大麻上瘾的员工，因为这被视为一种残疾。不提供帮助将被视为歧视。
    - 在他们的适应职责中，雇主必须做出安排，允许受抚养员工继续在公司内工作。

Accommodation 住所

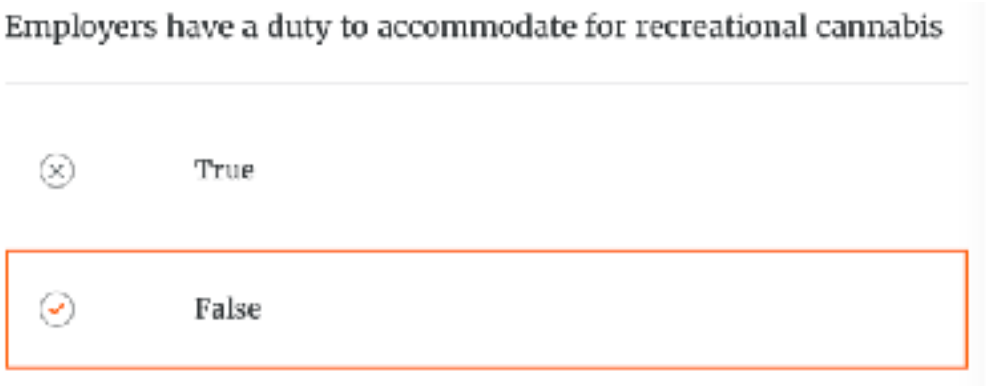
- There has to be a balance between the employer's need to maintain a safe workplace while respecting the employee's right to privacy. Information requests should be limited to essential duties and accommodation needs.
- The employer is not entitled to receive the diagnosis, nor are they entitled to the details of the treatment plan. If a request for an independent medical evaluation is necessary, the employer should seek legal advice as this request may infringe on an employee's privacy rights (Canadian Human Rights Commission, 2017).
- Under the Freedom of Information and Protection of Privacy Act (FOIP Act), you may ask for access to any record, including your own personal information, in the custody or under the control of a public body[1]
- 必须在雇主需要维护安全的工作场所和尊重雇员隐私权之间取得平衡。信息请求应仅限于基本职责和住宿需求。
- 雇主无权接受诊断，也无权获得治疗计划的详细信息。如果需要进行独立医疗评估，雇主应寻求法律建议，因为该请求可能侵犯员工的隐私权（加拿大人权委员会，2017 年）。
- 根据《信息自由和隐私保护法》（FOIP 法），您可以要求访问公共机构保管或控制的任何记录，包括您自己的个人信息[1]

- There is no duty to accommodate recreational cannabis
- There is a duty to accommodate substance use disorders (SUD) to the point of hardship for the employer
- The duty to accommodate must be balanced against the duty to protect the worker and other workers
- An employer can impose restrictions on the use of cannabis even if it used for medical purposes.

Note: Addiction does not necessarily mean the inability to comply with a company policy

- 没有义务容纳休闲大麻
- 有责任将物质使用障碍 (SUD) 适应到雇主的困境
- 适应的义务必须与保护工人和其他工人的义务相平衡
- 即使大麻用于医疗目的，雇主也可以对大麻的使用施加限制。

注意：上瘾并不一定意味着无法遵守公司政策



Employers have a duty to accommodate for recreational cannabis （❌）
雇主有责任容纳休闲大麻

Accommodation

What about the smoke?

If employers must accommodate medical plans, there are some recommended guidelines for reducing disturbances for other employees, including:

- Establishing a separate smoking area for cannabis away from windows and vents
- Working with employees to see if a non-smoking treatment plan would be effective or not
- Updating smoking and scent policies to include cannabis

烟呢?

如果雇主必须适应医疗计划，有一些建议的指导方针可以减少对其他员工的干扰，包括：

- 在远离窗户和通风口的地方建立一个单独的大麻吸烟区
- 与员工合作，看看禁烟治疗计划是否有效
- 更新吸烟和气味政策以包括大麻

Rights of the Employers 雇主的权利

- Employers have the right to **control the consumption, trafficking and possession** of cannabis in their workplace
- Employers have the right to **prohibit cannabis use** (so long as it does not infringe on the duty to accommodate)
- Employers have the right to set **time boundaries**
    - For example, the RCMP and Toronto Police are prohibited from consuming cannabis within 28 days of duty
- Employers have the right to set their own **limits for cannabis metabolite testing**, so long as it is not arbitrarily low
- 雇主有权控制其工作场所对大麻 的消费、贩运和持有
- 雇主有权禁止使用大麻（只要不违反容纳义务）
- 雇主有权设定时间界限

    - 例如，加拿大皇家骑警和多伦多警察被禁止在执勤后 28 天内吸食大麻
- 雇主有权为大麻代谢物测试设定自己的限制，只要它不是任意低的。

Duties of the Employee 雇员的职责

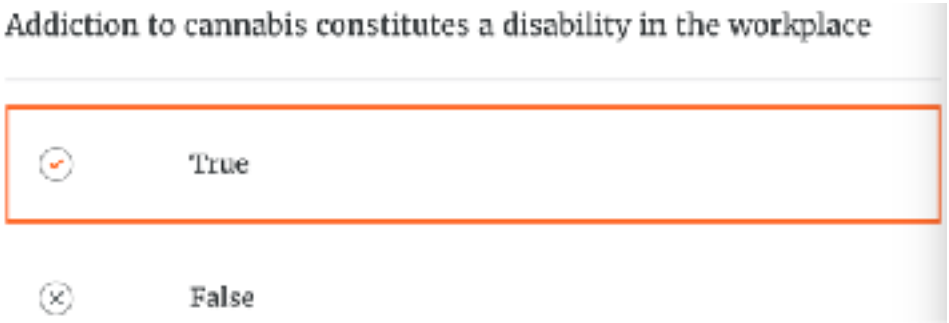
Some of the weight falls onto the employee to ensure they can be treated fairly in the workplace.
部分责任落在员工身上，以确保他们在工作场所得到公平对待。

Duties 职责

- If an addicted employee is seeking accommodation, they have the duty to disclose to their employer that they are substance dependent.
- Employees must only provide enough information to enable accommodation. They are not obliged to offer additional details.
- 如果上瘾的员工正在寻求住宿，他们有义务向雇主披露他们依赖物质。
- 员工必须提供足够的信息才能提供便利。他们没有义务提供额外的细节。

Unions工会

- Employees are prompted to speak to their union if they are concerned about the medical information requested by their employer
- Employees should speak to their unions if their employer is thinking of drug testing, as there are very complex regulations for the privacy and rights of the employees
- Employees are prompted to contact the union if their employer is infringing on their privacy and life outside of the workplace
- 如果员工担心雇主要求提供的医疗信息，他们会被提示告知工会
- 如果雇主考虑进行药物测试，雇员应与工会联系，因为对于雇员的隐私和权利有非常复杂的规定
- 如果雇主侵犯他们的隐私和工作场所以外的生活，他们会被提示与工会联系



Addiction to cannabis constitutes a disability in the workplace （☑）

吸食大麻构成工作场所的残疾

Safety-Sensitive Work 安全敏感工作

There is no definition for this phrase but the Human Rights commission describes it as work that:

If not performed in a safe manner, can cause direct and significant damage to property and/or injury to the worker, others around them, the public and/or the immediate environment.

This means the worker must be **alert, physically coordinated** and **exercise good judgment** such that the impairment won't affect the health, safety or security of the worker, other persons, property or the environment.

这个短语没有定义，但人权委员会将其描述为以下工作：

如果不以安全的方式执行，可能会对财产和/或工人、他们周围的其他人、公众和/或周围环境造成直接和重大的损害。

这意味着工人必须保持**警觉、身体协调并做出良好的判断**，这样损伤就不会影响工人、其他人、财产或环境的健康、安全或保障。

录音： Olive discussing safety sensitive work and impairment

Impairment 减值

Impairment in the workplace: is a serious health and safety concern that can lead to workers putting themselves and others at risk for injury.

- Impairment is not just caused by drugs and alcohol.
- A worker may be impaired by effects of many external influences in which their productivity or their physical or mental abilities are reduced. [2]

Employees need a clear statement of what constitutes employment. The employer needs to follow proper protocols for suspected impairment: incident reports, progressive discipline and appropriate corrective actions.

工作场所的损害：是一种严重的健康和安全问题，可能导致工人将自己和他人置于受伤的危险之中。

- 损害不仅仅是由药物和酒精引起的。
- 工人可能会受到许多外部影响的影响，从而降低他们的生产力或他们的身体或心理能力。[2]

员工需要明确说明什么是雇佣。雇主需要针对疑似损害遵循适当的协议：事件报告、渐进式纪律和适当的纠正措施。

What Impairment Looks Like 什么损伤看起来像

Behavior: Nervous? Insulting? Sleepy? Exaggerated politeness? Confused? Combative? Excited? Quarrelsome? Fatigued? Uncooperative? Poor memory? Overly talkative? Other (please describe)
Unusual Actions: Sweating? Slow reactions? Crying? Quick moving? Tremors? Fighting? Other (please describe)?
Speech: Slurred? Slow? Confused? Thick? Rambling? Pressured? Other (please describe)?
Balance: Falling? Staggering or unsteady gait? Unsure? Needs support? Stumbling? Normal? Other (please describe)? Adapted from ACCA (no date)
行为：紧张？侮辱？困？夸张的礼貌？使困惑？好斗？兴奋的？好斗？疲劳？不合作？记忆力差？话多？其他（请说明）
异常动作：出汗？反应慢？哭？快速移动？震颤？斗争？其他（请描述）？
演讲：口齿不清？减缓？使困惑？厚的？闲逛？有压力吗？其他（请描述）？
天平：下降？步态蹒跚或不稳？不确定？需要支持吗？绊脚石？普通的？其他（请描述）？
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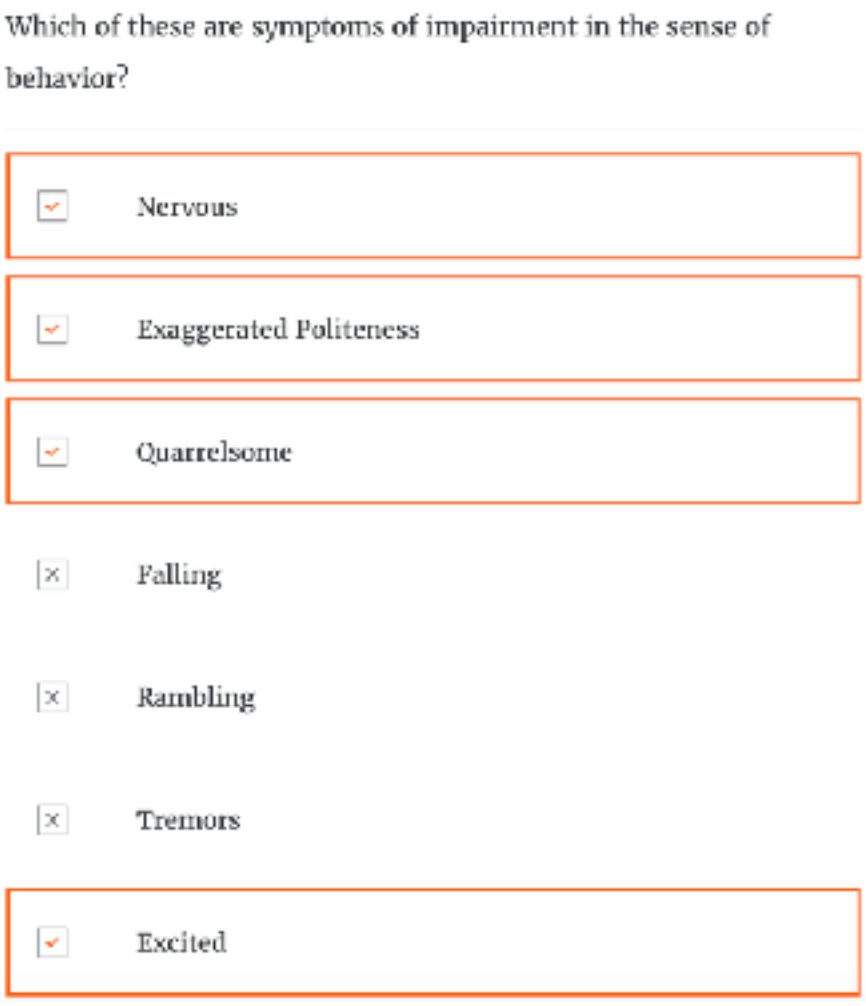


Are Employees Aware of their Impairment?

员工是否意识到自己的缺陷?

A controlled study involving airline pilots demonstrated impairments in aircraft landings 24 hours after smoking a joint. The pilots reported no awareness of impairment.

In the Canadian Cannabis Survey, in the previous 12 months 39% reported driving within 2 hours of consumption with 29% having done it 10 or more times in the past 12 months. 18% reported using cannabis before or after work. (Wolfrom & Ng, 2020)

一项有飞行员参与的对照研究表明，在吸完大麻24小时后，飞机着陆时会出现损伤。飞行员报告说没有意识到损伤。

在加拿大大麻调查中，在过去的12个月里，39%的人报告说，在吸食大麻后的2小时内驾驶，29%的人在过去12个月里有10次或以上的驾驶经历。18%的人在工作前或工作后吸食大麻。(Wolfrom & Ng, 2020)

Laws

Under the Canadian Human Rights Act, the Commission protects the human rights of all individuals lawfully present in Canada. It promotes a vision for Canada where all individuals have equal opportunity and are able to live their lives free from discrimination.

Occupation Health and Safety Act

- Responsible for enforcing OHS laws through inspections, investigations and prosecutions
- Establishes minimum standards for safe and healthy practices in Alberta workplaces.

根据《加拿大人权法》，委员会保护所有合法居住在加拿大的个人的人权。它促进了加拿大的愿景，即所有人都有平等的机会并能够在没有歧视的情况下过上自己的生活。

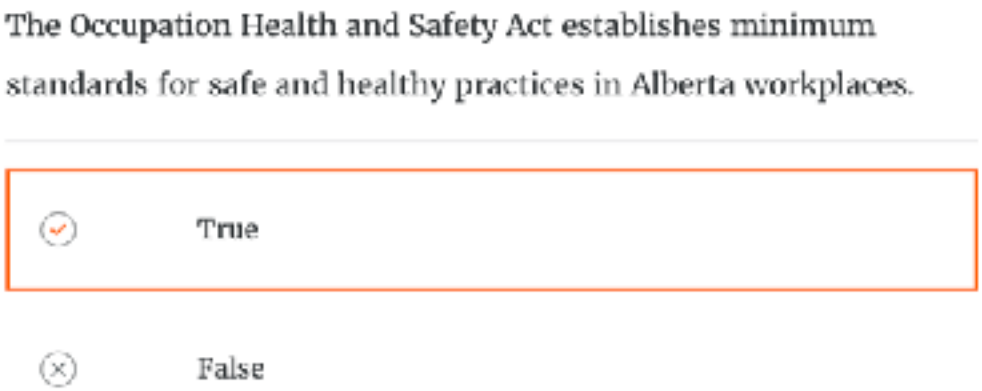
职业健康与安全法

- 负责通过检查、调查和起诉执行 OHS 法律
- 为艾伯塔省工作场所的安全和健康实践制定最低标准。

Canada Labour Code 加拿大劳工法

- Code requires employers to develop a Hazard Prevention Program. This would include policies related to impairment.

- The Cannabis Act includes amendments to the Non-smokers' Health Act which prohibits smoking and vaping cannabis in workplaces.
    - The purpose is to protect non-smokers from second-hand smoke in federally regulated workplaces or transport.
- Employee must report to the employer if there is a hazard to their health or safety.
    - They need to follow the internal complaint resolution process under the Code.
        - It goes to their supervisor, then to the Workplace Health & Safety Committee to investigate and if still unresolved, it can go to the Labour Program and a Health & Safety officer will investigate.
- 准则要求雇主制定危害预防计划。这将包括与减值相关的政策。
- 《大麻法》包括对《非吸烟者健康法》的修订，该法禁止在工作场所吸烟和吸食大麻。
    - 目的是保护非吸烟者在联邦监管的工作场所或交通工具中免受二手烟的侵害
- 如果员工的健康或安全存在危险，则必须向雇主报告。
    - 他们需要遵循本准则下的内部投诉解决流程。
        - 它会转到他们的主管，然后到工作场所健康与安全委员会进行调查，如果仍未解决，可以转到劳工计划，由健康与安全官员进行调查。



The Occupation Health and Safety Act establishes minimum standards for safe and healthy practices in Alberta workplaces.（☑）
《职业健康与安全法》为艾伯塔工作场所的安全与健康实践制定了最低标准。

Cannabis at the University of Alberta
阿尔伯塔大学的大麻

What are the policies of cannabis in the workplace at the University of Alberta?
阿尔伯塔大学工作场所的大麻政策是什么?

Impairment Policies 减值政策

- Applies to staff, student staff, post doctoral fellows, volunteers, contractors etc.
- Is the person fit for work?
- Safety-sensitive positions must be considered
- If a student is not an employee or volunteer, they will be disciplined under the Code of Student Behaviour
- There is assistance for people who have addictions
- 适用于教职员工、学生员工、博士后研究员、志愿者、承包商等。
- 这个人适合工作吗?
- 必须考虑安全敏感位置
- 如果学生不是雇员或志愿者，他们将根据学生行为准则受到纪律处分
- 为有瘾的人提供帮助

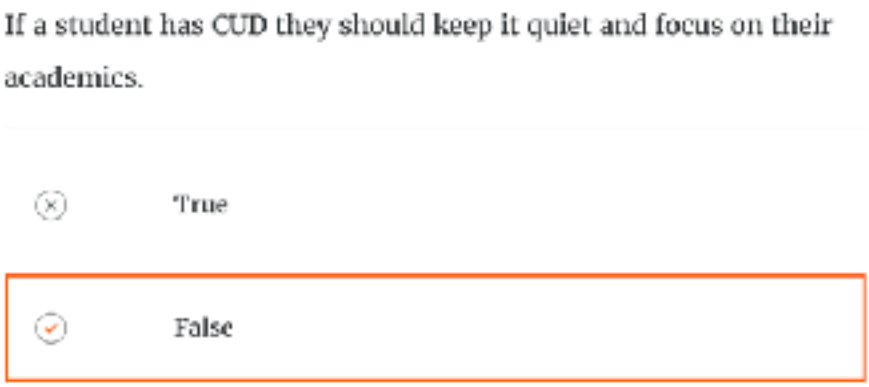
University of Alberta's Policies阿尔伯塔大学的政策

- Where can students smoke on the UofA campus?
    - There are 5 sites between 3 of the campuses.
- What happens if a student is found smoking out of these zones?
- The students will be charged under the Code of Student Behavior or the provincial Gaming, Liquor and Cannabis Act (GLCA) if found by a vent, doorway or window.
- What happens in a staff/faculty member smokes out of these zones?
    - They would fall under their respective rules within their collective agreements, although they may also be charged under the GLCA
- 学生可以在 UofA 校园的哪里吸烟?
    - 3个校区之间有5个站点。
- 如果发现学生在这些区域外吸烟会怎样?
- 如果在通风口、门口或窗户处发现学生，将根据学生行为准则或省级博彩、酒类和大麻法 (GLCA) 对学生进行指控。
- 员工/教职员工从这些区域抽烟会发生什么?
    - 他们将受其集体协议中各自规则的约束，尽管他们也可能会根据 GLCA 受到指控

University of Alberta's Policies

- What happens if a student develops a CUD?
    - They should develop a harm reduction strategy through the Office of the Dean of Students and University Health Centre

- What happens if a student or staff member is made ill by the smell of cannabis on the UofA campus?
    - Enforce bans on smoke or restrict smoking to specific areas to reduce secondhand smoke exposure
- What happens if a student with a medical cannabis prescription is unable to consume their medication on campus due to bans or restrictions?
    - They can work with Dean of Students and Human Resource Services to establish a protocol for their treatment
- 如果学生开发了 CUD，会发生什么？
    - 他们应该通过学生和大学健康中心院长办公室制定减少危害的策略
- 如果 UofA 校园内的大麻气味使学生或教职员工生病怎么办？
    - 执行禁烟令或将吸烟限制在特定区域，以减少二手烟暴露
- 如果持有医用大麻处方的学生因禁令或限制而无法在校园内服用药物，会发生什么情况？
    - 他们可以与学生和人力资源服务院长合作，为他们的治疗制定协议



If a student has CUD they should keep it quiet and focus on their academics.（❌）
如果学生有 CUD，他们应该保持安静并专注于他们的学业。

Summary

- There are a number of phrases/words that must be know: accommodation, impairment, safety-sensitive, fitness to work
- The rights of the employee and employer must be clear
- A great deal of education is needed in this area. The real life cases illustrate how employers and employees had to go to arbitration because of differing expectations/understandings
- Medical cannabis users have rights
- All employers must update their policies and include cannabis. It is not the same as alcohol
- The University of Alberta has done a very good job of creating appropriate policies

- 有许多短语/单词必须知道：住宿、障碍、安全敏感、适合工作
- 雇员和雇主的权利必须明确
- 在这方面需要大量的教育。现实生活案例说明雇主和雇员如何因不同的期望/理解而不得不进行仲裁
- 医用大麻使用者享有权利
- 所有雇主都必须更新他们的政策并包括大麻。它和酒精不一样
- 阿尔伯塔大学在制定适当的政策方面做得非常好

Ch12. Cannabis in Universities + Stigma
大学里的大麻 + 污名

Pre-Readings: Cannabis and the University Student
https://doi.org/10.1037/adb0000108

Cannabis and the University Student 大麻和大学生

As university students yourselves, it is so important to be aware of cannabis, especially as it is becoming more and more commonplace. In what proportions do university students use cannabis and where? Does it affect their studies?
作为大学生自己，了解大麻非常重要，尤其是在它变得越来越普遍的情况下。大学生使用大麻的比例是多少？在哪里？这会影响他们的学习吗？

Learning Objectives 学习目标

- To know patterns of use of cannabis is other comparable post secondary institutions
- To understand why your peers may be engaging with cannabis
- To gain insight into how cannabis may affect GPA and PSE enrollment
- To examine how PSE students are using cannabis with other substances
- 了解大麻的使用模式是其他类似的高等教育机构
- 了解为什么您的同龄人可能会接触大麻
- 深入了解大麻如何影响 GPA 和 PSE 入学
- 检查 PSE 学生如何将大麻与其他物质一起使用

In What Proportions are Students Using?
学生使用的比例是多少?

Current PSE (Post-Secondary Education) Students:

目前的 **PSE**（专上教育）学生：

- People who reported they were currently attending a school, college, CEGEP, or university reported cannabis use during the past 12 months (40%) at a higher proportion compared to those who were not currently students (22%)
- 与目前不是学生的人 (22%) 相比，自称目前正在学校、学院、CEGEP 或大学就读的人报告说，在过去 12 个月内使用大麻的比例 (40%) 更高

Graduated PSE Students:

毕业的 **PSE** 学生**:**

- Those who reported having less than high school or a high school diploma as their highest level of education had the highest proportion reporting cannabis use in the past 12 months (31% each), almost twice that of those with a postgraduate degree/diploma (17%)
- 那些报告其最高教育水平低于高中或高中文凭的人在过去 12 个月内报告使用大麻的比例最高（各 31%），几乎是拥有研究生学位/文凭的人的两倍（17 %)

The University of Alberta阿尔伯塔大学

- While 79% of U of A students reported believing that their friends had used cannabis in the last thirty days, only 10% reported actually having done so. (2016 U of A National College Health Assessment)
- 虽然 79% 的 U of A 学生报告相信他们的朋友在过去 30 天内使用过大麻，但只有 10% 的人报告实际上这样做了。（2016 U 全国大学健康评估）

Current students use cannabis less often than those who are not currently students.

Current students use cannabis less often than those who are not currently students. (✗)
在校学生使用大麻的频率低于非学生学生。

Here's a small sample of cannabis use in Canadian universities这是加拿大大学使用大麻的一小部分样本

Table 1. Data from: Brownell, C. (2018, November 26). These are Canada's top pot-smoking universities. Retrieved June 05, 2020, from https://www.macleans.ca/education/cannabis-at-canadian-universities-which-schools-and-programs-report-highest-use/
表 1. 数据来自：Brownell, C.（2018 年，11 月 26 日）。这些是加拿大顶尖的抽大麻大学。2020 年 6 月 5 日检索自

University	Overall	Daily	A few times a week	About once a month	A few times a month	Less than once a month	Less than once a year	Never
Queen's University	59.4%	1.4%	6.4%	12.7%	9.6%	15.8%	10.5%	40.6%
University of Victoria	52.4%	2.8%	3.8%	6.9%	9.3%	15.5%	14.1%	47.6%
McGill University	48.5%	2.0%	3.4%	7.3%	8.3%	14.0%	13.4%	51.5%
Dalhousie University	46.2%	3.4%	6.8%	4.0%	7.4%	11.9%	12.7%	53.8%
UBC	40.5%	2.6%	5.3%	5.7%	7.2%	11.5%	8.4%	59.5%
University of Alberta	29.6%	1.5%	1.8%	3.5%	3.7%	9.2%	10.0%	70.4%
McMaster University	29.2%	0.6%	2.4%	4.3%	4.7%	8.7%	8.5%	70.8%
University of Toronto	28.4%	1.1%	2.4%	3.5%	4.1%	9.9%	7.4%	71.6%
University of Calgary	24.7%	1.3%	1.7%	2.2%	4.6%	7.4%	7.4%	75.3%

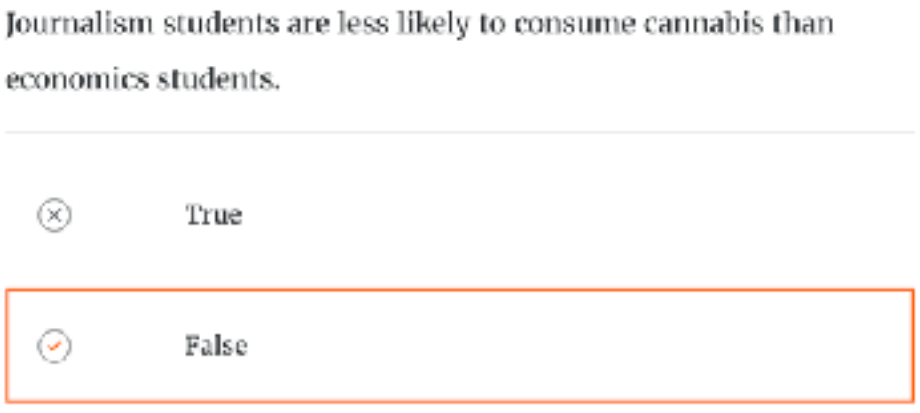
Here's a small sample of how use changes by program in Canadian universities以下是加拿大大学课程使用变化的小样本

Do you see your discipline? Does it surprise you?

If you don't, check out the link here: https://www.macleans.ca/education/cannabis-at-canadian-universities-which-schools-and-programs-report-highest-use/

你看到你的纪律了吗？ 是不是让你感到惊讶？

Program	Percentage of students who are marijuana users
Drama	55.8%
Journalism	51.0%
Environmental science	50.6%
Sociology	50.5%
Political science	48.3%
Philosophy	48.0%
Communication	44.6%
International relations	42.9%
Psychology	42.5%
Economics	41.6%



Journalism students are less likely to consume cannabis than economics students. （❌）

与经济学专业的学生相比，新闻专业的学生不太可能使用大麻。

The University of Calgary 卡尔加里大学

How often are University of Calgary students using cannabis?

- 69.7 per cent reported no cannabis use in the past six months
- 17.3 per cent used cannabis monthly or less
- 5.8 per cent used two to four times a month
- 3.5 per cent used two to three times a week
- 3.7 per cent used four or more times a week

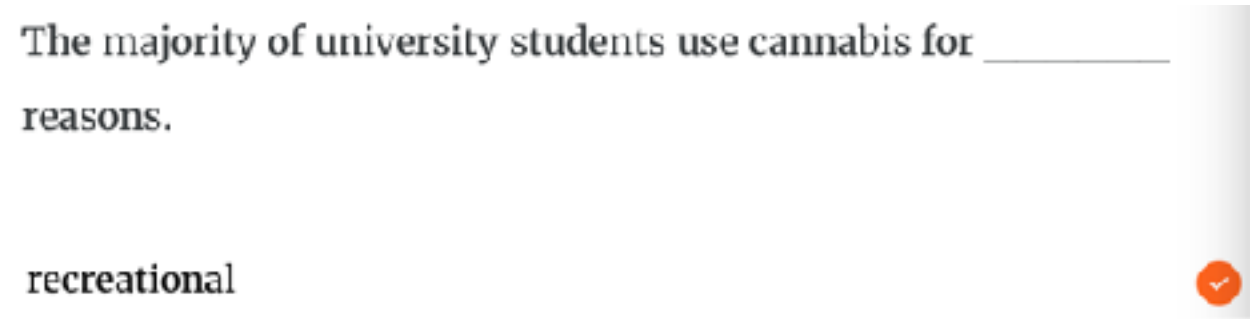
卡尔加里大学的学生多久使用一次大麻?

- 69.7% 的人报告在过去六个月中没有使用大麻
- 17.3% 每月或更少使用大麻
- 5.8% 每月使用两到四次
- 3.5% 的人每周使用 2 到 3 次
- 3.7% 每周使用四次或更多

Why are University Students Using Cannabis?
为什么大学生使用大麻?

Recreational vs Medical 休闲与医疗

- This study found that 74.1% of lifetime cannabis users reported recreational use, with 21.1% reporting cannabis use for medicinal purposes
- The 4 most common ailments cited for medicinal cannabis use were anxiety (49.2%), sleep problems (26%), depression (25%), and pain (24%). Of the medicinal users, 78.2% endorsed use for at least 1 mental health condition.
- About ⅔ of the medical users were not authorized by health care providers. Nearly 40% of the users had replaced a different medication with cannabis.
- 这项研究发现，74.1% 的终生大麻使用者报告了娱乐用途，21.1% 报告大麻用于医疗目的
- 使用药用大麻的 4 种最常见疾病是焦虑 (49.2%)、睡眠问题 (26%)、抑郁 (25%) 和疼痛 (24%)。在药物使用者中，78.2% 的人支持至少用于 1 种心理健康状况。
- 大约 ⅔ 的医疗用户未获得医疗保健提供者的授权。近 40% 的用户用大麻替代了不同的药物。



The majority of university students use cannabis for recreational reasons.
大多数大学生出于娱乐原因使用大麻。

How are University Students Using Cannabis?
大学生如何使用大麻?

While high school students deem cannabis as “readily available”, University students go even further to say it is “**very easy**” or “**easy**” to obtain through their social network. This in turn affects the perceived danger of the drug, as it permeates through many social circles.

虽然高中生认为大麻“容易获得”，但大学生更进一步说通过他们的社交网络获得大麻“非常容易”或“容易”。

这反过来又会影响对毒品危险的感知，因为它渗透到许多社交圈子中。

Correlations相关性

What is cannabis use in university correlated with? 大学使用大麻与什么有关?

Does Using Cannabis Affect Grades? 使用大麻会影响成绩吗?

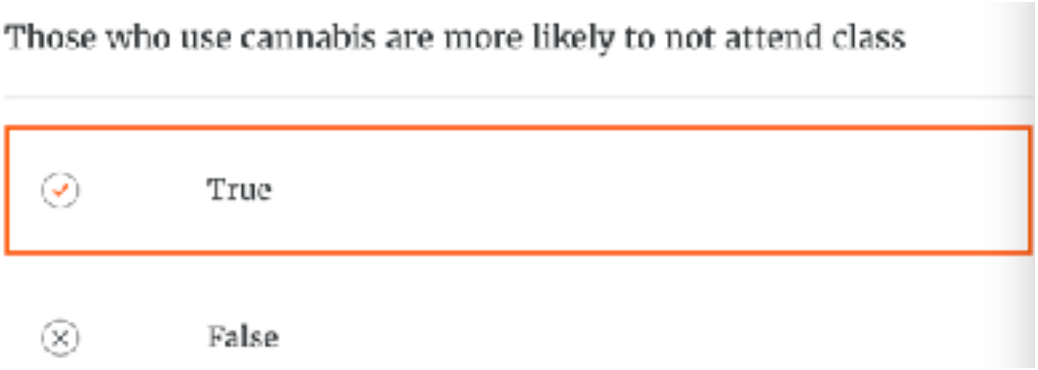
Cannabis has been significantly associated with a decrease in GPA through these ways:

大麻通过以下方式与 GPA 下降显着相关：

1. Cannabis indirectly lowers GPA by negatively impacting the amount of classes attended per week
2. Cannabis is directly associated with a lowered GPA when frequency of use is increased

1. 大麻通过对每周上课的数量产生负面影响来间接降低 GPA
2. 当使用频率增加时，大麻与降低的 GPA 直接相关

* As you know, just because they are correlated does not mean it is the only factor. Cannabis use is also associated with mental health issues, the use of other substances, and even amotivation, all of which can impact grades. It's also difficult to differentiate between predisposed traits, and those formed by cannabis use.
* 如您所知，仅仅因为它们相关并不意味着它是唯一的因素。大麻的使用还与心理健康问题、其他物质的使用，甚至动机有关，所有这些都会影响成绩。也很难区分易感特征和使用大麻形成的特征。



Those who use cannabis are more likely to not attend class （☑）
使用大麻的人更有可能不上课

Does Cannabis Use Affect the Likelihood to Enroll in PSE?
使用大麻会影响参加 PSE 的可能性吗?

Many studies have found that cannabis is associated with a reduced likelihood of entering a Post-Secondary Education, especially with frequent use

- Homer et al. 2014 - on trajectories of cannabis use from ages 15 to 25 found that, relative to non-users, occasional cannabis users were more likely to **delay enrollment** in or **drop out** of post-secondary education, and **frequent users were significantly less likely to enroll.**
- Hunt, Eisenberg and Kilbourne (2010) analyzed national epidemiologic data and observed that individuals with cannabis use disorder were more likely to **dropout** of college.
- Furthermore, heavy cannabis users who do enroll in college are more likely to **experience gaps in enrollment** (Arria et al 2013) even when controlling for a number of potentially confounding variables.

许多研究发现，大麻与进入专上教育的可能性降低有关，尤其是经常使用大麻

- 荷马等人。2014 年 - 关于 15 至 25 岁的大麻使用轨迹发现，相对于非使用者，偶尔使用大麻的人更有可能推迟入学或辍学，而频繁使用大麻的人入学的可能性要小得多。
- Hunt、Eisenberg 和 Kilbourne（2010 年）分析了国家流行病学数据，并观察到有大麻使用障碍的人更有可能辍学。
- 此外，即使在控制了许多潜在的混杂变量的情况下，注册大学的重度大麻使用者更有可能遇到入学差距（Arria 等人，2013 年）。

Polysubstance Use多物质使用

- One European study (Hernández-Serrano, Gras, & Font-Mayolas, 2018) found that “the combined use of cannabis and tobacco, regardless of the type of use (concurrent or simultaneous), is moderately related to poor academic achievement amongst university students.”
- 一项欧洲研究（Hernández-Serrano、Gras 和 Font-Mayolas，2018 年）发现，“大麻和烟草的联合使用，无论使用类型如何（同时或同时），都与大学生的学业成绩不佳有关。”

- Using cannabis with alcohol can increase the risk of over-intoxication and impair driving ability
- 将大麻与酒精一起使用会增加过度醉酒和损害驾驶能力的风险

- Smoking cannabis with tobacco increases exposure to chemicals that can further your risk of developing lung and heart disease. Using cannabis with tobacco can increase the risk of dependence on these substances more than smoking either one alone.
- 用烟草吸食大麻会增加接触化学物质的机会，从而增加患肺病和心脏病的风险。将大麻与烟草一起使用会增加对这些物质的依赖风险，而不是单独吸食任何一种物质。

- Using cannabis with other drugs (e.g. MDMA, cocaine, opioids, heroin) can lead to interactions that can be dangerous to your health.
- 将大麻与其他药物（例如摇头丸、可卡因、阿片类药物、海洛因）一起使用会导致可能对您的健康造成危险的相互作用。

Alcohol and Cannabis酒精和大麻

“Cannabis users are also more likely to be heavy drinkers, and to use other drugs, meaning there may be a concurrent use.” (Arria, Caldeira, Bugbee, Vincent, & O'grady, 2015)

- In the USA, recreational cannabis legalization is associated with a decrease in binge drinking in students age 21 and older
- **The truth is, students aren’t replacing drinking with smoking, they’re doing both**

“大麻使用者也更有可能酗酒，并使用其他药物，这意味着可能同时使用。”（Arria、Caldeira、Bugbee、Vincent 和 O'grady，2015 年）

- 在美国，休闲大麻合法化与 21 岁及以上学生酗酒的减少有关
- **事实是，学生并没有用吸烟代替饮酒，他们两者都在做**

There is a worry of university students mixing many substances. （☑）
大学生担心混合多种物质。

Summary

We can conclude that

- University students use cannabis, even without legalization it is available to them through their networks

- Three quarters of them use it for recreational purposes (we know that the students at university are overall healthy so would not be surprised at the low medical cannabis use)

- There is a split between arts and science-oriented students and students are co using alcohol and cannabis.

- There is a lot more that we do not know.

我们可以得出结论

- 大学生使用大麻，即使没有合法化，也可以通过他们的网络获得

- 四分之三的人将其用于娱乐目的（我们知道大学学生总体健康，因此不会对医用大麻使用率低感到惊讶）

- 面向艺术和科学的学生之间存在分歧，学生们共同使用酒精和大麻。

- 还有很多我们不知道的。

The Stigma of Cannabis

Learning Objectives学习目标

- Understand the basic definition of stigma
- Identity the types of stigma that cannabis users face
- Know what drives stigma
- Know who suffers from stigma
- Examine how to cope with stigma
- Identify the legal approaches to people who are charged with cannabis possession over 30g and other related cannabis offenses
- Identify your own stigmas: sources, types
- 了解污名的基本定义
- 识别大麻使用者面临的耻辱类型
- 知道是什么导致了污名化
- 知道谁遭受耻辱
- 检查如何应对污名
- 确定对被指控持有超过 30 克大麻和其他相关大麻犯罪的人的法律方法
- 识别你自己的污名：来源、类型

Reflection Question反思题

Since there is evidence highlighting the dangers of cannabis use before the age of 25, why was it legalized for adults at 18, 19 or 21 years of age?
既然有证据强调在 25 岁之前使用大麻的危险，为什么它对 18、19 或 21 岁的成年人来说是合法的?

What is Stigma? 什么是污名?

"The phenomenon whereby an individual with an attribute...is deeply discredited by his/her society [and] is rejected as a result of the attribute...
It is an interactional process that “spoils identity” [for] people who are perceived by others to deviate physically and behaviorally from social norms and values [and] are subject to disapproval, and marginalization, and often experience discrimination and loss of status."
“具有某种属性的个人……被他/她的社会深深抹黑[并且]由于该属性而被拒绝的现象……这是一个“破坏身份”的互动过程，[因为]被他人认为在身体和行为上偏离社会规范和价值观的人[并且]受到反对和边缘化，并且经常遭受歧视和地位丧失。”

Types of Stigma污名的类型

- **"MESO" - Social stigma:** negative attitudes towards people who use drugs, including referring to them with negative labels, negative imagery, and

ignoring people with substance abuse [7]. Others' judgements about difference are translated into rejection, distancing and other discriminatory practices

- **"MESO"——社会污名：** 对吸毒者的负面态度，包括用负面标签、负面形象提及他们，以及无视吸毒者[7]。其他人对差异的判断会转化为拒绝、疏远和其他歧视性做法

- **"MACRO" - Structural stigma:** stigma from people who offer public services (health care, government, first responders, etc.); this includes organizations that withhold health or services until substance abuse is managed, or not connecting individuals with those services because of their substance abuse. Healthcare/social services create barriers for individuals trying to receive basic care they need and affects housing and employment
  - **"宏观"——结构性污名：** 来自提供公共服务（医疗保健、政府、急救人员等）的人的污名；这包括在药物滥用得到管理之前不提供健康或服务的组织，或由于滥用药物而未将个人与这些服务联系起来的组织。医疗保健/社会服务为试图获得所需基本护理的个人设置了障碍，并影响了住房和就业

- **"MICRO" - Self-stigma:** internalized social and structural stigma (applying the negative attitude towards themselves as a result). Individuals' assumptions or fears of discrimination lead to self-perceptions of shame and guilt, and protective action such as self-imposed isolation
  - **"微观"——自我污名：** 内化的社会和结构性污名（因此对自己采取消极态度）。个人对歧视的假设或恐惧会导致自我感觉羞耻和内疚，以及自我隔离等保护性行为

A first responder withholding services due to a judgement about drug addiction is self-stigma

A first responder withholding services due to a judgement about drug addiction is self-stigm（✗）

由于对毒瘾的判断而拒绝提供服务的第一响应者是自我污名

It is structural stigma 这是结构性的耻辱

What Causes Stigma? 是什么导致污名化?

- Our history 我们的历史
- Laws 法律
- Technology, social media 技术、社交媒体
- We sustain stigma by focusing on the negative - adverse effects, our language, who (prominent figures making false statements, no or outdated research,extremism.
    - For example, the Canadian Medical Association says no one should be allowed to smoke until they are 21 years of age [8,9]
- 我们通过关注负面影响、我们的语言、谁（著名人物做出虚假陈述、没有或过时的研究、极端主义）来维持污名。
    - 例如，加拿大医学协会表示，任何人在 21 岁之前都不应被允许吸烟

Who is Stigmatized? 谁被污名化?

Consider if a group already has stigma and then if they use cannabis.
考虑一个群体是否已经有污名，然后他们是否使用大麻。

Here is an example: 下面是一个例子：

HIV/AIDS - one 34 year-old respondent said “it doesn’t matter how many federal licenses [I have] … I’ve got the stigma of AIDS, I’ve got the stigma of an ex-junkie … a lot of dirt in my closet that can be thrown up, right."
艾滋病毒/艾滋病——一位 34 岁的受访者说：“[我有] 多少联邦执照并不重要……我有艾滋病的污名，我有前瘾君子的污名……很多我衣橱里的灰尘可以扔掉，对吧。”

- Prior to October 17, 2018, double stigma: stigma for medical cannabis users being labelled a drug user, but also the risk of being charged as a criminal.
- 在 2018 年 10 月 17 日之前，双重污名：医用大麻使用者被贴上吸毒者标签的污名，以及被指控为罪犯的风险。

- Those using medical cannabis are labeled as having a disease or disorder by others and it is more hurtful if discredited by health care professionals.
- 那些使用医用大麻的人被其他人标记为患有疾病或紊乱，如果被医疗保健专业人员抹黑，则伤害更大。

- People external to the medical cannabis user may view the use of cannabis as recreational.
    - Could spur the question: Are they addicts?
- 医用大麻使用者以外的人可能会将大麻的使用视为消遣。
    - 可能会引发一个问题：他们是瘾君子吗?

Regardless of legalization, stigma persists. 无论合法化如何，耻辱感仍然存在。
“Pot has a bad reputation and others might think badly of me because of it … I’m worried other people might think I’m less intelligent or a druggie”
“Pot 的名声很差，其他人可能会因此对我有不好的看法……我担心其他人可能会认为我不那么聪明或吸毒”

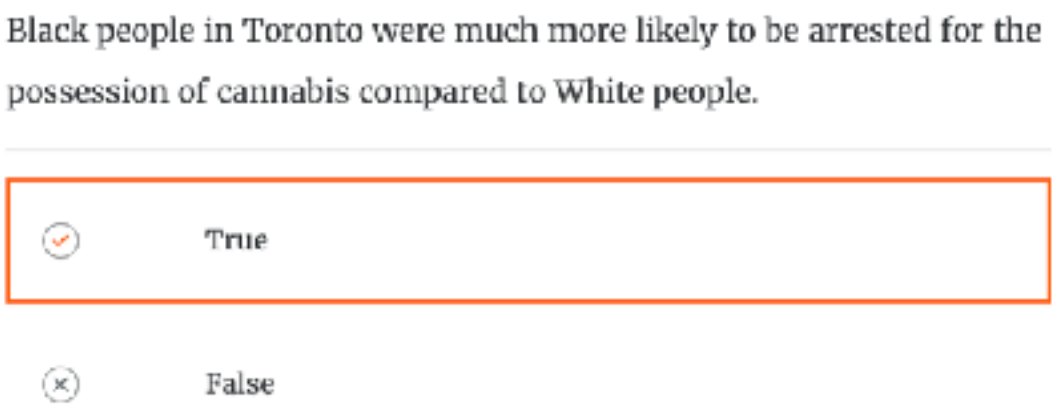
Prime Minister Justin Trudeau has already acknowledged that “there is a disproportionate representation of young people … from racialized communities who are saddled with criminal convictions … for simple possession”

总理贾斯汀·特鲁多 (Justin Trudeau) 已经承认，“不成比例的年轻人.....来自种族化社区的年轻人.....因为简单的占有而被刑事定罪.....”

- In Canada, it has disproportionately affected **Black and Indigenous populations**
    - Black people in Toronto were 3x more likely to be arrested for possession than white people
- 在加拿大，它对黑人和土著人口的影响不成比例
    - 多伦多的黑人因占有而被捕的可能性是白人的 3 倍

- Cannabis use in the USA is about equal across races, but African Americans are nearly 4x more likely to be arrested for possession than White people
    - In 2017, 86% of cannabis arrests in New York were against people of colour and by contrast, estimates of the proportion of owners of licensed dispensaries in the growing industry is ~1% African-American owned
- 在美国，不同种族的大麻使用情况大致相同，但非裔美国人因持有大麻而被捕的可能性是白人的近 4 倍
    - 2017 年，纽约 86% 的大麻逮捕是针对有色人种的，相比之下，在不断增长的行业中，持牌药房所有者的比例估计约为 1% 非裔美国人拥有

（视频：）



Black people in Toronto were much more likely to be arrested for the possession of cannabis compared to White people. （☑）
与白人相比，多伦多的黑人更有可能因持有大麻而被捕

Coping with Stigma 应对污名

What are the techniques people resort to in order to cope with stigma?
人们采用哪些技术来应对污名?

- **Covert use:** guard and hide the cannabis, including doing it alone, not telling people about it, taking steps to minimize the residual smell, etc.
- **Convincing others of the benefits:** some people combat the stigma by trying to eliminate misinformation as the source of the stigma. Eg. Change the wording from “recreational drug” to “therapeutic agent”
- **Responsible use:** being “clean on other fronts,” not flaunting, being particular in their preparations, etc.
- **Reinforce differences** between recreational and therapeutic use in the eyes of the public. Also being upfront, honest, and diligent, notifying law enforcement, etc.
- **Activism:** advocating for their right as a patient to choose their own medications. Even though law have changed, some believe that they cannot use cannabis freely and openly
- **隐蔽使用**：保护和隐藏大麻，包括单独使用、不告诉他人、采取措施尽量减少残留气味等。
- **说服他人的好处s**： 有些人通过试图消除错误信息作为污名的来源来对抗污名。例如。将措辞从“消遣性药物”改为“治疗剂”
- **负责任的使用**： “在其他方面保持干净”，不炫耀，在准备工作中特别注意等。

- 加强公众眼中娱乐和治疗用途之间的差异。还要坦诚、诚实、勤奋，通知执法部门等。
- 激进主义： 倡导他们作为患者选择自己药物的权利。尽管法律已经改变，但有些人认为他们不能自由和公开地使用大麻

Addressing Stigma - What are other countries doing?
解决污名化问题 - 其他国家在做什么?

Non-punishment measures at the police level: 警察层面的非惩罚措施：

- Arrest referral - Interaction at the point of arrest (ie. while in custody at police stations) between drug users and independent drugs workers, allowing the drug user to be assessed and referred to **treatment services** (if deemed appropriate)
- Example: Established in the UK since 2002 as a method of improving engagement with drug users; since incorporated into their Drug Interventions program designed to tailor solutions for adult drug users (primarily those who commit crimes to fund drug abuse)
- 逮捕转介 - 在逮捕时（即在警察局拘留期间）吸毒者和独立毒品工作者之间的互动，允许对吸毒者进行评估并转介到治疗服务（如果认为合适）
- 示例：自 2002 年以来在英国成立，作为改善与吸毒者接触的一种方法；自纳入他们的药物干预计划以来，该计划旨在为成年吸毒者（主要是那些为吸毒提供资金的犯罪者）量身定制解决方案

Measures at the prosecution level: 检控层面的措施：

- Option for prosecutors to **suspend proceedings** before the decision is made to go to trial. Generally this is only for personal possession offences.
- Example: Laws in France, Luxembourg, and Romania
- 检察官 可选择在决定接受审判之前暂停诉讼程序。一般来说，这仅适用于个人占有罪。
- 示例：法国、卢森堡和罗马尼亚的法律

Measures at the court level： 法院层面的措施

- Usually an option for courts to **suspend proceedings** before judgment/ conviction is delivered. Many European countries afford courts the ability to require offenders attend treatment; others allow courts to give offenders the opportunity to opt in.
- Many countries also have employed/piloted **drug courts**. This concept first came about in the USA in the 1980s - distinct courts from regular court systems that are more focused on **health management/rehab** (as opposed to purely retribution/deterrence from crime)
- 通常法院可以选择在判决/定罪之前**中止诉讼程序**。许多欧洲国家允许法院要求罪犯接受治疗；其他一些则允许法院给予犯罪者选择加入的机会。
- 许多国家还设立了/试行**毒品法庭**。这个概念最早出现在 1980 年代的美国 - 不同于常规法院系统的法院，这些法院更侧重于**健康管理/康复** （而不是纯粹的报复/犯罪威慑）

Summary: In order to help stigma, cannabis use disorder, and mental health, many countries are opting to *treat* rather than *punish.*
总结：为了帮助污名化、大麻使用障碍和心理健康，许多国家选择治疗 而不是惩罚。

Pardon versus Expungement 赦免与删除

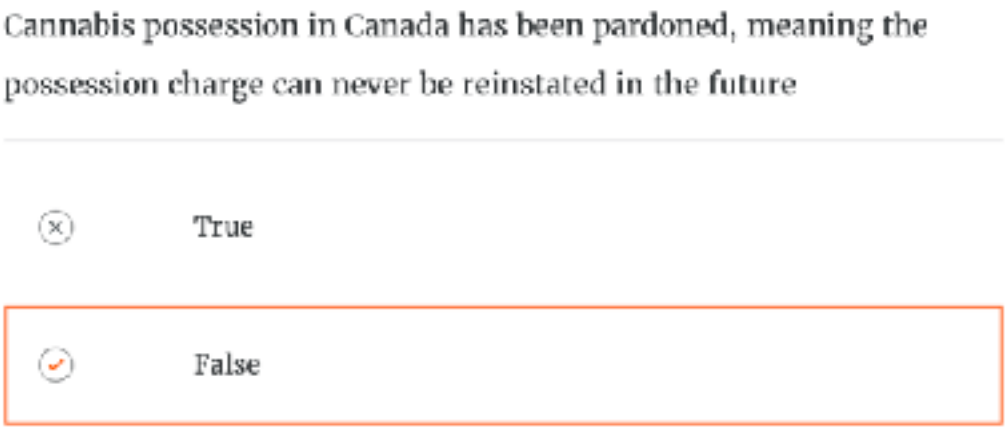
The Cannabis Act allows Canadians to obtain a free, no-wait pardon for simple cannabis possession offences.

《大麻法》允许加拿大人对简单的持有大麻罪行获得免费、无需等待的赦免。

- Before this, Canadians with possession convictions (ie. Possessing up to 30g, which is now legal) had to wait 5 years to apply for the pardon, and pay $631. It is estimated that more than 250,000 Canadians have some form of possession conviction.
- 在此之前，拥有财产罪（即拥有不超过 30 克，现在是合法的）的加拿大人必须等待 5 年才能申请赦免，并支付 631 美元。据估计，超过 250,000 名加拿大人有某种形式的占有定罪。
- Once approved, pardons should be “almost instantaneous”.
- 一旦获得批准，赦免应该“几乎是即时的”。

A pardon is not an expungement - activists have criticized this, saying people should have it expunged as well, because if it isn’t expunged from the criminal record, it can still be reinstated at some point in the future. Federal Justice Minister David Lametti

stated that expungement is reserved for people convicted of offenses that are now considered violations of the Charter of Rights and Freedoms.
赦免不是清除——活动人士批评了这一点，称人们也应该将其清除，因为如果它没有从犯罪记录中清除，它在未来的某个时候仍然可以恢复。联邦司法部长戴维·拉梅蒂 (David Lametti) 表示，被判定犯有现在被视为违反《权利和自由宪章》的罪行的人将被保留。



Cannabis possession in Canada has been pardoned, meaning the possession charge can never be reinstated in the future （❌）
在加拿大拥有大麻已被赦免，这意味着未来永远无法恢复拥有大麻的指控
It would have to be expunged for this to be true. 它必须被删除才能成为真的。

Summary 概括

Historically to present day, there is a great deal of stigma associated with cannabis use

All of must become more conscious of our own unconscious biases when it comes to cannabis or related substances. Start with calling marijuana - cannabis

Legalization of cannabis in Canada was the most significant change to decreasing but not eliminating the stigma of cannabis

Government control of cannabis raises the issue of selling the product but not taking full responsibility of those who suffer from the product

从历史上到现在，大麻的使用有很多耻辱感

当涉及到大麻或相关物质时，所有人都必须更加意识到我们自己的无意识偏见。从叫大麻开始——大麻

加拿大大麻合法化是减少但并未消除大麻耻辱感的最重要变化

政府对大麻的控制提出了销售产品的问题，但并未对遭受该产品的人承担全部责任

Xinyuan Zhao

Edmonton, AB T5J
1281721173@qq.com

June 15, 2022

Advanis

RE: Associate Analyst (Market Research)

Dear Hiring Manager,

As a driven, industrious, and emerging professional, I firmly believe that my contributions to the Associate Analyst (Market Research) role will create a positive impact on Advanis's goals. I graduated from the University of Alberta with a Bachelor of Science in Computer Science and I believe my background has prepared me to bring continued success to your organization.

I am an aspiring leader and offer key strengths in planning, motivation and teamwork. With a strong commitment to progress and goal-achievement, I am well-versed at streamlining processes, driving efficiency and encouraging team performance.

WIth an in-depth understanding of the requirements set forth for this role, I see that you are seeking a candidate with investigating, collecting, and analyzing data skills. I am eager to utilize my entrepreneurial-minded approach to support the creation of resourceful solutions with Advanis. With a passion for the organization's mission and values, I believe contributing to your team would be exceptionally rewarding.

Thank you for your time and consideration of my qualifications regarding the Associate Analyst (Market Research) opportunity. I will reach out to you within the upcoming week to inquire about the hiring process and next steps. If you would like additional information about my background and skills, please feel free to contact me.

Sincerely,
Xinyuan Zhao