

CANNABIS ***the "EXIT" DRUG***

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SUBSTITUTION EFFECT

SUBSTITUTION EFFECT

IS AN ECONOMIC THEORY THAT
SUGGESTS THAT VARIATIONS IN

CANNABIS AS A SUBSTITUTE FOR ALCOHOL AND
OTHER DRUGS; A DISPENSARY-BASED SURVEY OF
SUBSTITUTION EFFECT IN CANADIAN MEDICAL
CANNABIS PATIENTS.

Lucas, P., Reiman, A., Earleywine, M., McGowan, S., Oleson, M., Dempster, D., Thomas, B.,
Coward, M. (2012). Journal of Addictions Research and Theory. 21(5): 435–442



SUBSTITUTION EFFECT

AT THE POPULATION LEVEL ***SUBSTITUTION EFFECT*** IS OFTEN THE UNINTENDED RESULT OF PUBLIC POLICY SHIFTS OR OTHER SOCIAL CHANGES, SUCH AS COST OR AVAILABILITY.

CHANGES IN THE USE OF MEDICAL OR RECREATIONAL CANNABIS IN REGARDS TO THE USE OF OTHER SUBSTANCES CAN BE THE RESULT OF:

1. **ECONOMIC SHIFTS** AFFECTING END-USER COSTS (IE. COSTS COVERED BY INSURERS);
2. **SHIFTS IN POLICY** WHICH EFFECT AVAILABILITY (IE. DISPENSARIES);
3. **PSYCHOACTIVE/PHARMACOLOGICAL SUBSTITUTION** (IE. CANNABIS INSTEAD OF ALCOHOL OR OPIATES)
4. **LEGAL SHIFTS** THAT AFFECT CRIMINAL RISK AND ASSOCIATED REPERCUSSIONS (IE. TAX AND REGULATE INITIATIVES).

SUBSTITUTION EFFECT

- **USERS SHIFTED FROM USING HARDER DRUGS TO MARIJUANA AFTER ITS LEGAL RISKS WERE DECREASED.**

MODEL, K., (1993). THE EFFECT OF MARIJUANA DECRIMINALIZATION ON HOSPITAL EMERGENCY DRUG EPISODES: 1975–1978. *J. AM. STAT. ASSOC.* 88, PP. 423.

- **56.6% OF HEROIN USERS SUBSTITUTED CANNABIS WHEN THEIR SUBSTANCE OF CHOICE WAS UNAVAILABLE.**
- **31.8% OF PEOPLE WHO USE PHARMACEUTICAL ANALGESICS FOR NON-MEDICAL PURPOSES REPORTED USING CANNABIS WHEN PAIN-KILLERS WEREN'T AVAILABLE.**

CANNABIS & PROBLEMATIC SUBSTANCE USE

NICOTINE

MULDOON, P., LICHTMAN, A., DAMAJ, I. (2011). **THE ROLE OF 2-AG ENDOCANNABINOID NEUROTRANSMISSION IN NICOTINE REWARD AND WITHDRAWAL** (2011). *21ST ANNUAL SYMPOSIUM ON THE CANNABINOIDS*. INTERNATIONAL CANNABINOID RESEARCH SOCIETY, RESEARCH TRIANGLE PARK, NC, USA, PP. 3-24.

OPIATES

RAMESH, D., OWENS, R., KINSEY, S., CRAVATT, B., SIM-SELLEY, L., LICHTMAN, A. (2011). **EFFECTS OF CHRONIC MANIPULATION OF THE ENDOCANNABINOID SYSTEM ON PRECIPITATED OPIOID WITHDRAWAL**. *21ST ANNUAL SYMPOSIUM ON THE CANNABINOIDS*. INTERNATIONAL CANNABINOID RESEARCH SOCIETY, RESEARCH TRIANGLE PARK, NC, USA, PP.3-22.

COCAINE

AHARONOVICH, E., GARAWI, F., BISAGA, A., BROOKS, D., RABY, W.N., RUBIN, E., NUNES, E.V. & LEVIN, F.R. (2006). **CONCURRENT CANNABIS USE DURING TREATMENT FOR COMORBID ADHD AND COCAINE DEPENDENCE: EFFECTS ON OUTCOME**. *AM J DRUG ALCOHOL ABUSE*. 32(4): PP. 629-35.

LABIGALINI JR., E. ET AL. (1999). **THERAPEUTIC USE OF CANNABIS BY CRACK ADDICTS IN BRAZIL**. *JOURNAL OF PSYCHOACTIVE DRUGS*; OCT-DEC; 31, 4; PP. 451.

SUBSTITUTION

- **40% USED CANNABIS AS A SUBSTITUTE FOR ALCOHOL**
- **26% AS A SUBSTITUTE FOR ILLICIT DRUGS**
- **66% AS A SUBSTITUTE FOR PRESCRIPTION DRUGS.**

REIMAN, A. (2009). **CANNABIS AS A SUBSTITUTE FOR ALCOHOL AND OTHER DRUGS.**

HARM REDUCTION JOURNAL. 6:35.

- **13.2% REPORTED USING CANNABIS AS A SUBSTITUTE FOR ALCOHOL**
- **50.8% REPORTED USING CANNABIS AS A SUBSTITUTE FOR PRESCRIPTION DRUGS.**

NUNBERG, H., KILMER, B., PACULA, R., AND BURGDORF, J. (2011). **AN ANALYSIS OF APPLICANTS PRESENTING TO A MEDICAL MARIJUANA SPECIALTY PRACTICE IN CALIFORNIA.**

JOURNAL OF DRUG POLICY ANALYSIS, 4, 1.



CANNABIS USE & SUBSTANCE ABUSE TREATMENT

Medical cannabis patients seeking drug treatment for another substance fared equal or better than non-cannabis users in treatment completion, criminal justice involvement and medical concerns.

SCHWARTZ, R. (2010). **MEDICAL MARIJUANA USERS IN SUBSTANCE ABUSE TREATMENT.** *HARM REDUCTION JOURNAL*, 7,3.

History of cannabis use correlated with cannabis use during MMT but did not negatively impact the methadone induction process. Pilot data also suggested that objective ratings of opiate withdrawal decrease in MMT patients using cannabis during stabilization.

SCAVONE ET AL., (2013). **IMPACT OF CANNABIS USE DURING STABILIZATION ON METHADONE MAINTENANCE TREATMENT.** *THE AMERICAN JOURNAL ON ADDICTIONS*, 22: 344–351.



MEDICAL CANNABIS

SUBSTITUTION

Morris RG, TenEyck M, Barnes JC, Kovandzic TV (2014). **The Effect of Medical Marijuana Laws on Crime: Evidence from State Panel Data, 1990-2006.** *PLoS ONE* 9(3).

OUTCOMES

The central finding gleaned from the present study was that MML is not predictive of higher crime rates and may be related to reductions in rates of homicide and assault.

In sum, these findings run counter to arguments suggesting the legalization of marijuana for medical purposes poses a danger to public health in terms of exposure to violent crime and property crimes.

These results do fall in line with recent evidence [and they conform to the longstanding notion that marijuana legalization may lead to a reduction in alcohol use due to individuals substituting marijuana for alcohol. Given the relationship between alcohol and violent crime, it may turn out that substituting marijuana for alcohol leads to minor reductions in violent crimes that can be detected at the state

THE STUDY & ITS METHODS

STUDY

Examination of the subjective impact of medical cannabis on the use of both licit and illicit substances via self-report from 404 medical cannabis patients recruited from 4 dispensaries in British Columbia, Canada.

METHODS

Researchers teamed with a staff representative from 4 medical cannabis dispensaries located in British Columbia, Canada to gather background and demographic data of patient-participants as well as information on past and present cannabis, alcohol and substance use.

A 44-question survey was used to anonymously gather data on the self-reported impact of medical cannabis on the use of other substances, including but not limited to reductions in patterns of problematic substance use.



PARTICIPATING DISPENSARIES

1.THE BRITISH COLUMBIA COMPASSION CLUB SOCIETY (BCCCS)

FOUNDED: 1997

MEMBERS: >7300

2.THE VANCOUVER ISLAND COMPASSION SOCIETY (VICS)

FOUNDED: 1999

MEMBERS: >1400

3.THE GREEN CROSS SOCIETY OF BRITISH COLUMBIA (GCSBC)

FOUNDED: 2005

MEMBERS: >1180

4.VANCOUVER DISPENSARY SOCIETY (VDS)

FOUNDED: 2008

MEMBERS: >3500 IN TWO LOCATIONS



DEMOGRAPHICS

PARTICIPANTS: 404 MEDICAL CANNABIS PATIENTS

AGE: 17-71, WITH A MEAN AGE OF 44.12.

SEX: 67.1% MALE, 32.9% FEMALE

ETHNICITY: 71.6% CAUCASIAN (N=275) AND 12.5% FIRST NATIONS (N=48)

INCOME: 58.2% <\$20,000 PER ANNUM (N=219).

24% BETWEEN \$20,000 AND \$39,999

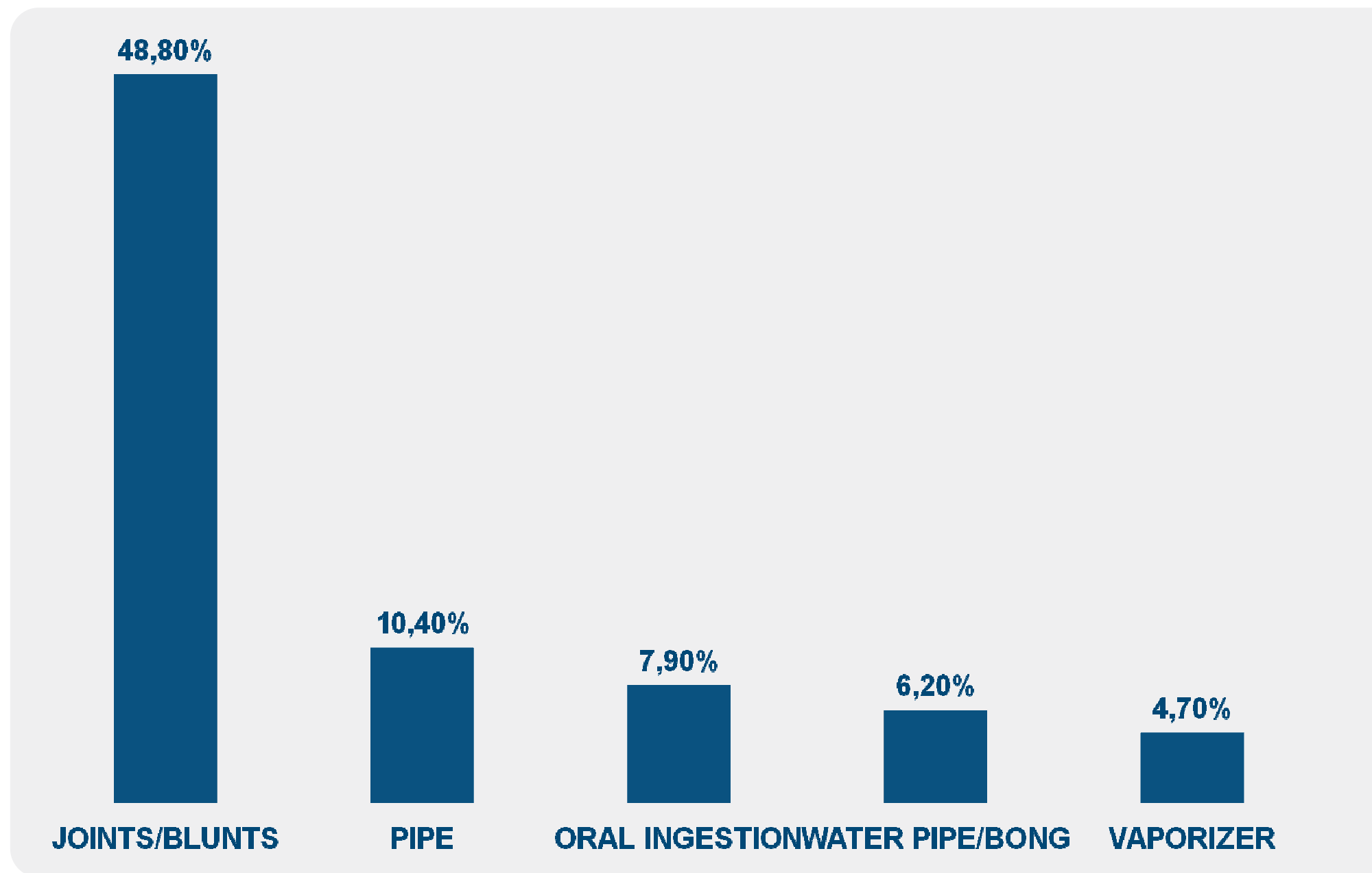
17.4% EARN \$40,000 OR MORE.

THIS COMPARES WITH 63.4% OF THE CANADIAN POPULATION THAT REPORT EARNING \$20,000 AND OVER (STATISTICS

CANADA, 2012).



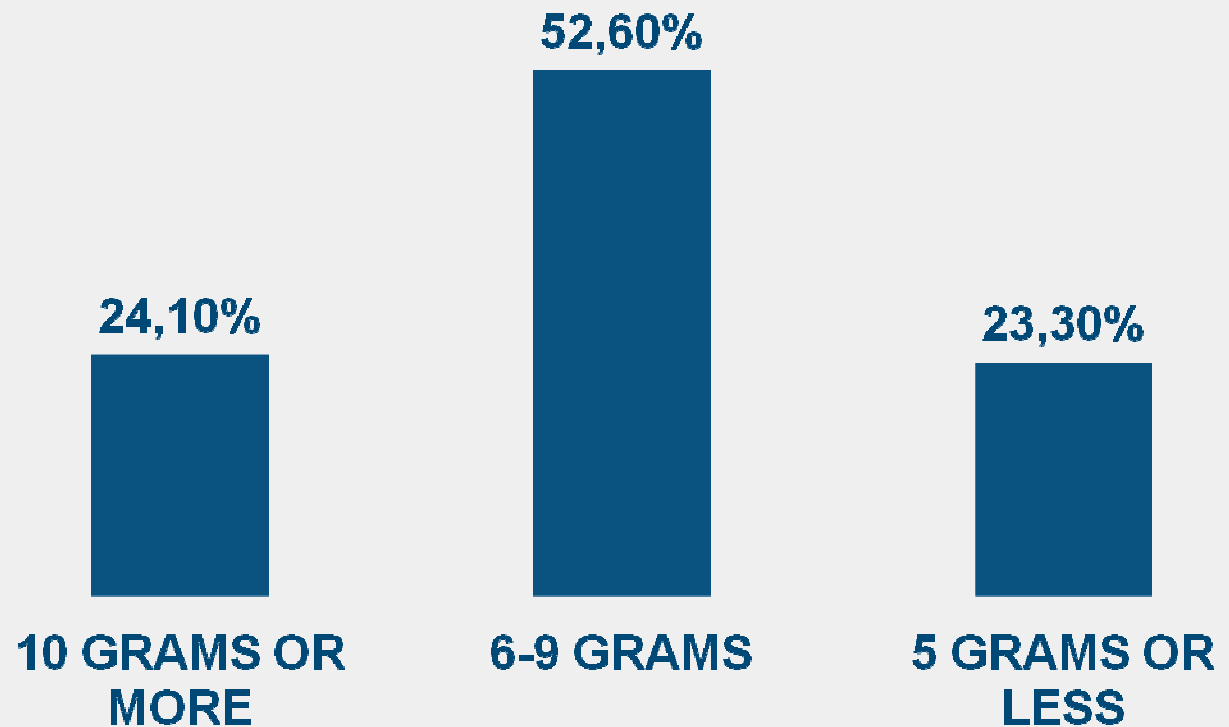
METHODS OF INGESTION



RATES OF USE

88% USE CANNABIS DAILY
>30% USE MORE THAN 4 TIMES PER DAY

AMOUNT OF CANNABIS USED PER WEEK



SUBSTANCE USE

44% REPORT CURRENT ALCOHOL USE

49% SMOKE TOBACCO

NEARLY 20% HAVE USED A DRUG OTHER THAN CANNABIS OR PRESCRIPTION DRUGS IN THE PAST 30 DAYS.

26.8% REPORT A HISTORY OF SUBSTANCE ABUSE (N=101).

OVER 52% WERE RAISED IN AN ALCOHOLIC OR ABUSIVE FAMILY ENVIRONMENT.

19.6% HAVE BEEN TREATED FOR ALCOHOL DEPENDENCE:

- 5% (N=22) PARTICIPATING IN A 12 STEP PROGRAM
- 3.5% (N=14) IN TYPE OF ANOTHER ALCOHOL RECOVERY PROGRAM

CANNABIS SUBSTITUTION

OVER 75% OF RESPONDENTS SUBSTITUTE CANNABIS FOR ANOTHER SUBSTANCE:

- 41% CITE THAT THEY USE CANNABIS AS A SUBSTITUTE FOR
- 36.1% USE CANNABIS AS A SUBSTITUTE FOR ILLICIT SUBSTA
- 67.8% USE CANNABIS AS A SUBSTITUTE FOR PRESCRIPTION

THE 3 MAIN REASONS FOR CANNABIS-RELATED SUBSTITUTION ARE:

1. “LESS WITHDRAWAL” (67.7%)
2. “FEWER SIDE-EFFECTS” (60.4%)
3. “BETTER SYMPTOM MANAGEMENT” (53.9%)

CAMPS

SUBSTITUTION EFFECT IN 628 MEDICAL CANNABIS PATIENTS; RESULTS FROM THE CANNABIS ACCESS FOR MEDICAL PURPOSES SURVEY (CAMPS)

PHILIPPE LUCAS, ZACHARY WALSH, KIM CROSBY, ROBERT CALLAWAY,
LYNNE, BELLE-ISLE, RIELLE CAPLER, SUSAN HOLTZMAN, BOB KAY,
JAMIE MARSHALL, TREVOR STRATTON, MICHAEL WOODSWORTH

The CAMPS questionnaire is a 414 question cross-sectional survey made available to Canadian medical cannabis patients online and by hard copy in 2011 & 2012.

With **over 628 responses** so far, the Cannabis Access for Medical Purposes Survey (CAMPS) is **the largest polling of Canadian medical cannabis patients** to date.

CAMPS

SUBSTITUTION EFFECT IN 628 MEDICAL CANNABIS PATIENTS; RESULTS FROM THE CANNABIS ACCESS FOR MEDICAL PURPOSES SURVEY (CAMPS)

OUTCOMES

OVERALL, 86.6% OF PATIENTS REPORTED SUBSTITUTING CANNABIS FOR AT LEAST ONE OTHER SUBSTANCE.

- 80.3% (N=472) OF PATIENTS STATED THAT THEY USED CANNABIS AS A SUBSTITUTE FOR PRESCRIPTION DRUGS,
- 51.7% (N=472) USED CANNABIS AS A SUBSTITUTE FOR ALCOHOL
- 32.6% (N=470) USED IT AS A SUBSTITUTE FOR ILLICIT SUBSTANCES.
- THE MAIN REASONS CITED INCLUDED “BETTER SYMPTOM MANAGEMENT” AND “LESS ADVERSE SIDE-EFFECTS”.
- PATIENTS WHO LISTED A GREATER NUMBER OF SYMPTOMS WERE MORE LIKELY TO REPORT CANNABIS SUBSTITUTION.
- YOUNGER PATIENTS (BELOW 30 YRS OLD) WERE FAR MORE LIKELY TO SUBSTITUTE

DISCUSSION

SUBSTITUTION FOR PRESCRIPTION OPIATES

With the recent rise in pharmaceutical opiate addiction (Dhalla et al, 2009; Fischer et al, 2008; SAMHSA 2007), and an associated increase in opiate-related morbidity and mortality (Moore et al 2007), cannabis may prove to be a safer substitute to address chronic pain issues in patient populations.

SUBSTITUTION FOR ILLICIT SUBSTANCES

Evidence suggesting that cannabis might be an effective substitute for opiates, crack/cocaine, crystal meth and other illicit substances could be part of a public health-centered harm reduction strategy aimed at reducing disease transmission and overdoses stemming from injection drug use.

DISCUSSION

SUBSTITUTION FOR ALCOHOL

Public policies informed by evidence that cannabis might be a substitute or actual treatment for alcohol addiction (Reiman 2009, 2006; Mikuriya 2004) could have a significant impact on overall rates of alcoholism, as well as alcohol-related automobile accidents, violence and property crime.

CONCLUSION

Given the credible biological, social and psychological mechanisms behind these results, further research appears to be justified on both economic and ethical grounds.

Clinical trials with those who have had poor outcomes with conventional psychological or pharmacological addiction therapies could be a good starting point to further our understanding of cannabis-based substitution effect.

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TILRAY

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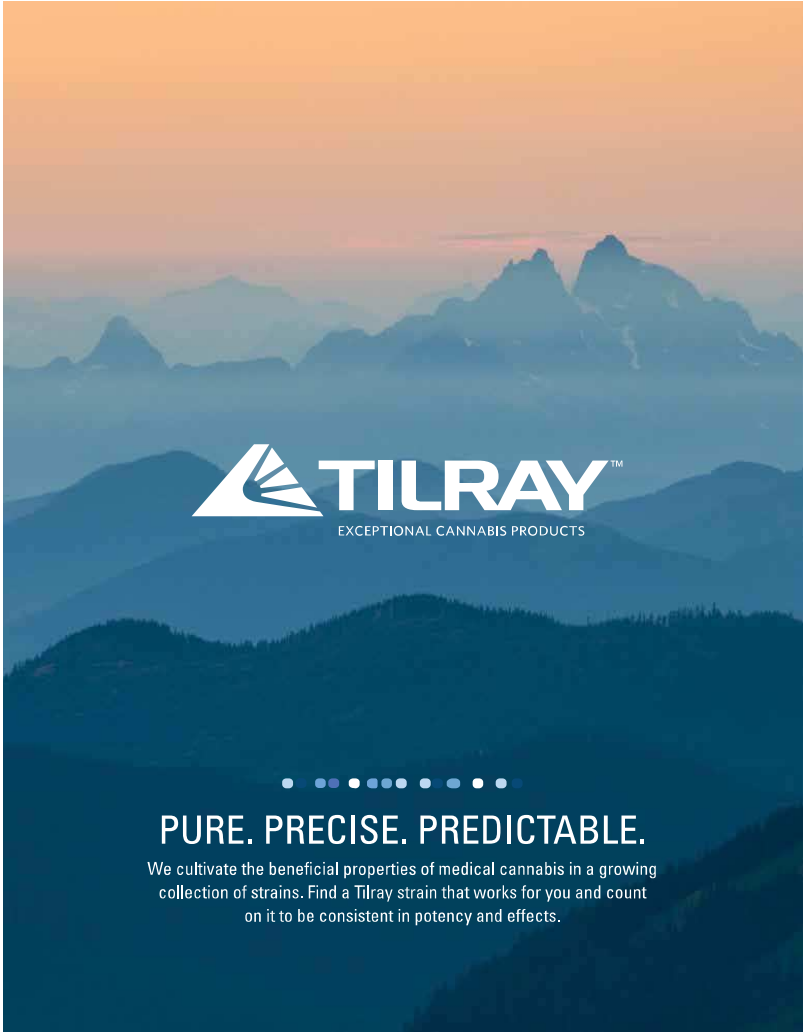
Cutting-Edge Technology and Production Practices



Dozens of Strains, including many high CBD varieties



The Evolution of Medical Cannabis in Canada



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EXCEPTIONAL CANNABIS PRODUCTS

PURE. PRECISE. PREDICTABLE.

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OG Shark 23.0% THC 2.0% CBD Hybrid	FLAVOUR PROFILE: Pine, Skunk, Diesel
Cannatonic 8.0% THC 10.0% CBD High CBD	FLAVOUR PROFILE: Citrus, Earthy, Pine

Tilray provides detailed, lab-verified information on every strain we produce to help you research the right strain for you. THC and CBD levels vary by lot. Levels shown here are estimates only.



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CONCLUSION

Increased legal access to cannabis may increase the positive personal and public health impacts of *cannabis substitution effect* and reduce the harms of both substance use and the war on drugs.



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