

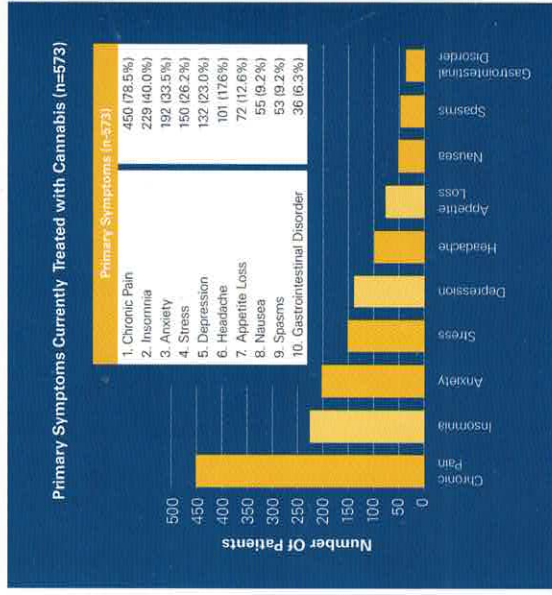
The impact of INSOMNIA is REAL

4 in 10 Canadian adults self-report at least 1 symptom of insomnia on at least 3 nights per week in the last month¹



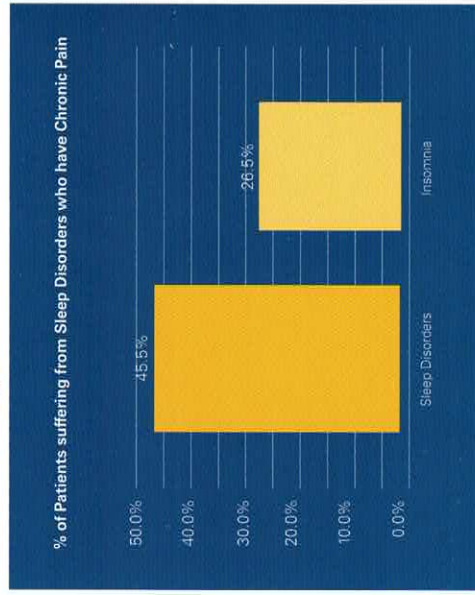
Evidence Supports the Role of Tilray Cannabis for Insomnia³

Ongoing Tilray Observational Patient Study (TOPS)^{1,3}



Longitudinal study of >2000 Tilray patients at 20 medical clinics in 5 provinces, the largest Canadian national longitudinal cannabis study to date. This preliminary data based on 573 patients enrolled before December 1, 2017. Median cannabis use was 7 g per week (month 1).

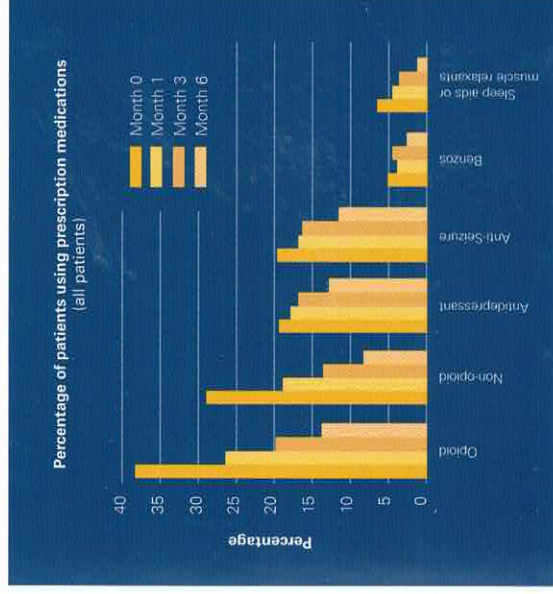
Sleep issues are common in people with chronic pain⁴



- 46% of patients suffer from sleep disorders
- 27% of patients have insomnia

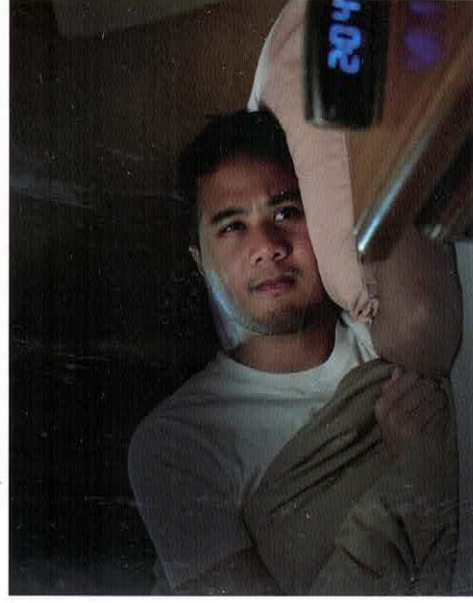
Tilray Cannabis Use Reduces Use of Benzodiazepines and Sleep Aids³

Change in Prescription Medication Use in the Ongoing Tilray Observational Patient Study (TOPS)^{1,3}



The % of patients using opioid/non-opioid pain medications, antidepressants, anti-seizure medications, benzos, and sleep meds/muscle relaxants declined significantly from baseline to 6 months.

¹ Longitudinal study of >2000 Tilray patients at 20 medical clinics in 5 provinces, the largest Canadian national longitudinal cannabis study to date. This preliminary data based on 573 patients enrolled before December 1, 2017. Median cannabis use was 7 g per week (month 1).



Systematic Reviews Support the Role of Cannabis for Comorbid Insomnia

"There is moderate evidence that cannabinoids are an effective treatment to improve short-term sleep outcomes in individuals with sleep disturbance associated with obstructive sleep apnea syndrome, fibromyalgia, chronic pain, and multiple sclerosis."

- National Academies of Sciences, Engineering and Medicine⁵

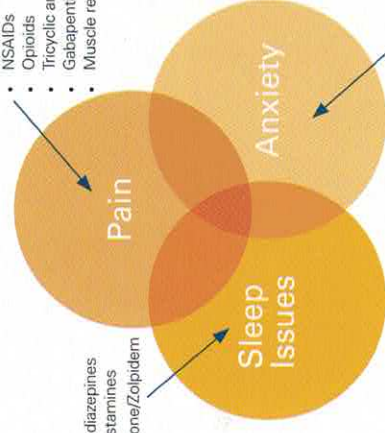
"Human experimental data suggests cannabis and THC have a dose-dependent effect on sleep—Low doses appear to decrease sleep onset latency and increase slow-wave sleep and total sleep time. High doses appear to cause sleep disturbances."

- Health Canada⁶

Tilray Medical Cannabis Can Address Multiple Symptoms

Tilray Medical Cannabis Can Address Symptom Clusters and Reduce Polypharmacy

- Benzodiazepines
- Antihistamines
- Zopiclone/Zolpidem
- Acetaminophen
- NSAIDs
- Opioids
- Tricyclic antidepressants
- Gabapentinoids
- Muscle relaxants



- Benzodiazepines
- SSRI antidepressants
- SNRI antidepressants

- Many patients with chronic pain have comorbid sleep issues and anxiety.⁷
- Medical cannabis may help to control symptom clusters and reduce use of other medication.

Individualized Patient-Centred Dosing

Start low. Go slow. Stay low.⁸

- Start with selecting a CBD: THC Balance product, and then titrate or change the product as per patient response.
- If the patient has trouble falling asleep, inhalation may be preferable because of its quick onset of action.
- If the patient has trouble staying asleep, oral ingestion may be preferable because of its long duration of action.
- Depending on patient response, a combination of inhalation and ingestion may be beneficial.

Cannabis Oil Titration Example*

Day	Morning (mL)	Evening (mL)	Total Daily Dose (mL)
1 - 3	0	0.25	0.25
4 - 6	0.25	0.25	0.5
7 - 9 [†]	0.25	0.5	0.75
10 - 12	0.5	0.5	1
13 - 15	0.5	0.75	1.25
16 - 18	0.75	0.75	1.5
19 - 21	0.75	1	1.75



↓ †

*This is one example only.

† Increase dosage only until you have determined your patient's optimal response. Note that higher doses of THC (and CBD) are associated with an increased risk of experiencing adverse or harmful effects. Immediately stop therapy and consult your physician if unacceptable or undesirable side effects occur, such as disorientation, dizziness, loss of coordination, agitation, anxiety, rapid heartbeat, chest pain, low blood pressure/feeling faint, depression, hallucinations, or psychosis.

Inhalation⁶

- Start with one inhalation. Wait 15 minutes.
- Increase by one inhalation every 15–30 minutes until symptom relief is achieved.



All patients should keep an accurate daily symptom and dosage diary.

A demonstrated safety profile superior to many other medications

Cannabis Adverse Effects⁸

Most Common	Common	Rare
Drowsiness/fatigue	Euphoria	Orthostatic hypotension
Dizziness	Blurred vision	Toxic psychosis/paranoia
Dry mouth	Headache	Depression
Cough, phlegm, bronchitis (smoking only)		Ataxia/discoordination
Anxiety		Tachycardia (after titration)
Nausea		Cannabis hyperemesis
Cognitive effects		Diarrhea

- Most adverse events are early and transient.
- THC-related adverse effects can be mitigated by "going slow" and combining THC with CBD.

Consider Tilray medical cannabis for the management of your patients with insomnia

- Many patients with **insomnia** suffer from chronic pain and other chronic conditions.⁴
- Current, reliable **Canadian data** highlights the use of medical cannabis in the management of insomnia.³
- Medical cannabis use reduces benzodiazepine and sleep aid use.³

References:

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4. J Jank, Robert, et al. "Chronic pain and sleep disorders in primary care." *Pain research and treatment* 2017 (2017).
5. National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Population Health and Public Health Practice, Committee on the Health Effects of Marijuana: An Evidence Review and Research Agenda. *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. Washington (DC): National Academies Press (US); 2017. <http://www.ncbi.nlm.nih.gov/books/NBK423945/>. Accessed April 15, 2017.
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7. Fishbain, David A., et al. "Prevalence comparisons of somatic and psychiatric symptoms between community nonpatients without pain, acute pain patients, and chronic pain patients." *Pain Medicine* 16.1 (2015): 37-50.
8. MacCallum, Caroline A., and Ethan B. Russo. "Practical considerations in medical cannabis administration and dosing." *European journal of internal medicine* (2018).

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