

Effects of Therapeutic Cannabis Consumption on Simulated Driving

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Conflicts of Interest

No conflicts of interest to declare



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Therapeutic cannabis

According to the Canadian Cannabis Survey (2018), 13% of respondents have used cannabis for therapeutic reasons

Of these, 66% reported not having a medical document from a healthcare professional

As a result of legalization, driving under the influence of cannabis may increase

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What do we know about cannabis and driving?

Early reports are inconsistent: likely due to subjective methods of collecting data and low doses of cannabis used

Consistent effects of higher doses on weaving and speed (compensatory decreases)

No studies of therapeutic cannabis.....!!!!

Results of repeated use of recreational cannabis are inconsistent

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What do we need to learn about therapeutic cannabis and driving?

How does therapeutic cannabis affect driving on a simulator?

Are there residual levels of THC in the blood and oral fluid and how do these limits relate to roadside detection of cannabis?

How does this compare to recreational use of cannabis?

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Hypothesis

We hypothesize that smoking of a participant's usual dose of cannabis for therapeutic purposes will impact simulated driving (increased weaving, compensatory decrease in speed)

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The driving lab

At CAMH, we conduct a number of studies on the effects of cannabis and alcohol on driving skills

To do this, we use a driving simulator

This driving simulator uses a number of programmed scenarios to simulate real-world driving experiences



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The simulator (model Virage VS500M)



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Endpoints

Primary:

- Mean speed (while distracted)
- Lateral control (weaving; while distracted)
- Reaction time

Secondary:

- Subjective drug effects with a visual analog scale (VAS), Addiction Research Centre Inventory (ARCI) and the Profile of Mood States (POMS)
- THC and metabolites in blood and oral fluid.

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The visit for recreational cannabis study

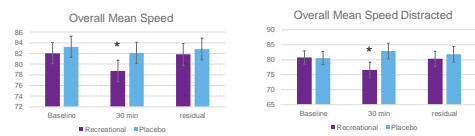
Measure	-30	30	24 hours
Driving	X	X	X
Blood	X	X	X

residual

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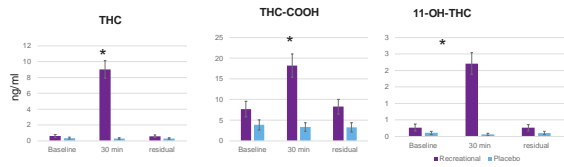
Driving data

There were no effects on lateral control or reaction time



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THC and metabolites in blood



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The visit

Measure	-1 hour	-30 min	30 min
Consent	X		
Blood	X		X
Questionnaire	X		
VAS, POMS, ARCI	X		X
Driving		X	X

Participants were asked **NOT** to consume cannabis on the day of testing!!!!

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Questionnaire results

Of the 19 respondents, 12 reported using cannabis within 1 hour of driving within the past year. None had 2 or more drinks of alcohol before driving.

About half (n=9) participants reported that there was only a slight risk of driving within 1 hour of using cannabis.

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Questionnaire results

When asked to describe their driving after using cannabis, they reported being more cautious and drove slower:

- 'I may have been slower but also way more paranoid and cautious because of it, and as a result, more focused perhaps'

- '[With alcohol and cannabis, I drive]...worse than just cannabis. I don't like it, I refuse to do it and limit my booze because if it or find a ride or just stay home'

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Subjective effects of smoked cannabis

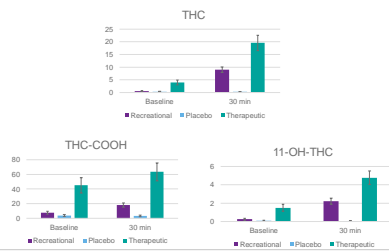
Smoking cannabis increased ratings of:

- 'amphetamine-like' (ARCI)
- 'euphoria' (ARCI)
- 'I feel this effect' (VAS)
- 'I feel this high' (VAS)
- 'I feel the good effects' (VAS)
- 'I like cannabis' (VAS)
- 'This feels like cannabis' (VAS)
- 'I feel the rush' (VAS)

No changes on 'I feel the bad effects' (VAS)

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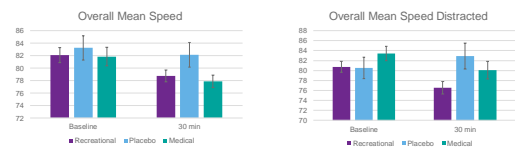
THC and metabolites in blood



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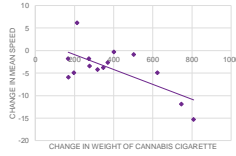
Driving data

There were no effects on lateral control or reaction time



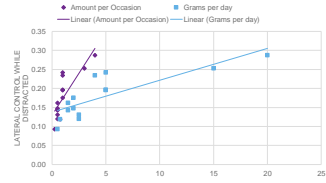
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Driving after smoking



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Driving before smoking



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Applications of research

Therapeutic cannabis affects driving, as evidenced by a decrease in speed after smoking

Even before smoking, there was a positive relationship between the degree of weaving and the amount smoked per day

After smoking, changes in driving (speed) were related to the amount previously smoked

Even before smoking, THC levels were above the legal limit in blood, in some people

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The driving lab

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Thank You

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