

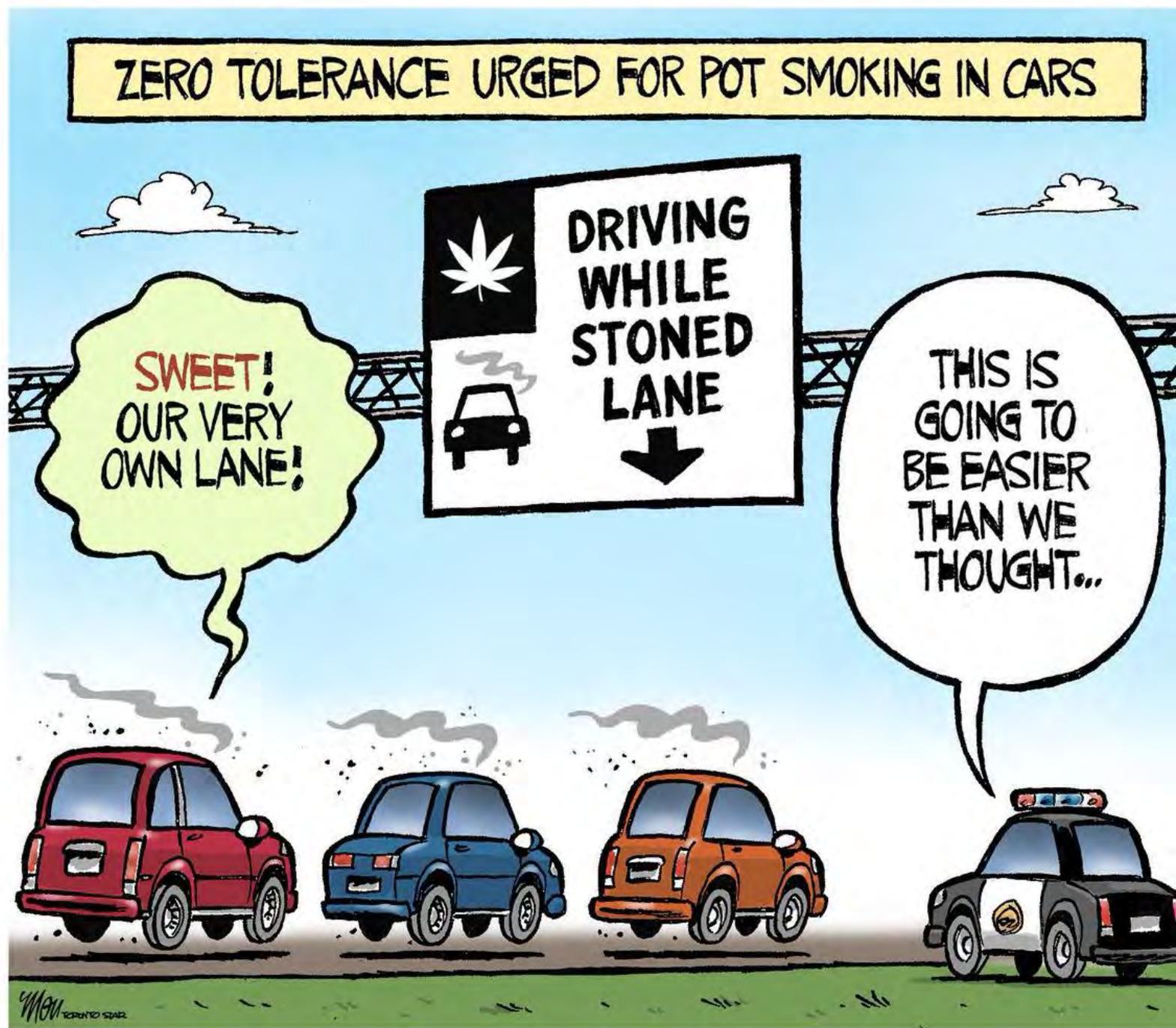
HIGH TIMES

Cannabis Effects and Driving

Sgt. Cara Jacobs

P.O. III G.P. Benton

HIGH TIMES



THE DRUG PROBLEM

ALCOHOL-IMPAIRED
DRIVING

 30%

DRUG-IMPAIRED
DRIVING

 21%

THE DRUG PROBLEM

ROADSIDE SURVEYS:

	Weekday Days	Weekend Nights
Tested positive for some drug or medication	22.4%	22.5%
Illegal drugs, including marijuana	12.1%	15.2%
Medication	10.3%	7.3%
Marijuana	11.7%	12.6%
Alcohol	1.1%	8.3%

THE DRUG PROBLEM

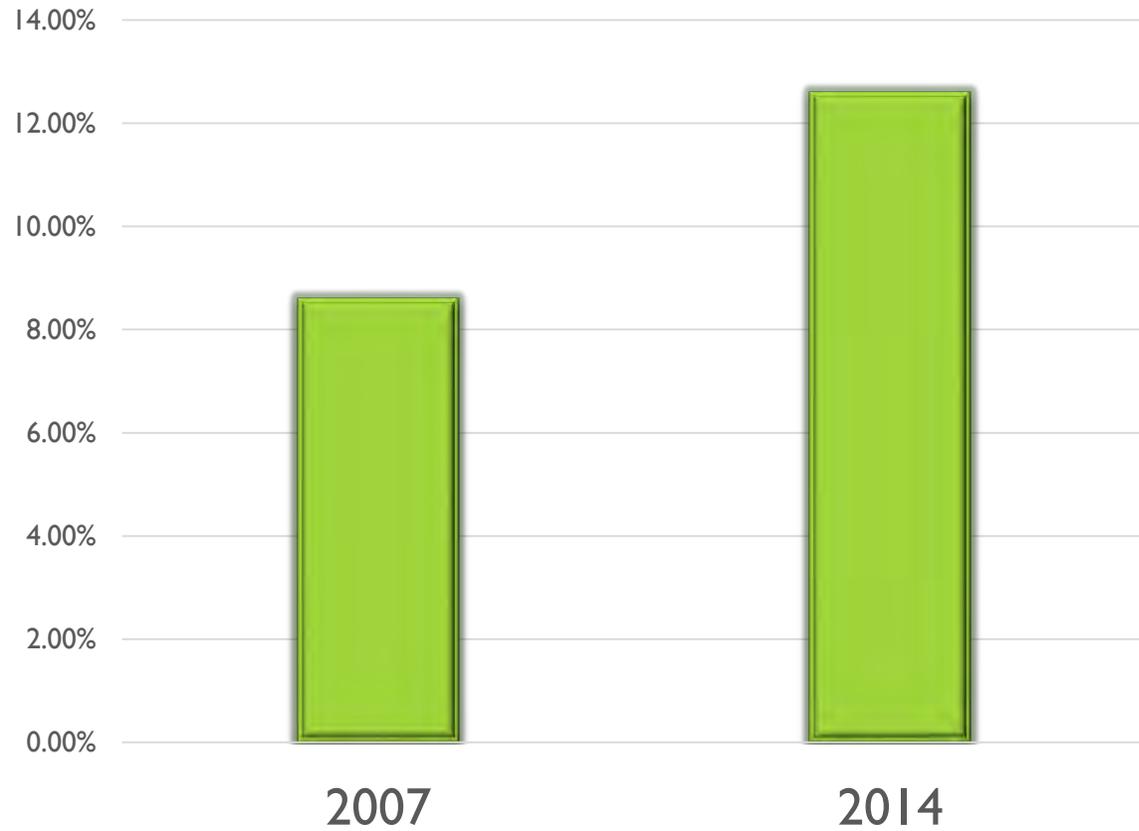
ALCOHOL-RELATED
FATALITIES

37%

DRUG-RELATED
FATALITIES

41%

Percentage of Drivers Tested Positive for THC



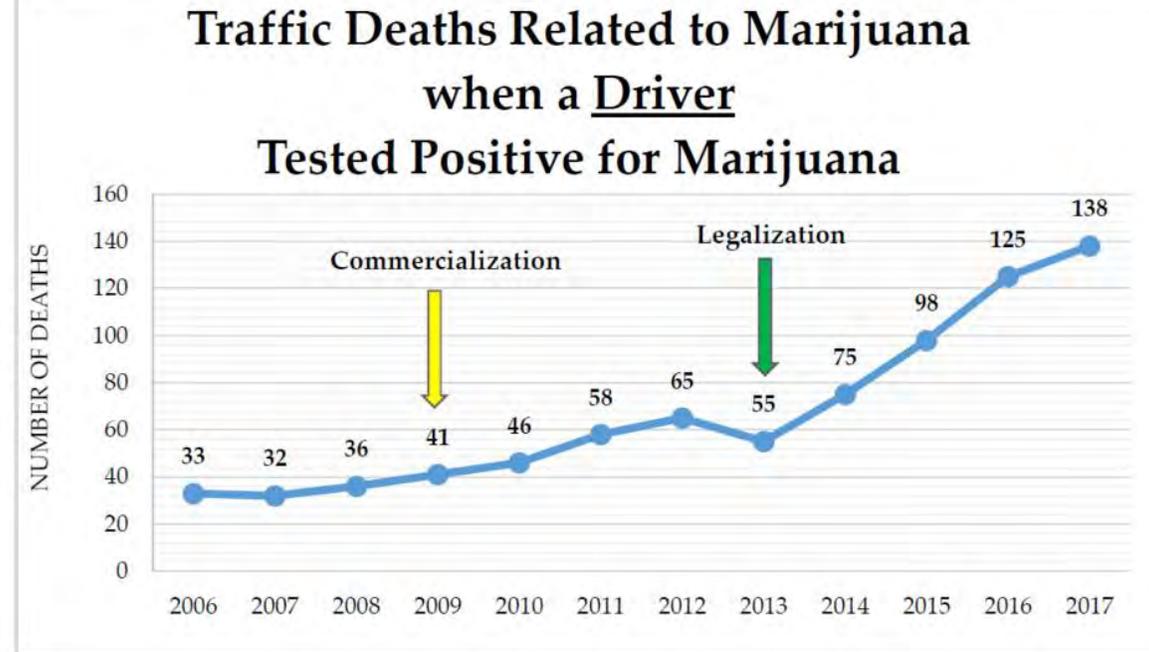
THE MARIJUANA
PROBLEM



*LEGALIZATION:
COLORADO*

- 2013 – 2017 (MADD)
- Legalization of Marijuana in Colorado: The Impact (2018, Update)
- 35% increase in traffic fatalities
- 151% increase in traffic related deaths with cannabis detected
- 55 deaths (2013) to 138 deaths (2017)

LEGALIZATION: COLORADO



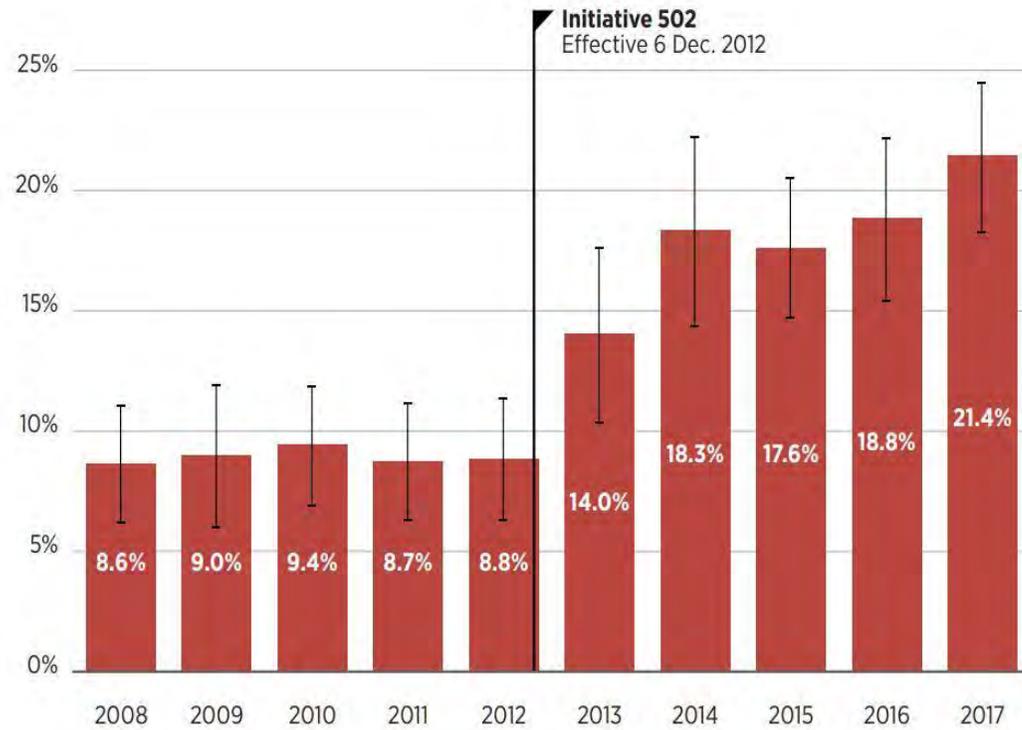
SOURCE: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS), 2006-2011 and Colorado Department of Transportation 2012-2017



*LEGALIZATION:
WASHINGTON*

- 2008-2017 (AAA)
- Cannabis Use Among Drivers in Fatal Crashes Before and After Legalization (January 2020)
- Initial spike then gradual but steady increase

LEGALIZATION: WASHINGTON





VIRGINIA



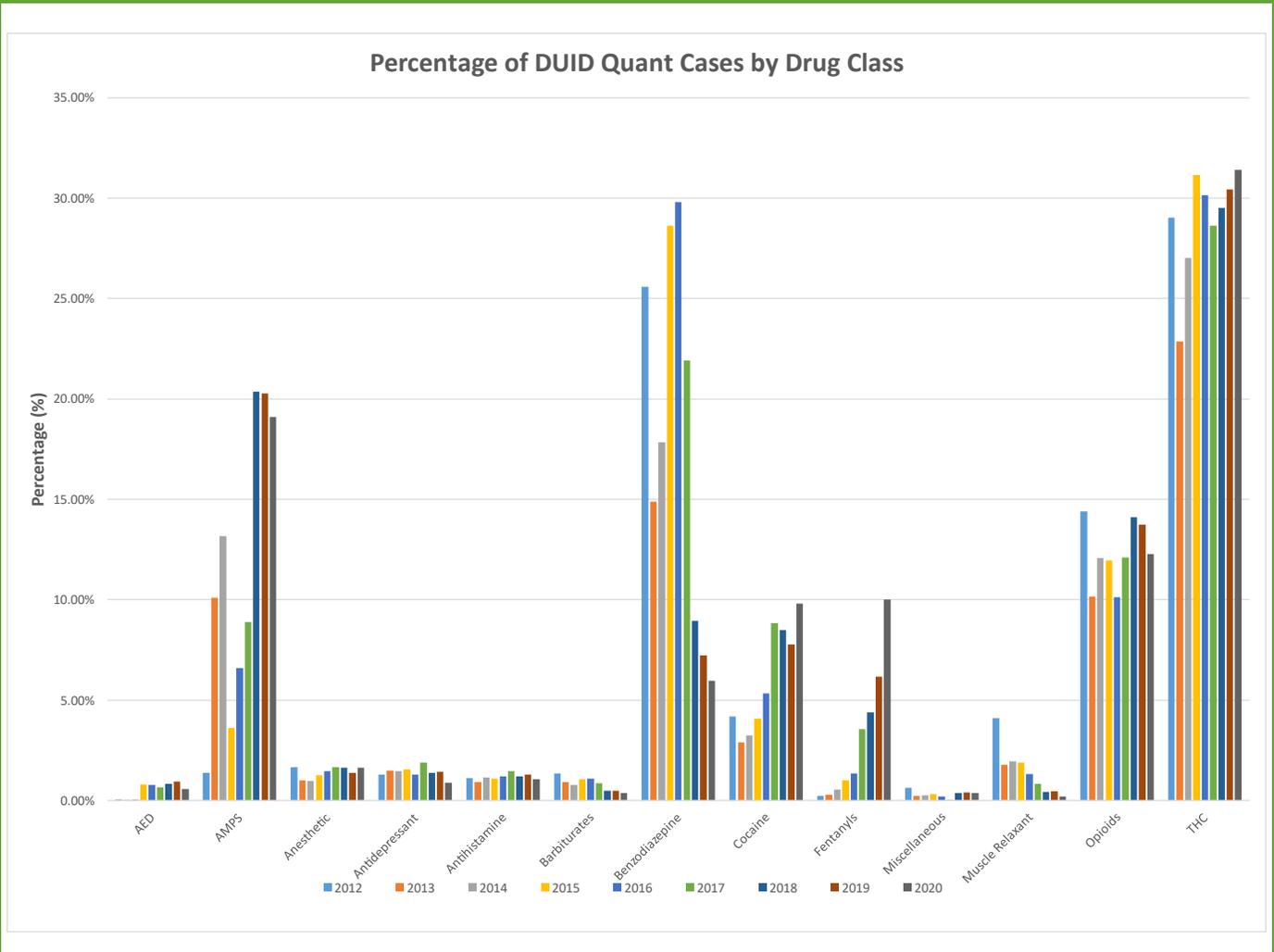
*LEGALIZATION:
VIRGINIA*

- Limitations in data

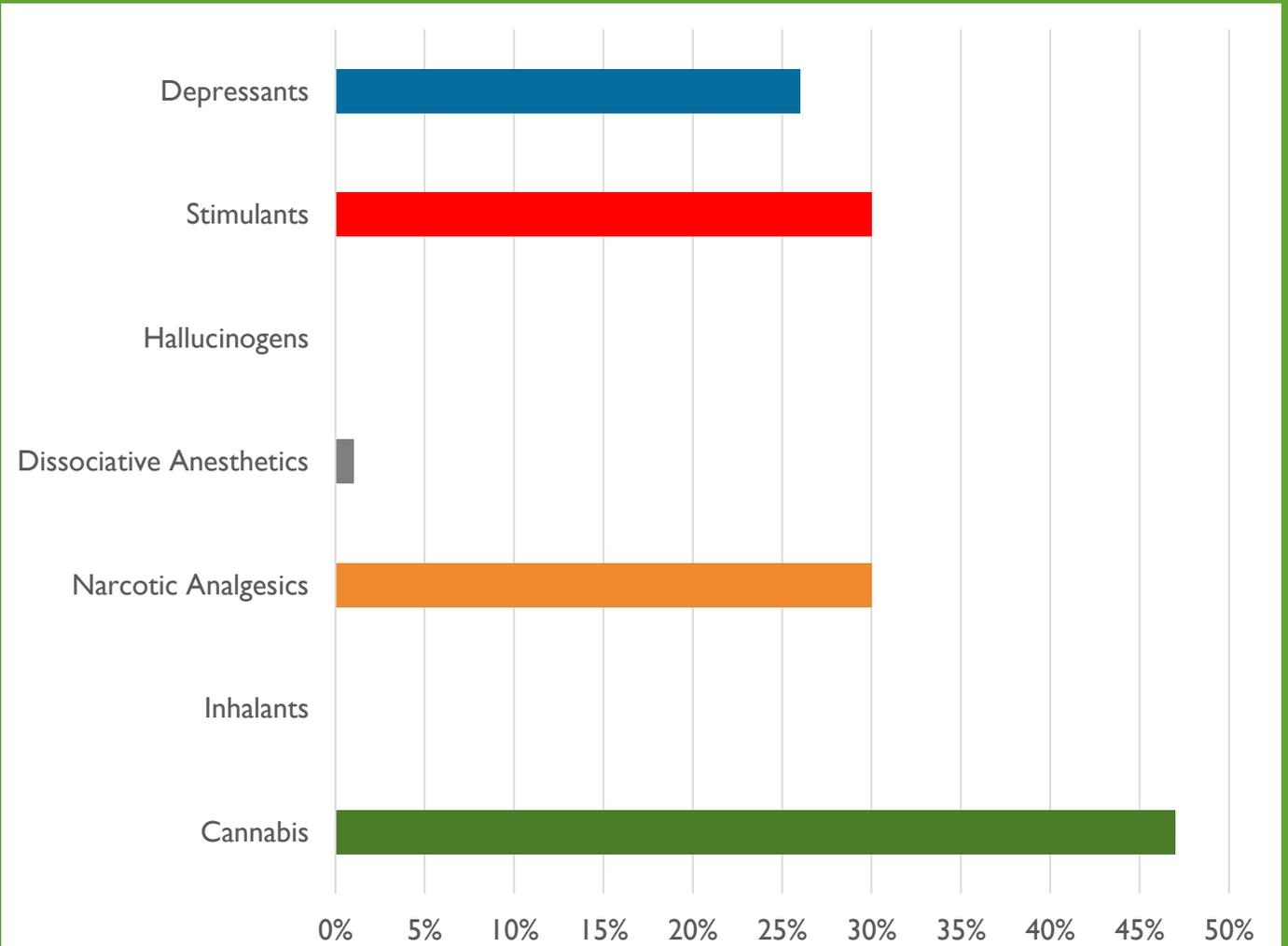
LEGALIZATION: VIRGINIA

	2016	2017	2018	2019	2020
1	THC	THC	THC	THC	THC
2	Alprazolam	Alprazolam	Alprazolam	Meth	Fentanyl
3	Diazepam	Cocaine	Meth	Fentanyl	Meth
4	Cocaine	Meth	Cocaine	Alprazolam	Cocaine
5	Oxycodone	Fentanyl	Fentanyl	Cocaine	Alprazolam

LEGALIZATION: VIRGINIA



LEGALIZATION: VIRGINIA





CANNABIS EFFECTS



*CANNABIS
EFFECTS*

Lack of convergence

Dilated pupils

Elevated pulse

Elevated blood pressure

LACK OF CONVERGENCE





*CANNABIS
EFFECTS*

Time/distance perception

Alterations in thought formation

Body/Eyelid tremors

Bloodshot eyes

BODY TREMORS



EYELID TREMORS





*CANNABIS
EFFECTS*

Debris in mouth

Disoriented

Drowsiness

Impaired memory



*CANNABIS
EFFECTS*

Increased appetite

Lack of concentration

Mood changes

Odor of marijuana



*CANNABIS
EFFECTS*

Rebound dilation

Relaxed inhibitions

Sedation



RESEARCH

CANNABIS AND DRIVING

SAN DIEGO SFST VALIDATION STUDY

Stuster, J., Burns, M. (1998). *Validation of the standardized field sobriety test battery at BACs below 0.10 percent.* United States Department of Transportation National Highway and Traffic Safety Administration.

*ISN'T THIS FOR
ALCOHOL??*

Why is this important to know?





HGN

4

Clues

88%

Accuracy



HGN

- Cannabis does not usually cause HGN
- But may see lack of smooth pursuit or inability to keep eyes on the stimulus

WALK AND
TURN

2

Clues

79%

Accuracy

ONE LEG
STAND

2

Clues

83%

Accuracy

SO... WHAT
CONCLUSIONS
CAN WE
DRAW??

Why is this important to know?



CANNABIS AND DRIVING

Hartman, R.L., Richman, J.E., Hayes, C.E., Huestis, M.A. (2016). Drug Recognition Expert (DRE) examination characteristics of cannabis impairment. *Accident Analysis and Prevention*, 92, 219-229.

R.L. HARTMAN ET AL.
(2016)

- 302 total cases
- Tox confirmed cannabis only
- Control group vs study population
- DRE evaluations and results



RESULTS

DRIVING BEHAVIORS

Excessively high / low
speeds

Fail to maintain lane

Crash

Fail to obey highway
signs/traffic lights

DEMEANOR

Slow / lethargic

Emotional

Dazed

Disoriented

Sleepy

Anxious

CLINICAL EFFECTS

Elevated pulse

Elevated blood
pressure

Dilated pupils

RESULTS

HGN

MARIJUANA DOES
NOT CAUSE HGN!

Fail to keep eyes on
stimulus

Fail to keep head still

LOC

10% of population cannot
cross eyes

78% OF MARIJUANA
CASES CANNOT CROSS
EYES

MRB

Accelerated /
depressed internal
clock

Eyelid tremors

Sway

RESULTS

WAT

Improper turn

Arms for balance

Stops while walking

Miss heel to toe

2-5 CLUES

OLS

Sways

Arms for balance

1-2 CLUES

FTN

3-6 MISSES

HOW
MANY
CLUES?

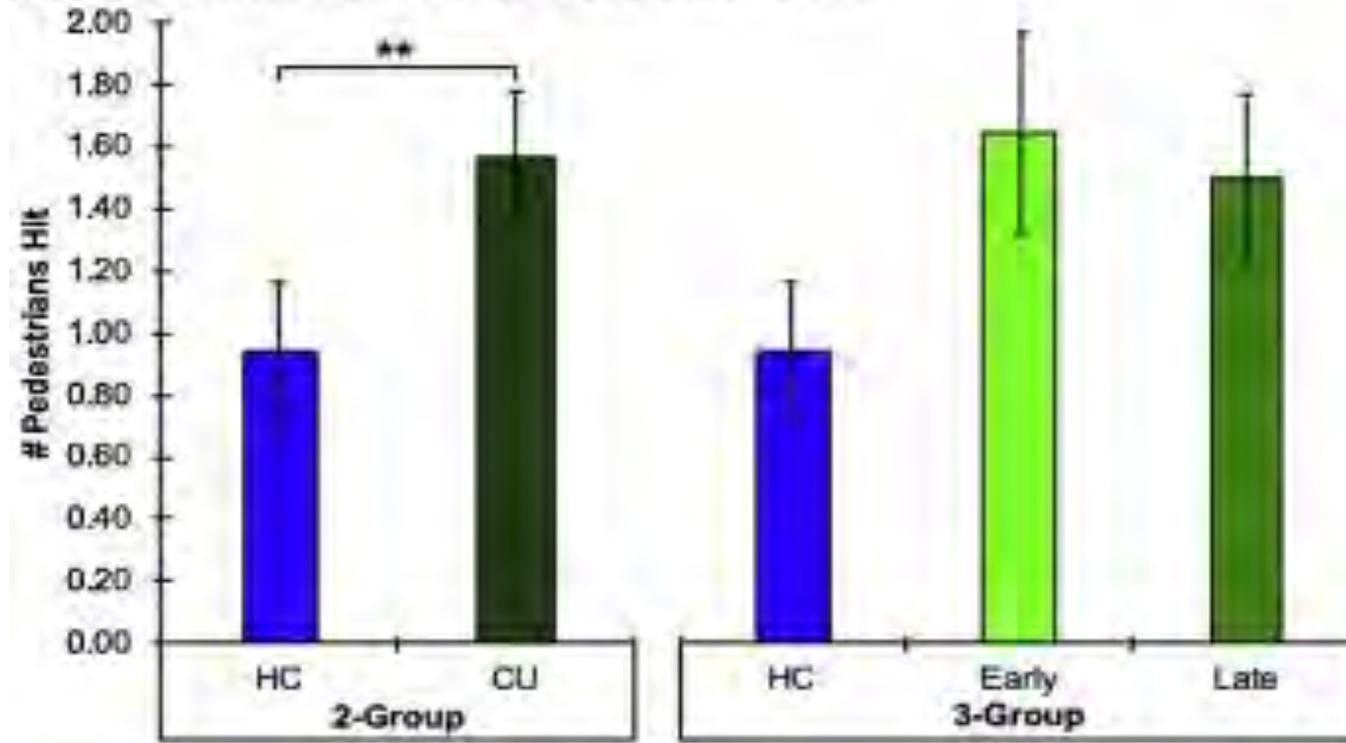
VIDEO

CANNABIS AND DRIVING

Dahlgren, M.K., Sagar, K.A., Smith, R.T., Lambrose, A.M., Kuppe, M.K., & Gruber, S.A. (2020, March). Recreational cannabis use impairs driving performance in the absence of acute intoxication. *Science Direct, Drug and Alcohol Dependence*, 208.

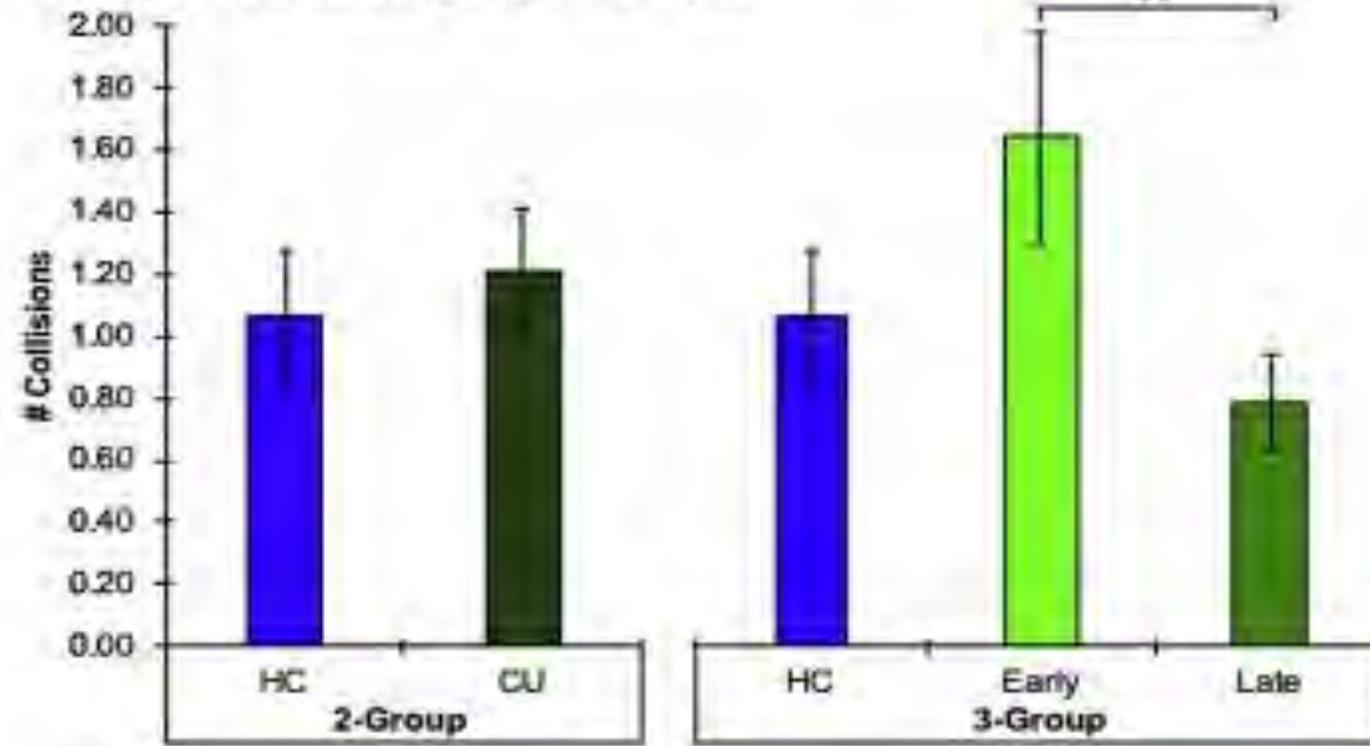
<https://www.sciencedirect.com/science/article/pii/S0376871619305484>

A. Accidents: Number of Pedestrians Hit



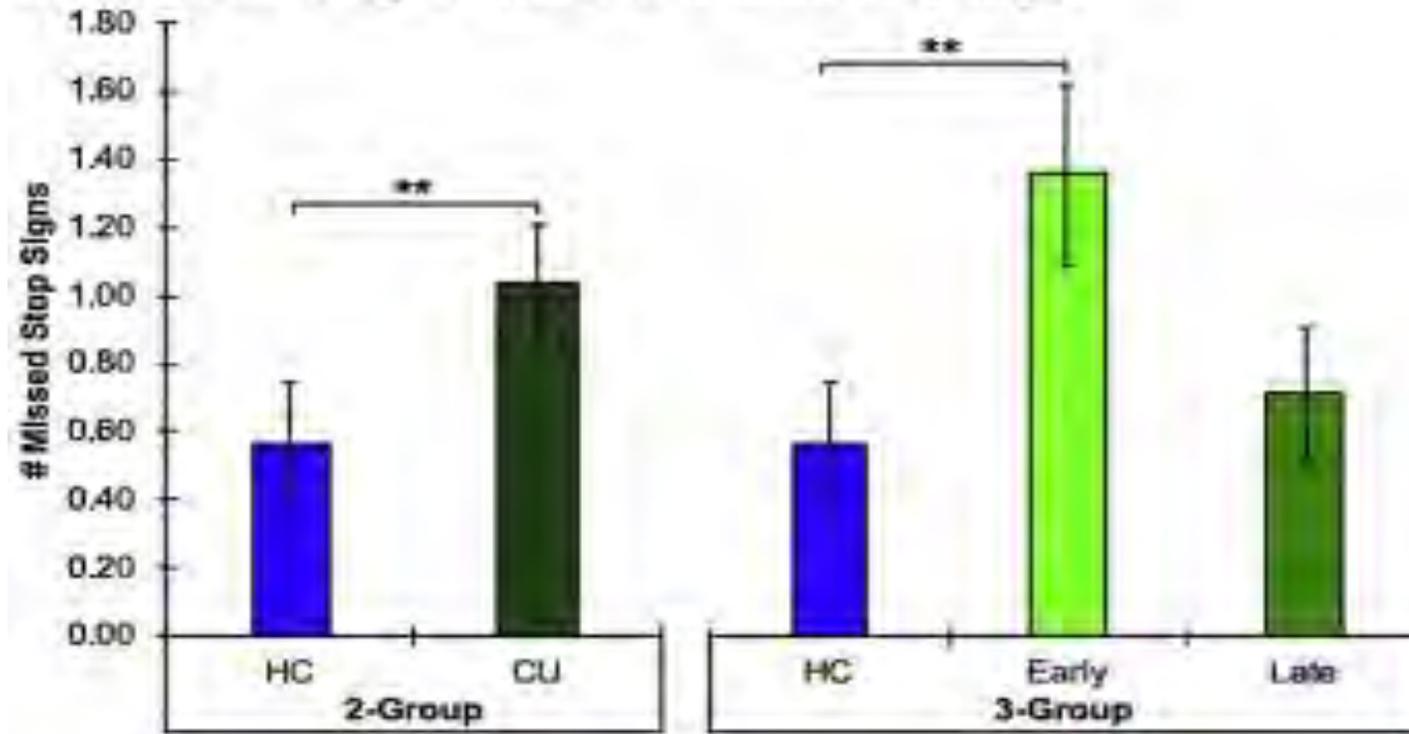
RESULTS

B. Accidents: Number of Collisions



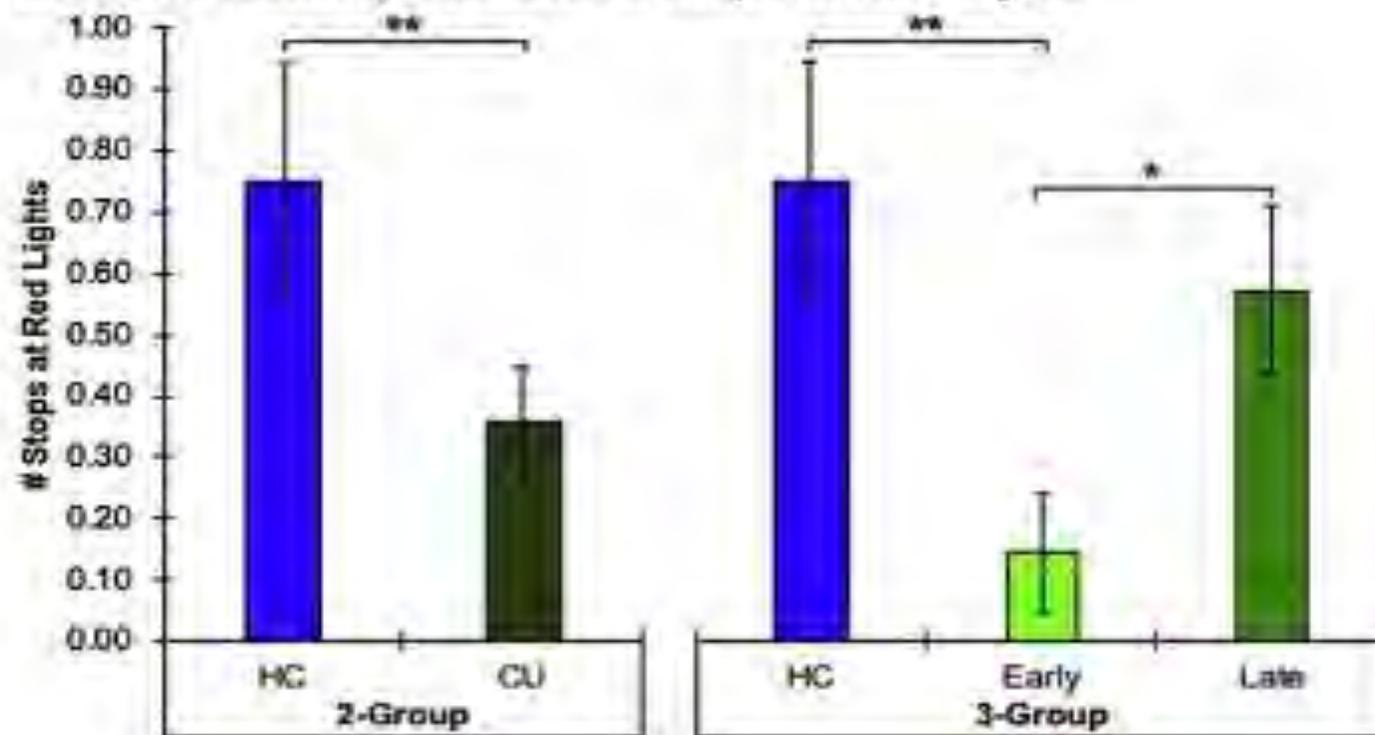
RESULTS

C. Rule-Following: Number of Missed Stop Signs



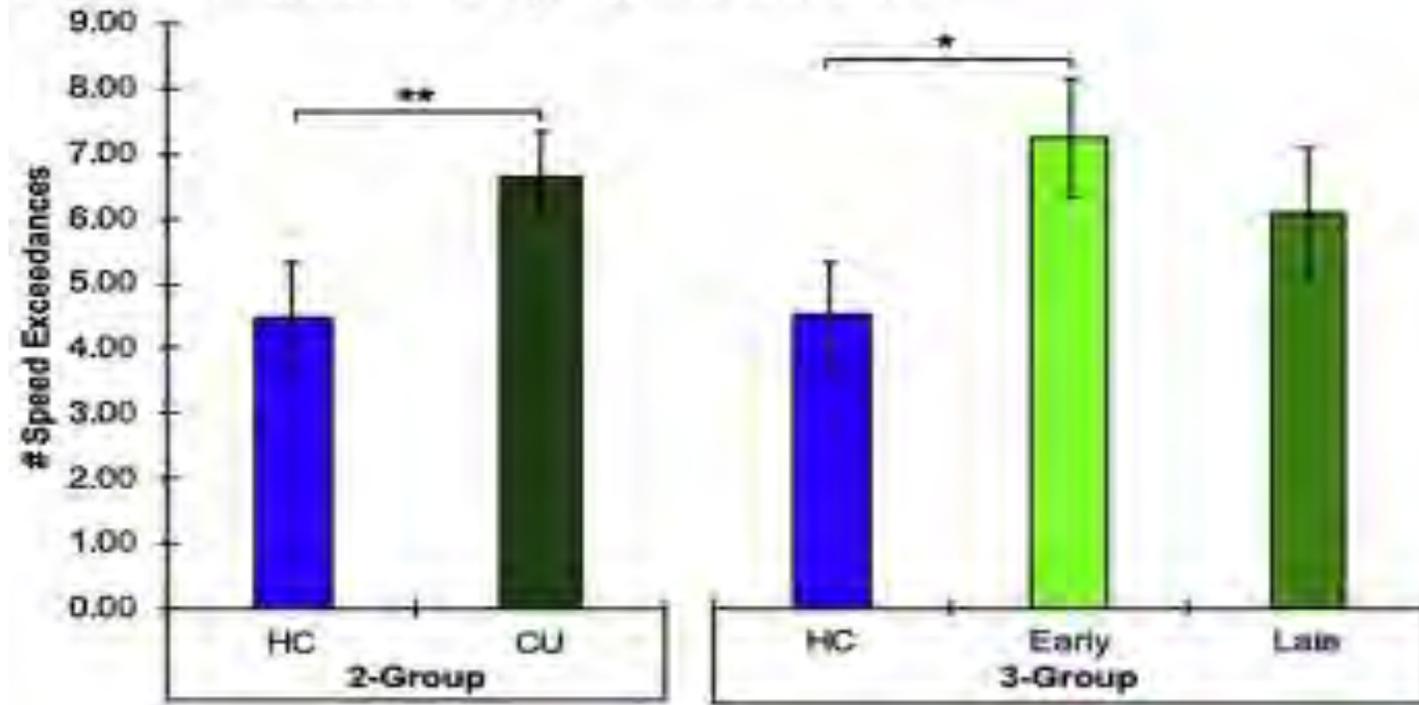
RESULTS

D. Rule-Following: Number of Stops at Red Lights



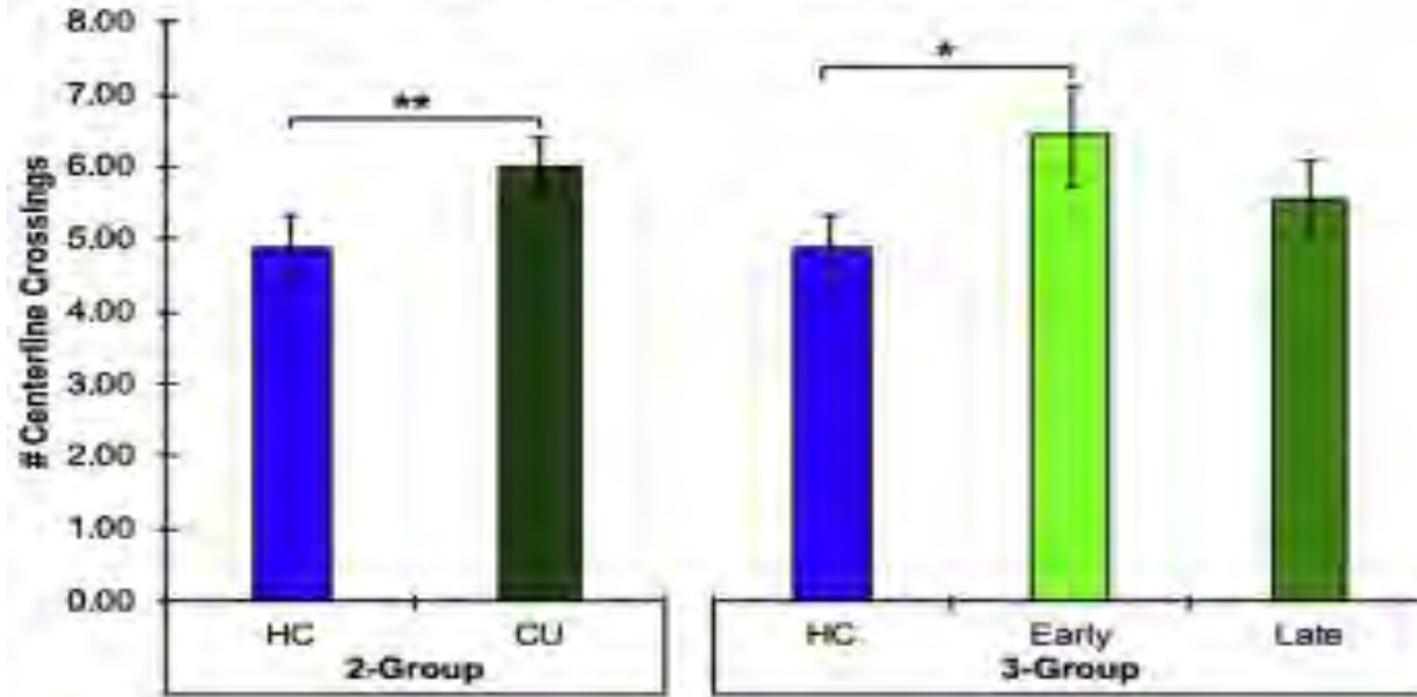
RESULTS

E. Speed: Number of Speed Exceedances



RESULTS

G. Lateral Movement: Number of Centerline Crossings



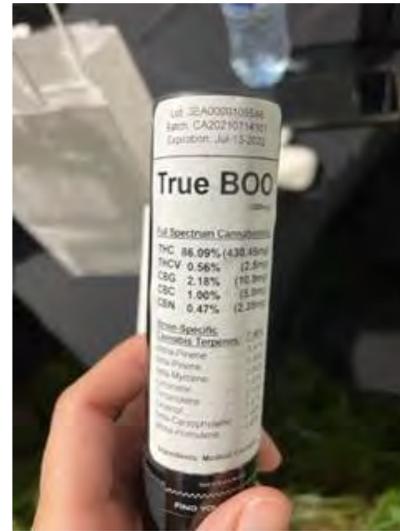
RESULTS

A collection of cannabis-related items including three amber glass dropper bottles, a bowl of dried buds, several individual buds, and cannabis leaves, all set against a dark background.

CANNABIS PRODUCTS

EDIBLES AND VAPES

- High THC content
- Easily concealed
 - Small
 - No odor
- Same impairment effects



VAPES



VAPES

Yocan UNI Pro 2.0 | Universal Be... x +

yocanvaporizer.com/products/yocan-uni-pro-2-0

PARTS & ACCESSORIES ▾ WHOLESALE CONTACT US SALE GIFT CARD 🎁 CART

NEW Yocan UNI Pro 2.0 Box Mod

★★★★★ 19 reviews

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10:56 AM 3/4/2022

VAPES

Yocan UNI Pro 2.0 | Universal Bo x +

yocanvaporizer.com/products/yocan-uni-pro-2-0

Interested in bringing home Yocan's latest oil vape? Make sure to buy your Yocan UNI Pro 2.0 Box Mod directly from Yocan Vaporizer to ensure you are getting original and authentic products so you get your money's worth.

YOCAN UNI PRO 2.0 BOX MOD FAQS

What material can I use to vape with the Yocan UNI Pro 2.0 Box Mod?

The Yocan UNI Pro 2.0 Box Mod can be used to vaporize oils (or wax) using both pre-filled and refillable cartridges.

What is the battery capacity of the Yocan UNI Pro 2.0 Box Mod?

Yocan fitted the Yocan UNI Pro 2.0 Box Mod with a 650mAh battery.

How many colors does the Yocan UNI Pro 2.0 Box Mod come in?

The Yocan UNI Pro 2.0 Box Mod can be had in seven colors from Black to Teal.

10:57 AM
3/4/2022

COMMON APPAREL



COMMON REFERENCES





LOOKING AHEAD

DEAR FUTURE!
I'M READY...



*SUGGESTIONS
FOR YOU*

- ARIDE
- DRE
- Public education
 - High school driving classes
 - College orientation classes
 - Driver improvement classes
 - Community events / neighborhood watch groups



QUESTIONS?