

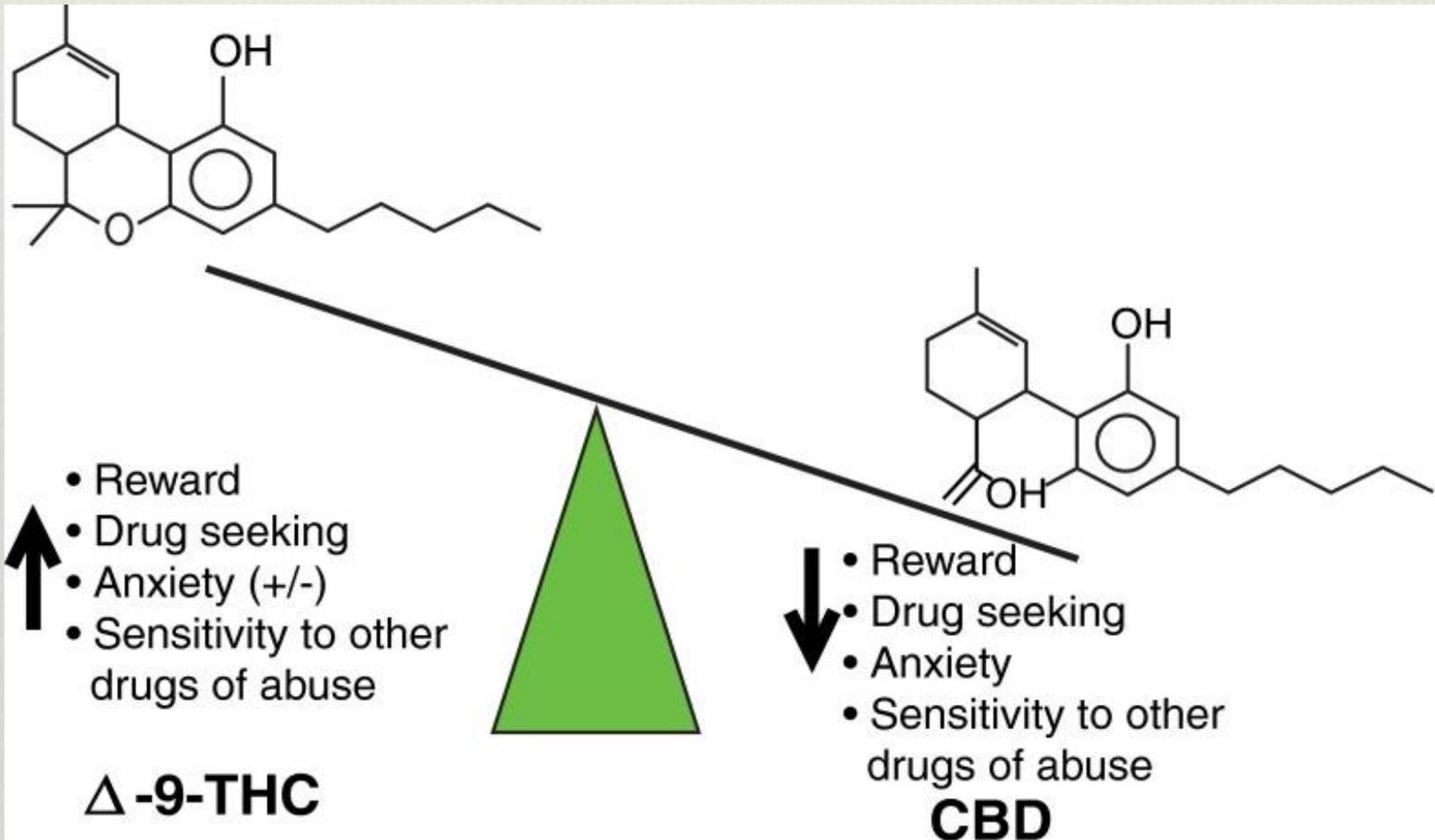
# The opioid- Sparing Effect of Cannabinoids

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# Disclosures

❖ None

# Marijuana, Cannabis



# THC, the other white meat...

- ❖ Opioid crisis, Canadian Pain Society, overdoses, etc.
- ❖ Is Cannabis a safe alternative, or way to decrease opiate doses.
- ❖ Who can we refer and where too
  - ❖ CV side effects
  - ❖ Active addiction
  - ❖ Oral and CBD oils are best.
- ❖ Is this just another Purdue Disaster

# Evidence...Sort of...

- ❖ **Opioid-Sparing Effect of Cannabinoids: A Systematic Review and Meta-Analysis. S Nielsen, et al. Aug 2017:**
  - ❖ 28 total: 19 pre-clinical and 9 clinical studies met the search criteria. 17 of the 19 pre-clinical studies provided evidence of synergistic effects from opioid and cannabinoid co-administration.
  - ❖ ED<sub>50</sub> of morphine administered & delta-9-THC is 3.6 times lower (95% CI 1.95, 6.76; *n*=6) than the ED<sub>50</sub> of morphine alone.
  - ❖ ED<sub>50</sub> for codeine administered in combination with delta-9-THC was 9.5 times lower (95% CI 1.6, 57.5, *n*=2) than the ED<sub>50</sub> of codeine alone.

- ❖ Out of the 9 large-case Clinical studies, only one showed a reduction in opioid dose with the addition of THC and it was a small, poorly controlled study.
- ❖ **Enhancement of transdermal fentanyl and buprenorphine antinociception by transdermal  $\Delta^9$ -tetrahydrocannabinol. D Cichewisz, et al. 2005:**
- ❖ THC enhanced the potency of s.c. fentanyl by 6.7-fold, and s.c. buprenorphine. For the transdermal studies, THC enhanced fentanyl's potency by 3.7-fold at 2-h, and 5.8-fold at 4-h. Buprenorphine's potency was increased 8.2-fold at 2-h and 7.2-fold at 4-h.
- ❖ Combo Patch

- ❖ **Medical Cannabis Use Is Associated With Decreased Opiate Medication Use in a Retrospective Cross-Sectional Survey of Patients With Chronic Pain. K Boehnke, et al. 2016**
- ❖ 244 medical cannabis patients with CP who used a medical cannabis dispensary in Michigan, between November 2013 and February 2015.
- ❖ Medical cannabis use was associated with a 64% decrease in opioid use (n = 118), decreased number and side effects of medications, and an improved quality of life (45%).

# How does THC augment Opioids

- ❖ **Synergistic interactions between cannabinoid and opioid analgesics. DL Cichewicz, 2004**
- ❖ Analgesic effect of THC is, at least in part, mediated through delta and kappa opioid receptors, indicating an intimate connection between cannabinoid and opioid signalling pathways in the modulation of pain perception.
- ❖ **Cannabinoid-opioid interaction in chronic pain. DI Abrams, et al. 2011**

- ❖ Pharmacokinetic: no significant change in the area under the plasma concentration-time curves for either morphine or oxycodone after exposure to cannabis
- ❖ mu opioid receptors may be enhanced by delta-9-tetrahydrocannabinol (THC) activation of kappa and delta opiate receptors
- ❖ CB1 receptors are 10 times more concentrated than mu-opioid receptors in the brain, and cannabinoid receptors co-localize with opioid receptors in many regions involved in pain pathways.

# My 2 Cents...

- ❖ Medical marijuana may help to lower opiate doses.
- ❖ Use oral cannabis or CBD oil, with little to no THC
- ❖ If not able to lower the opiate dose and no improvement in function, then discontinue the cannabis.
- ❖ Try other adjuncts first (TCAs, SNRI, neuroleptics, etc.), then nabilone or Sativex second, medical marijuana is last resort.
- ❖ You don't HAVE to replace the opiate with another med...can replace with exercise, physio, yoga, meditation!!

Thank you!!

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# References

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- ❖ **Cannabinoid-opioid interaction in chronic pain. DI** [Abrams DI<sup>1</sup>](#), et al. *Clin Pharmacol Ther.* 2011 Dec;90(6):844-51. doi: 10.1038/clpt.2011.188. Epub 2011 Nov 2.
- ❖ Synergistic interactions between cannabinoid and opioid analgesics. [DL Cichewicz](#), et al. *Life Sciences*. [Volume 74, Issue 11](#), 30 January 2004, Pages 1317-1324

- ❖ Enhancement of transdermal fentanyl and buprenorphine antinociception by transdermal  $\Delta^9$ -tetrahydrocannabinol. DL.Cichewicz, et al.  
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