



Brigham and Women's Hospital
Founding Member, Mass General Brigham

Cannabis in General Medicine

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- Harvard Medical School
- Brigham and Women's Hospital
- VA Medical Center Emergency Department
- *InhaleMD*
- Association of Cannabinoid Specialists



DISCLOSURES

None



OBJECTIVES

- Understand that cannabis, if used properly, can be effective medicine for specific problems
- Recognize that many new cannabis products are unregulated and unsubstantiated





Types of Symptoms Well Treated with Cannabis

1

Pain

4

Anorexia

2

Depression and Anxiety

5

Nausea and vomiting

3

Insomnia

6

Sexual Dysfunction



But, isn't it addictive?

Remember that dependence $\neq$ addiction

Dependence = biological or psychological habituation to a substance such that withdrawal causes symptoms. Air, food, shelter, water, beta blockers, SSRI examples

Addiction (per DSM-V) = dependence that causes adverse effects on patient's life circumstances (trouble with the law or destruction of key relationships)



Lifetime dependence risk of 7% in cannabis users vs 32% for nicotine, 23% for heroin, 18% for benzodiazepines, 17% for cocaine, and 15% for alcohol

Cannabis risk “front-loaded”

Typical withdrawal = 3-7 of insomnia and mood instability

Robson P. Abuse potential and psychoactive effects of δ -9-tetrahydrocannabinol and cannabidiol oromucosal spray (Sativex), a new cannabinoid medicine. Expert Opin Drug Saf. 2011;10(5):675–685.



Cognitive Issues

Healthy Volunteer (Rec User) Studies:

Several studies using I.Q. and fMRI have shown changes in cognitive function from prolonged use of cannabis

However, these were all done with recreational users with unknown (likely higher than medical) doses.

Best study to date shown ~8 point I.Q. drop in verbal memory function only. None in execute function, spatial or quantitative function. Seen only after 20-30 years “heavy” use.

Patient Studies:

Few studies on actual patients. Studies from Staci Gruber at HMS showed cognitive improvement in patients. Likely b/c illness causes significant cognitive impairment.

Gruber, S. A., Sagar, K. A., Dahlgren, M. K., Gonenc, A., Smith, R. T., Lambros, A. M., ... Lukas, S. E. (2018). The Grass Might Be Greener: Medical Marijuana Patients Exhibit Altered Brain Activity and Improved Executive Function after 3 Months of Treatment. *Frontiers in Pharmacology*, 8, 983. <https://doi.org/10.3389/fphar.2017.00983>





Routes of Administration

Smoking

- Rapid onset, relatively short duration
- Cheap and effective
- May yet prove to be bad for lungs

Vaporizing

- Not cheap, needs machine
- Easy to titrate
- Presumably better for lungs: no combustion

Eating

- Long onset, long duration
- Calories!
- Make your own or buy
- Hard to titrate

Tincture

- BS: Sublingual or transdermal
- Cumbersome to make
- Unreliable delivery

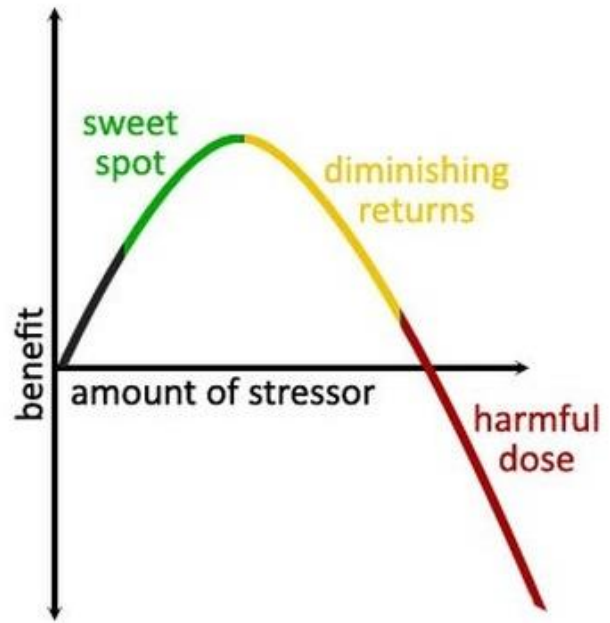
Topicals

- Good for skin
- No evidence for deeper penetration

3



The Dose Matters



10-15mg

Not





All About Strains and CBD

- Strains: no significant medical differences
- CBD: useful in lab, not in real world, can interact with meds



Drug Interactions: Real vs. Theoretical

Medications that concern us:

Medications
that are
trending on
Google:

	CBD	THC
Adalimumab (Humira)	N	N
Advair (fluticasone/salmeterol)	N	N
Albuterol (Ventolin)	N	N
Amlodipine (Norvasc)	N	N
Amoxicillin	N	N
Aripiprazole (Abilify)	N	T
Azithromycin (Zithromax, Z-PAK)	N	N
Esomeprazole (Nexium)	Y	N
Etanercept (Enbrel)	N	N
Hydrochlorothiazide	N	N
Infliximab (Remicade)	N	N
Lantus Solostar (insulin glargine)	N	T
Ledipasvir and sofosbuvir (Harvoni)	N	N
Levothyroxine (Synthroid)	N	N
Lisdexamfetamine (Vyvanse)	N	N
Lisinopril (Prinivil, Zestril)	N	N
Metformin (Glucophage)	N	N
Pregabalin (Lyrica)	N	N
Riotropium (Spiriva Handihaler)	N	N
Rosuvastatin (Crestor)	N	N
Simvastatin (Zocor)	N	T
Sitagliptin (Januvia)	N	T
Sofosbuvir (Sovaldi)	N	N

	CBD	THC
Amiodarone (Pacerone)	Y	N
Cetirizine (Zyrtec)	N	N
Clonazepam (Klonopin)	N	N
Clopidogrel (Plavix)	N	T
Eszopiclone (Lunesta)	N	N
Everolimus (Afinitor)	Y	T
Loratadine (Claritin)	Y	T
Lorazepam (Ativan)	Y	T
Quetiapine (Seroquel)	N	T
Remeron (Mirtazapine)	Y	N
Tacrolimus (Protopic, Prograf)	Y	Y
Trazadone (Desyrel)	N	N
Warfarin (Coumadin)	Y	T
Zolpidem (Ambien)	N	N



Certification Is Not the Goal

- Effective and Safe Medical Care
- Dispensaries provide misinformation and take advantage of patients
- Close medical guidance and availability of doctor key



Schedule III

Schedule 3:

- all cannabis-derived FDA-approved drugs
- all state-legal cannabis products

Leaves big questions:

- Are state-legal products now prescribable, or require prescription?
- Are state-legal products now covered or to be covered by insurance?
- How are state-legal products' safety analysis harmonized



CMS Initiative

Executive Order to CMS to pilot CBD-based drugs to seniors through ACO REACH model and to oncology patients through Enhancing Oncology Model (EOM)

- Unclear what dose of CBD will be provided
 - THC limit set at 3mg per “serving” - for wrong reasons
 - Unclear what else will be in these medications and how or if they will have consistent active ingredients
 - Safety standards being determined
 - Efficacy not tested
-
- ❖ President and industry have vested interest in success of pilot program
 - ❖ No one has asked if physicians would participate
 - ❖ Hemp ban in November

MOC Reflective Statement

- Cannabinoids, if used properly, can be effective for diverse conditions like pain, anxiety, depression, insomnia, nausea, anorexia, and sexuality
- Cannabis can cause dependence and use disorder if not used with careful attention to dose and frequency
- Inhalation or oral ingestion are, at present, the viable approaches and differ in their onset and duration, and therefore have different use cases
- Dose and timing are, like with any medication, crucial elements of success. 10mg THC is an average dose
- Strains and Indica/Sativa classification are not reliable predictors of medical outcomes
- CBD, while non-intoxicating, has not shown benefit in humans at available doses and can interact with a range of potentially dangerous medications
- Focus for both patient and practitioner should not be on “getting the card” but rather on safe and effective treatment



TAKE HOME MESSAGES

- Cannabis, if used properly, can be effective medicine for specific problems
- Many new cannabis products are unregulated and unsubstantiated



About the Association of Cannabinoid Specialists (ACS)



- **International organization** of healthcare professionals at the forefront of cannabinoid medicine
- **Membership benefits** include:
 - Advocacy
 - Education
 - Networking
 - Events

Visit www.cannaspecialists.org to learn more

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