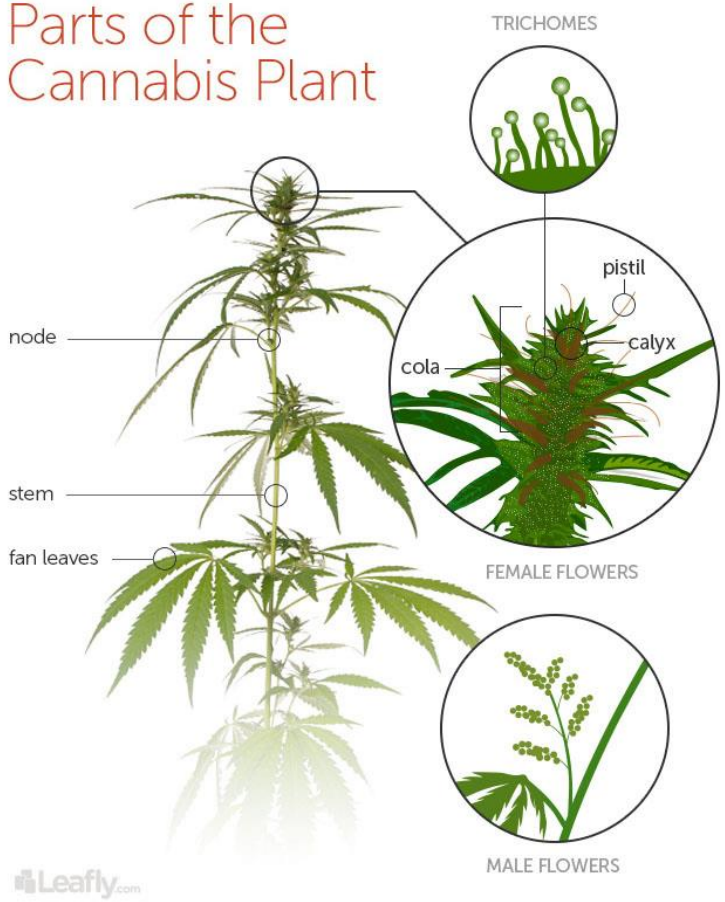
SUBSTANCES: CANNABIS

Jason Beaman D.O., M.S., M.P.H., FAPA
Assistant Clinical Professor
Chair, Department of Psychiatry and Behavioral Sciences

PSYCHIATRY AND BEHAVIORAL SCIENCES
OSU Center for Health Sciences

Cannabis

- First recorded use in 2700 B.C. in China
- Comes from the plant Cannabis Sativa
- Hemp vs. Marijuana


Parts of the Cannabis Plant
TRICHOMES
pistil
calyx
cola
node
stem
fan leaves
FEMALE FLOWERS
MALE FLOWERS
Leafly.com

Cannabis Components

- 100 cannabinoids
  - Tetrahydrocannabinol (THC)
  - Cannabidiol (CBD)
- Hundreds of terpenes
- Flavonoids
  - Aroma
  - Flavor
  - Color

THC

- △-9 Tetrahydrocannabinol (THC)
- Principle psychoactive compound
- Approved by FDA >40 years for chemotherapy induced nausea
  - Dronabinol
  - Nabilone

CBD

- Second cannabinoid clinically used approved for severe epilepsy in 2018
- Exists in delicate balance with THC
- No abuse liability

Forms of Cannabis

Marijuana

- Dried leaves and flowers
- Least concentrated
- Most common
- “Grass”

Forms of Cannabis

- Hashish
  - Small blocks of dried resin
  - Higher concentration than marijuana
- Hash oil
  - Thick oil extracted from hashish
  - Highest potency

Endocannabinoid System

- Endocannabinoids anandamide and

  2–arachidonoyglycerol

- Enzymes for their degradation and synthesis

- Cannabinoid receptors

  - CB1

  - CB2

Endocannabinoid System

- Regulates stress response
- Anxiety
- Pain
- Motivational behavior
- Memory

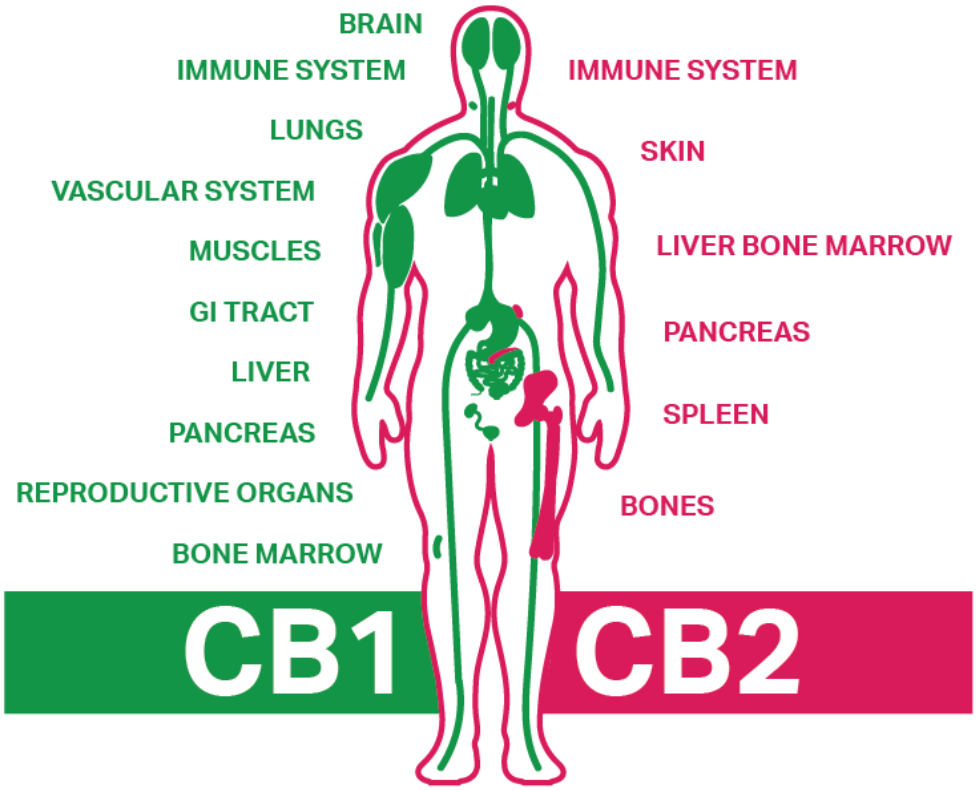
Endocannabinoid System

Plays a crucial role in the development, maturation, and sculpting of neurocircuits throughout adolescence

CB1

- Binds THC at high affinity
- Mediates:
  - Reinforcing effects
  - Abuse effects

CB2


BRAIN
IMMUNE SYSTEM
LUNGS
VASCULAR SYSTEM
MUSCLES
GI TRACT
LIVER
PANCREAS
REPRODUCTIVE ORGANS
BONE MARROW
IMMUNE SYSTEM
SKIN
LIVER BONE MARROW
PANCREAS
SPLEEN
BONES
CB1
CB2

Cannabis Intoxication

- Negative effects outlast desired effects

- Impairment in:
  - Cognition
  - Judgment
  - Motor Coordination

- With high blood levels, panic, paranoid thoughts and hallucinations

Consequences of Daily Use

- Neuroadaptations
- Down regulations of CB1 receptors
  - Resets after 14-21 days
- Reduced levels of FAAH
  - Primary regulator of anandamide signaling in the brain

Medical Consequences of Cannabis

- Cannabis Hyperemesis Syndrome
- Vasospasm of coronary artery
- Weight Gain

Cannabis as Treatment

Proposed for:

- Insomnia
- Depression
- Anxiety
- PTSD
- Schizophrenia

Cannabis and Insomnia

- Very Dependent on THC/CBD proportion
- Higher THC=worse insomnia
- CBD may have benefit

Cannabis and Depression

- In a Cohort study of 45,087 Swedish conscripts:
  - Increased crude hazard rate of Major Depressive Disorder
  - Disappeared after adjustment for confounders
  - Strong association with Schizoaffective Disorder

Cannabis and Anxiety

- Cannabis intoxication causes acute anxiety

- Longitudinal studies do not show an increase in anxiety scores or risk for use (after adjustment for confounders)

- Still unclear dose relation to anxiety

Cannabis and Anxiety

- Cannabis use causes a dose dependent increase in anxiety in psychotic individuals

- Reductions in cannabis use results in improved functioning (but not necessarily specific symptoms)

Cannabis and PTSD

"Evidence is insufficient to draw conclusions about the benefits and harms of plant-based cannabis preparations in patients with PTSD, but several ongoing studies may soon provide important results"

Cannabis and Schizophrenia

- Cannabis precipitates Schizophrenia
- Outside of Schizophrenia, there is an established Cannabis Induced Psychosis
- Dependent on THC content: higher THC, worse psychosis

Age of Onset of Psychosis

- Cannabis vs. No Cannabis:
  - Users 28.2
  - Never Used 31.4

- Age of Use
  - 15 or younger: 26
  - After 15: 29.1

- Earliest onset seen in those using high-potency:
  - 25.2

Cannabis Psychosis

- THC contributes to the development and expression of psychotic illness, especially in vulnerable populations
- Appears dose-dependent based on systematic review by Zammit et. Al.
- Once a psychotic disorder has developed, THC may make it worse
  - Earlier onset of symptoms, more severe and persistent psychotic symptoms, higher relapse rates and a worse prognosis due to poor treatment adherence
  - Brain volume loss significantly greater in schizophrenics who use MJ
  - May double the risk of developing psychosis (7 in 1,000 to 14 in 1,000)
- However, high CBD cannabis has been associated with fewer psychotic experiences

Cannabis Withdrawal

- Irritability, anger, or aggression
- Nervousness or anxiety
- Sleep difficulty (insomnia or distressing dreams)
- Decreased appetite or weight loss
- Restlessness
- Depressed mood
- At least one of the following physical symptoms causing significant discomfort: abdominal pain, shakiness/tremors, sweating, fever, chills or headache

Diagnostic and Statistical Manual, 5th Edition, American Psychiatric Association, 2013, Washington D.C.

Cannabis Use Disorder

- Problematic pattern of cannabis use leading to clinically significant impairment or distress, occurring within a 12-month period

- Plus 2 of the following:

Diagnostic and Statistical Manual, 5th Edition, American Psychiatric Association, 2013, Washington D.C.

Cannabis Use Disorder

1. Cannabis is often taken in larger amounts or over a longer period than was intended

2. Persistent desire or unsuccessful efforts to cut down or control cannabis use

3. A great deal of time is spent in activities necessary to obtain cannabis, use cannabis, or recover from its effects

Cannabis Use Disorder

4. Craving, or a strong desire or urge to use cannabis

5. Recurrent cannabis use resulting in a failure to fulfill major role obligations at work, school, or home

6. Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis

7. Important social, occupational, or recreational activities are given up or reduced because of cannabis use

Diagnostic and Statistical Manual, 5th Edition. American Psychiatric Association. Washington D.C.

Cannabis Use Disorder

8. Recurrent cannabis use in situations in which it is physically hazardous

9. Cannabis use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis

Cannabis Use Disorder

10.Tolerance:

- A need for markedly increased amounts of cannabis to achieve intoxication or desired effect

- Markedly diminished effect with continued use of the same amount of cannabis

Diagnostic and Statistical Manual, 5th Edition. American Psychiatric Association. Washington D.C.

Cannabis Use Disorder

11. Withdrawal, as manifested by either of the following:

- The characteristic withdrawal syndrome for cannabis

- Cannabis (or a closely related substance) is taken to relieve or avoid withdrawal symptoms

Diagnostic and Statistical Manual, 5th Edition. American Psychiatric Association. 2013, Washington D.C.

Cannabis Use Disorder

- Route of administration
- Cannabinoid content
- Frequency of use
- Daily use
  - 75% of medical users

Treating Cannabis Use Disorder

- 12% of people receiving substance use disorder treatment had cannabis use disorder as their primary diagnosis

- Difficult to treat

Medical VS. Recreational?

- Hazy line
- 80% of medical users admit to using recreationally
- Medical users had higher rates of cannabis use disorder

Chronic pain

Cannabis users with chronic pain have higher rates of CUD than those not in pain.

Consequences of Chronic Use

- Pleasure
- Relaxing
- Anxious
- Paranoid

Oklahoma Petition 788

A person in possession of a state issued medical marijuana license shall be able to:

- Consume marijuana legally
- Possess up to 3 ounces on their person
- Possess 6 mature marijuana plants
- Possess 6 seedling plants
- Possess 1 ounce of concentrated marijuana
- Possess 72 ounces of edible marijuana
- Possess up to 8 ounces of marijuana

https://www.sos.ok.gov/documents/questions/788.pdf

Oklahoma Petition 788

Possession of a up to 1.5 ounces by persons

who can state a medical condition but not in

possession of a state issued medical

marijuana license shall constitute a

misdemeanor with a fine not to exceed

$400.00

https://www.sos.ok.gov/documents/questions/788.pdf

Oklahoma Petition 788

A person in possession of a state issued medical marijuana license shall be able to:

- Consume marijuana legally
- Possess up to 3 ounces on their person
- Possess 6 mature marijuana plants
- Possess 6 seedling plants
- Possess 1 ounce of concentrated marijuana
- Possess 72 ounces of edible marijuana
- Possess up to 8 ounces of marijuana

https://www.sos.ok.gov/documents/questions/788.pdf

788 and Physicians

- All applications must be signed by a physician (must be board certified)
- No qualifying conditions
- A medical marijuana license must be recommended according to the accepted standards a reasonable and prudent physician would follow when recommending or approving any medication
- No physician may be unduly stigmatized or harassed for signing a medical license application

https://www.sos.ok.gov/documents/questions/788.pdf

Health Systems Not Signing Applications

- St. Francis and Warren Clinic
- Oklahoma State University Medical Center and Clinics
- Hillcrest and Utica Park
  - Exceptions to:
    - Board Certified Hematologists or Oncologists
    - Palliative Care
    - Pain Management
- St. John Health System

Medical Concerns

- Lack of large high quality meta-analysis that is clinically useful
  - Most studies control dose and frequency
  - Most studies had THC content much lower than what's available
- No Qualifying Diagnoses
  - Providers have been quoted as using marijuana for depression, mental illness and suicide
    - These are conditions that marijuana has demonstrated harm
- No control over consequences
  - Emergency rules want to be treated as “any other medication” yet have no regulations on dose, frequency, condition etc.

Direct Liability

- Physicians still have liability for:
  - Negative consequences that resulted from their medical recommendation
  - Amount of “reasonable” care that went into their recommendation
  - Medical evidence to support their recommendation
  - Standard of Care is defined as what a reasonable physician would do; could be a difficult barrier with so few physicians making recommendations

Third Party Liability

- Physicians can normally only be held liable for harm to patients; not harm to other individuals
- There have been exceptions:
- Violence (i.e. Tarrasoff)
- Medications and car accidents

Vivian, J. Liability to Third Parties. US Pharm. 2010; 35(2): 40-45.

Questions

@SanityDoc

Jason.Beaman@okstate.edu

PSYCHIATRY AND BEHAVIORAL SCIENCES
OSU Center for Health Sciences