

# Medical Cannabis and Cancer Treatment

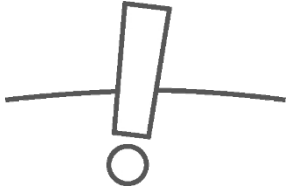
Hailey Pash, Nurse Practitioner  
University of Colorado  
Department of Medical Oncology  
UC Health Cancer Center



35 min

## Disclosure

No financial disclosure. This presentation does not reflect the views of the University of Colorado, Department of Medical Oncology, or UC Health, nor does it take the place of a conversation with your physician



# Overview

- What is cannabis
- History of cannabis
- Current indicated uses
- Types of cannabis preparations
- Effects and side effects of use
- Process for Medical Use
- Future research and potential uses

# What is Cannabis?

- Flowering Plant of the genus *Cannabaceae*
- Indigenous to South/Central Asia
- Three species: ***sativa***, ***indica***, ***ruderalis***
- THC is the psychoactive component
- CBD no psychotropic effects
- Hemp is the non-medical portion of the plant (clothes, lotions, rope, oil)
- 400 chemicals
- >60 different cannabinoids



## Consumption dates to 2900 B.C. - Chinese Emperor Fu Hsi

- Listed on the US Pharmacopeia from 1850-1942
- 1930s attitudes towards cannabis change
  - 1937 Marijuana Tax Act
  - 1970 Controlled Substances Act Schedule I
- 1996 California is the first state to legalize medical cannabis
- 2000 Colorado legalizes medical cannabis



- 1964 THC structure identified
- 1985 first synthetic cannabinoids get FDA approval
- Current Legalization
  - 10 states with Medical and Recreational Laws
  - 24 states with Medical Cannabis Laws

# Medical vs Recreational

## (THC products)

Qualifying medical conditions: Cancer, Glaucoma, HIV or AIDS, Cachexia, Persistent muscle spasms, Seizures, Severe nausea, Severe pain, Post-Traumatic Stress Disorder (PTSD)

### Medical Use/Red Card

- Up front cost
  - Registered physician fee
  - State fee
- Must find a registered physician, and provide your medical record
- Longer process
- Lower cost for product
  - Larger quantity
  - Cheaper for product , lower tax rate

### Recreational

- Higher cost (>20% tax)
- Quicker access
- Same selection

### Prescription

- Marinol (dronabinol) Rx required
- Cesamet (nabilone) Rx required

# Obtaining a Medical Marijuana Card (Red Card)

- Colorado Medical Use Laws
  - Driver's license, SS#, physician ID #, payment
  - Apply for a card, state fee \$25
  - Registered physician certificate (\$100-200)



<https://www.colorado.gov/pacific/cdphe/>

\*Employers are not required to accommodate your use of marijuana, medical or otherwise\*

# Approved Use Cases in Cancer Treatment

# 1 Chemotherapy induced nausea and vomiting

# 2 Sleep aide

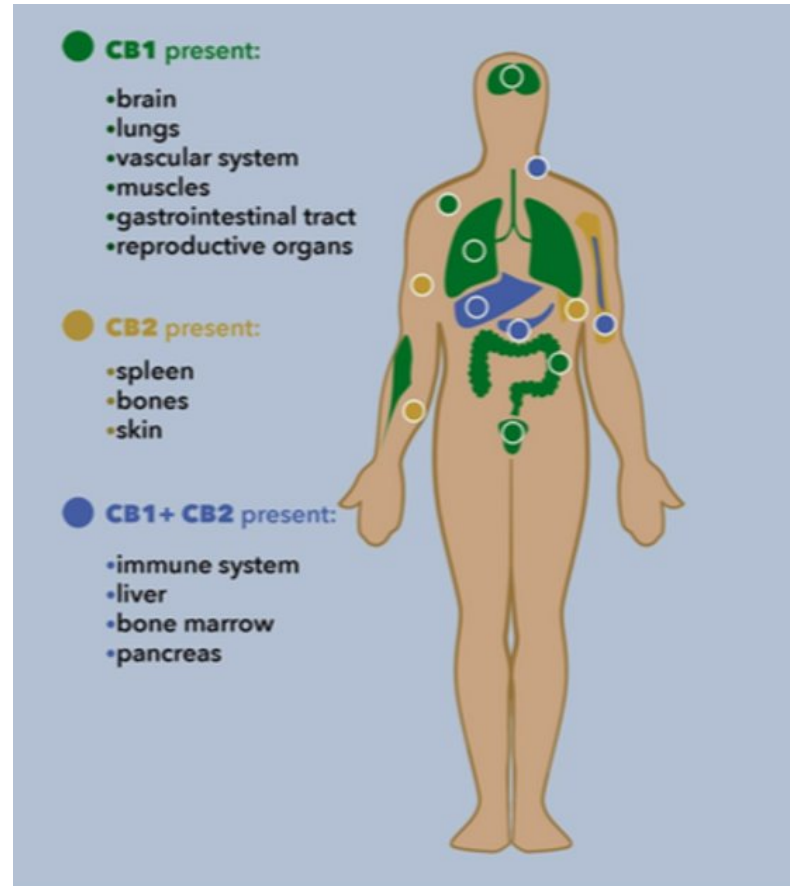
# 3 Appetite Stimulant

# 4 Pain relief



# The Endocannabinoid System

- Receptor sites throughout body (all animals)
  - ✦ Concentrated in the brain
  - ✦ GI tract
  - ✦ Liver and bone marrow
  - ✦ Other sites still being studied
    - ✦ Immune system
    - ✦ Cellular proliferation
    - ✦ Musculoskeletal control
- Explains effects
  - ✦ Euphoria
  - ✦ Pain
  - ✦ Reward
  - ✦ Neuroexcitability
  - ✦ Calming/stimulating
  - ✦ Appetite changes
  - ✦ Anti-nausea



# Chemical Components of Cannabis

## THC (delta-9-tetrahydrocannabinol)

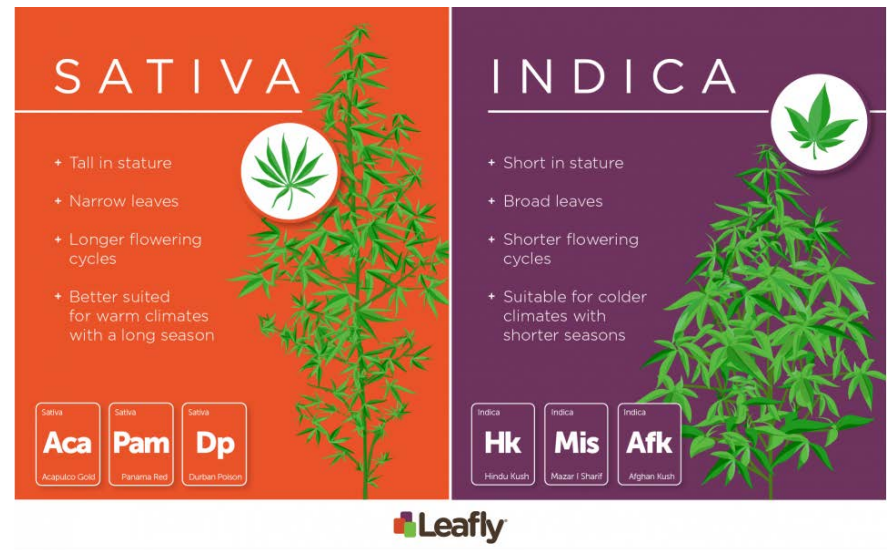
- Psychoactive component
- Pain relief
- Nausea relief
- Appetite stimulant
- Lowers Anxiety and Depression
- Sleep aid (anecdotally)
- Euphoria
- Reduces muscle spasms

## CBD (cannabidiol)

- Antipsychotic
- Possible anti-inflammatory effects
- Pain (acute and chronic)
- Seizure disorder
- Lowers anxiety and Depression
- Potentiates THC's anti-inflammatory and analgesic effects
- Mitigates THC's adverse effects
- Not regulated
- Manufacturers, potency, quality, purity varies
- CBD oil vs Hemp oil

# Get to know your Cannabis

- Types of cannabis
  - **Indica** – sedating, calming, body
  - **Sativa** – uplifting, creative, mind
  - 100s of varietal with different effects
  - Effects largely dependent upon the strain, terpenes (Leafly.com)
- Other Variables
  - Concentration of THC
  - Terpenes - aromatic compounds commonly produced by plants and fruit
- Ask your bud tender



# Common Routes of Consumption

- Inhaled (THC/CBD smoke, vapor)
  - ✦ Flower/bud (joint/bowl)
  - ✦ Concentrates
    - ✦ Wax (vaporized/atomizer)
    - ✦ Shatter
    - ✦ Butter
  - ✦ Rapid onset (3-10 minutes)
  - ✦ Shorter duration (peak 20 minutes)
  - ✦ **Less favorable for cancer patients especially with poor lung health**
    - ✦ Fungal contamination
    - ✦ Other carcinogens
- Edibles (THC/CBD)
  - ✦ Easier for non-smokers
  - ✦ More variable effects
  - ✦ Delayed onset (60-120 minutes)
  - ✦ Longer duration (peak 120 minutes)
  - ✦ Dose dependent effect
  - ✦ Starting dose 2.5 mg
  - ✦ “start low and go slow”

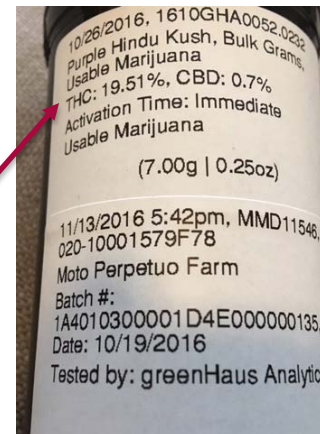
## Other Routes of Consumption



- Tinctures (THC +/-CBD)
  - ✦ Liquids to mix in beverages
  - ✦ Sublingual
  - ✦ Easier to dose
- Creams (CBD +/- THC)
  - ✦ Localized relief esp. Pain
  - ✦ Non-psychoactive
- Pill form (THC)
- Prescribed medications (synthetic)
  - ✦ Marinol (dronabinol)
  - ✦ Cesamet (nabilone)

### Dosages

- THC Naïve - 2.5-5 mg
- THC Tolerant – 10-20 mg
- Daily User - 20+ mg
- Inhaled: 10-15% THC to start



# THC

## The Good

- Pain relief
  - Nausea relief
  - Appetite stimulant
  - Sleep aid
  - Reduce stress
  - Reduce anxiety
- 

## The Bad

- "Loopy" or "high" feeling
- Cannabinoid hyperemesis syndrome (CHS)
- Anticholinergic effects (Dry mouth, blurry vision, urinary retention, fast heart rate, high blood pressure)
- Slows response time (don't drive!)
- Sleepy - good/bad
- Paranoia
- Shakes
- Irritability/anxiety (CBD too)
- \*Exacerbate existing mental illness\*
- Excess consumption "munchies" lead to weight gain
- Dependence (rare)

## Laws/Safety

- Cannot be consumed in public
- Secure your product especially if you have children and pets around
- Edibles can look like regular food or candy
- Do not use with alcohol
- Do not drive while using
- Overdose not lethal but can be an unpleasant experience
- Disclose use to your health care team
- Monitoring liver function, especially while on chemotherapy



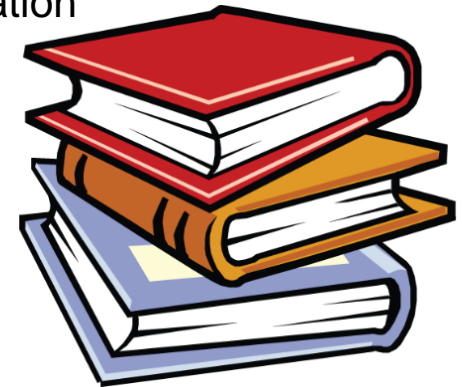
**RESPONSIBILITY**  
– Grows Here –

[www.responsibilitygrowshere.com/](http://www.responsibilitygrowshere.com/)

uhealth

# Does cannabis cure cancer?

- Has only been done on cell cultures and animal testing
  - In-vitro = controlled environment outside an organism
  - In-vivo = inside a living organism, not necessarily human
- Animal models have shown antitumor and immune regulation effects
- Effect is largely related to type of cancer, and dose/concentration
- Some types of cancer cells have cannabinoid receptors



## Limitations on research

- 1970 Schedule I classification limits scope of testing
  - No currently accepted medical use and a high potential for abuse
- Federal research is only conducted on one approved plant from single grower
  - Different strains, concentrations, preparations
  - Hybrid, genetically modified



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**Any questions?**