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# The Healing Toolbox: Cannabis as a Key Player



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# AHP Therapeutic Compendium

- Therapeutic review and safety of medical use
  - Clinical and pre-clinical pharmacology
  - Dosage, preparations, administration
  - Side effects, interactions, toxicology





# Historical Use of Cannabis

- One of the most widely used botanical drugs in history
- Recorded history
  - Egyptian use about 3700 years ago
  - Chinese use of seeds, not flower
  - Greeks first documented psychotropic effects







# Cannabis Re-Emerges

- 9<sup>th</sup> century Persian physicians reported
  - Extracted juice for migraines, uterus pain, miscarriage
  - Tropical treatment for hair growth
  - Common uses known today as an anti-epileptic, anti-inflammatory, more





# Ancient Broad Uses of Cannabasis

- Fumigant, insecticide, enema, congestion, sorrow (today's depression), impotence, neuralgia
- Indian Ayurvedic sacred herb used topically







# O'Shaughnessy's Influence

- Brought India's knowledge to Western medicine in 1800s
- First to identify paradoxical nature of Cannabis and individual sensitivity
- Cannabis included in pharmacopeia's worldwide
  - Germans recommended as alternative to morphine





# Cannabis of Yesterday and Today

- Official entry in the US Pharmacopeia 1850–1942
- Psychoactive components: Delta-9 THC, Delta-8 THC, and the weaker CBN
- Cannabis previously contained one to three percent THC
- Today's plants are about 13%+ THC (products, e.g., shatter, contains 60%+)







# Not a Magic Bullet

- Not appropriate for all patients, at all times, for all things
- Varies based on patient tolerance and experience level
- Herbal guidelines for healing should be considered versus addressing only symptoms





# Defining Plant Distinctions

- Historically—
  - Indica = short broad leaves (high THC)
  - Sativa = long, narrow leaves (lower THC, higher CBD)
- In recent decades, interbreeding has left the lines of botanical speciation less







# Varying Absorption Rates

- Rapid onset, such as through smoking or vaporization, allows for better patient titration
- Peak plasma levels reached in three to 10 minutes after inhalation; one to two hours after oral ingestion
- Oral ingestion may have two peaks, demonstrating unpredictability of edibles





# Varying Absorption Rates

- Sativex – sublingual spray absorbed through oral mucosa, and GI tract
- THC rapidly penetrates vascular tissues
- THC rapidly crosses the placenta; oral intake has lesser effect on fetal plasma levels versus inhalation
- THC metabolites are stored in fatty tissue







# World of Cannabis Constituents

- Constituents of Cannabis include
  - Cannabinoids
  - Terpenoids
  - Non-cannabinoid phenols
  - Nitrogenous compounds
  - Cannabinoid acids
  - Monoterpenes





# Decarboxylation for Activation

- Cannabis contains THCA in a non-psychoactive, non-carboxylated form
- Decarboxylation activates (through heat) turning THCa into psychoactive THC







# Terpenoids as Medicinal Agents

- Terpenoids (terpenes) are abundant in Cannabis, and other plants
- Linalool (lavender), pinene (pine needles), limonene (lemon), caryophyllene (rosemary)
- Herbal synergy of terpenoids in Cannabis and other plants offer herbal therapeutic synergy





# A Global + Contradictory View of Cannabis

- US Department Health and Human Services holds patents for Cannabis use for antioxidant and neural protectant effects
- Canada, Netherlands and Israel have robust medicinal Cannabis programs
- Indonesia, Malaysia, Singapore, Saudi Arabia, and Iran have strict penalties for any Cannabis use







# Cannabis for Seizure Control

- Arabic writings in 1100 AD, 15<sup>th</sup> century and in 1800s refer to Cannabis for seizure control
- Multiple constituents (CBD, THC, CBDV, THCa) may all have anti-seizure activity
- Conventional anticonvulsants can result in neurotoxicity over time; children treated unsuccessfully fail to thrive.





# MS Management

- Most consistent finding of 27 clinical studies is for reducing spasticity
- Subjective improvements include sleep quality + mobility
- Whole plant extract versus isolated cannabinoids seem to be more efficacious







# Tourette Syndrome Management

- Formal studies demonstrate benefit with oral THC show after three weeks of use
  - Significant improvement in tick and obsessive compulsive disorders
  - Significant improvement in immediate memory





# Parkinson's Management

- Cannabis used to treat Parkinson's tremors since 1888
- Reported results seen in about two months come from case histories, surveys, pilot studies; formal clinical studies lacking
- Effects are dose-dependent with high amounts of THC awarding most benefit







# Ocular Care and Migraines

- Ocular effects of cannabinoids have mixed results due to varying trial methodologies, small sample size and of short duration
- Results are primarily seen in reducing intraocular pressure
- Consistent Cannabis use as tinctures and fluid extracts for migraines is historically documented





# Cancer Management

- Palliative care to reduce nausea, vomiting, pain, lack of appetite, anxiety, and insomnia
- *In vitro* and *in vivo* studies indicate anti-tumor properties of CBD, THC, and CBG via modulation of cell signaling pathways
- Activity also includes arresting tumor growth, cell death and inhibiting metastasis







# Cancer and Cannabis Observations

- Formal clinical studies lacking
- Various studies have observed:
  - Rate of head, neck, skin cancer is lower in Cannabis users
  - Greater protection among patients who begin smoking Cannabis at an older age
  - Combining THC or CBD with radiation has improved outcomes





# Cannabis as an Appetite Stimulant

- Appetite stimulation with synthetic THC is well supported in more than 40 clinical trials
- Preserving body mass is a key strategy for survival in cancer, AIDS, and Alzheimer's
- Evidence mixed regarding preservation of body mass







# Cannabis for Topical Use

- Ancient Chinese treated skin ulcers, fungal infections, and wounds with topical preparation
- Anti-bacterial activity is found in CBD, CGB, and their acid forms
- Delta-8, 9 THC, and THCV exert anti-inflammatory effect when applied topically





# Cannabis Wrap-Up

- Cannabis has an effect on a wide range of systems and organs
- Cannabinoids influence a myriad of neurological and physiological processes
- Cannabinoids can stimulate or down-regulate, providing paradoxical effects to individuals

