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- 1. Understand what conditions have the most scientific data that support the use of cannabis as treatment
- 2. Know the risks and benefits of cannabis
- 3. Know the interactions of cannabis with common psychotropic medications





What is Cannabis?

THC- the main psychoactive ingredient in cannabis and what is responsible for the 'high.''





The endocannabinoid system (ECS) has both CB1 and CB2 receptors.

THC and CBD are the most prominent cannabinoids found in the Cannabis plant. The body makes endogenous cannabinoids that interact with the CBI and CB2 receptors.





Evolution of THCCED ratios

- THClevels are rising and CBD is falling
- Synthetic cannabinoids are now available (>560 types identified)

- Author: Genevieve Lafaye, Laurent Karila, Lisa Blecha, Amine Benyamina
- Publish Year: 2017



Dabs, wax, butane hash oil, shatter, budder

- Are all concentrated forms of THC
- Can be vaped or can be added to a joint or smoked in a bowl

• There are also CBD dabs, shatter, budder, sauce, crumble and wax





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May have antipsychotic, anxiolytic, and anti-inflammatory effects Is highly protein bound





Qualifying conditions for medical cannabis in Minnesota

Alzheimer's disease, ALS, autism (must meet DSM-5) cancer with severe pain, nausea and vomiting, or wasting, chronic motor or vocal tic disorder, chronic pain, glaucoma, HIV ADS, inflammatory bowel disease, intractable pain, irritable bowel syndrome, OCD, obstructive sleep apnea, PISD, seizures, severe and persistent muscle spasms, sickle cell disease, terminal illness (life expectancy of <1 year) Tourette syndrome

Original qualifying conditions are in black











Tangerine [30ct] (150mg THC) Leafline Labs Capsules (EACH) 150mg THC 30ct



Hybrid Strawberry [10pk] (100mg CBD/100mg THC) &Shine Gummies (EACH) 100mg CBD/100mg THC 10pk \$25.00

Add to bag

Add to bag

\$29.00



Indica Ice Cream Cake [.5g] &Shine 5 Pack Pr... (.5g / 2.5g pe... THC 20.60% CBD 0.04%

\$28.00

Add to bag



Indica King Louie XIII [300mg] &Shine Disposable (EACH) THC 87.00%

\$30.00

Add to bag



Lemon Jack #9 &Shine Cartridge (.5G) THC 87.00%

Sativa

\$50.00/.5g

Add to bag



Medical formulations of THC and CED

Dronabinol (synthetic delta -9-THC) 97% protein bound Nabilone (synthetic delta-9-THC) highly protein bound Nabiximol (THC and CBD in a 1:1 formulation) Not available in the US Not synthetic. European. >94% protein bound Fpidiolex (not synthetic) CBD >94% protein bound





Moderate evidence exists for:

Oral THC/ CBD for spasticity, chronic cancer pain, and neuropathic pain Smoked THC for chemotherapy induced nausea and vomiting (CINV) and spasticity





What about cannabis for sleep?

Acute cannabis intoxication appears to help with sleep while regular cannabis use appears to have a negative effect on sleep. Possibly, dronabinol and nabilone might help with sleep disorders and nightmares. CBD at moderate to high doses may improve sleep quality although studies suggest that the results are "marginal and less consistent."

The safety and efficacy of low oral doses of cannabidiol: An evaluation of the evidence Jonathon C Arnold¹²³, Danielle McCartney¹²⁴, Anastasia Suraey¹²⁴, Jain S McGregor

2023 Jan;16(1):10-30



What about cannabis for OCD?

MDHadded OCD to the qualifying diagnoses based on 5 studies that looked at the effects of cannabis/cannabinoids on OCD.

Three were case studies/reports and the remaining two were clinical trials.

"While clinical trial data are extremely limited, one of the clinical trial results indicate that cannabinoids may not independently improve OCD symptoms but work to help in the exposure and response prevention (IRP) treatment in alleviating OCD symptoms. However, those particular findings are significantly limited by the lack of a placebo-controlled comparison."

"Overall, more clinical research is needed to better ascertain the effects of cannabis/ cannabinoids on OCD symptomatology."





What about cannabis for PTSD?

Per MDH: "There are numerous published articles on laboratory and animal research studies with findings likely relevant to PTSD."

Twenty-nine healthy volunteers ages 21-45 were recruited and randomized to receive either THC(7.5 mg MARINOL) or placebo. Results showed evidence that pre-extinction administration of THC facilitates extinction of conditioned fear in humans.



What about cannabis for autism?

There is no real evidence to support either CBD or THC for use in autism currently, but there are ongoing studies.

"There is no scientific evidence that cannabis may benefit individuals with ASD. Parents and caregivers of children with ASD should strongly consider the adverse side effects that may occur when cannabis is used as a treatment." The Association for Science in Autism Treatment 2022





What about cannabis for OSA?

"Very little research has been done on which medical cannabis products — if any— are effective for treating OSA"





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Does cannabis replace opiates?

Use of Cannabis and Other Pain Treatments Among Adults With Chronic Pain in US States With Medical Cannabis Programs Mark C. Bicket, MD, PhD, ¹ Elizabeth M. Stone, MSPH, ² and Emma E. McGinty, PhD ²



Risks of cannabis

- Impaired cognition
- Respiratory problems
- Throat irritation
- Headache
- Dizziness
- Fatigue
- Increased doses of anesthesia required, increased opiate use post op, and small increase in PONV
- Decreased bowel motility, cyclic vomiting syndrome, cannabinoid hyperemesis syndrome
- Use during pregnancy alters the epigenome

- Tachycardia
- Anxiety
- Paranoia
- Psychosis
- Cannabis arteritis
- Cannabis induced vasospasm
- Increased platelet aggregation
- Possibly causes irritable bowel disorder!



Nedication interactions

THC and CBD are metabolized by CYP 2C9, 2C19 and 3A4 with 3A4 being responsible for about 30-40% of the metabolism

CPY1A2 and 2D6 only metabolize CBD

I highly recommend looking at the excellent review article written by Paul Kocis and Kent Vrana of Penn State https://sites.psu.edu/cannbinoid



Substances that can lower THC and CBD levels

Fluoxetine Paroxetine Propofol Gprofloxacin Macrolide antibiotics Calciumchannel blockers Tobacco



Substances that can increase THC and CED levels

- Fluconazole
- Amiodarone
- Fluvoxamine
- Fluoxetine
- Omeprazole
- Carbamazepine
- Phenytoin
- Phenobarbital
- Gprofloxacin

• Grapefruit

- Calcium channel blockers
- Estradiol
- Levonorgestrel
- Quinidine

Driving after using Cannabis

Oral cannabis's peak concentration occurs 1.5-3 hours after use and the effects last for 6-8 hours. Inhaled cannabis's peak concentration occurs within ten minutes of smoking or vaping and drops rapidly over 3-6 hours.





Alinall...

It's a no for me.



References

The safety and efficacy of low oral doses of cannabidiol: An evaluation of the evidence Jonathon C Arnold¹²³, Danielle McCartney¹²⁴, Anastasia Suraev¹²⁴, Iain S McGregor 2023 Jan;16(1):10-30

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Use of Cannabis and Other Pain Treatments Among Adults With Chronic Pain in US States With Medical Cannabis Programs <u>Mark C. Bicket</u>, MD, PhD, ¹<u>Elizabeth M. Stone</u>, MSPH, ² and <u>Emma E. McGinty</u>, PhD ²

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Medical Cannabis Data and Reports - MNDept. of Health (state.mn.us)

