



# MEDICAL CANNABIS: WHAT, WHEN, WHY, AND HOW



[www.cannability.co](http://www.cannability.co)

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Dr. Alexandria Hill DNP, GERO NPD RN-BC  
Chief Nursing Officer



01.

**UNDERSTAND**

The impact of the human endocannabinoid system's (ECS) physiology on homeostasis and wellness

02.

**DIFFERENTIATE**

Common phytocannabinoid formulations and preparations

03.

**DISTINGUISH**

Setting- specific considerations for the application of medical cannabis in post- acute and long- term care



**OBJECTIVES**



# Chief Nursing Officer of Cannability Consulting

This lecture and clinical recommendations were designed with the best available evidence from medical literature.



**CONFLICT OF  
INTEREST**



## DISSEMINATION



## ORGANIZATIONS



## EDUCATION

**Doctor of Nursing Practice**  
Virginia Commonwealth University

**Master of Nursing**  
**Administration and Leadership**  
Virginia Commonwealth University

**Bachelor of Science in Nursing**  
Hampton University

## ADVOCACY

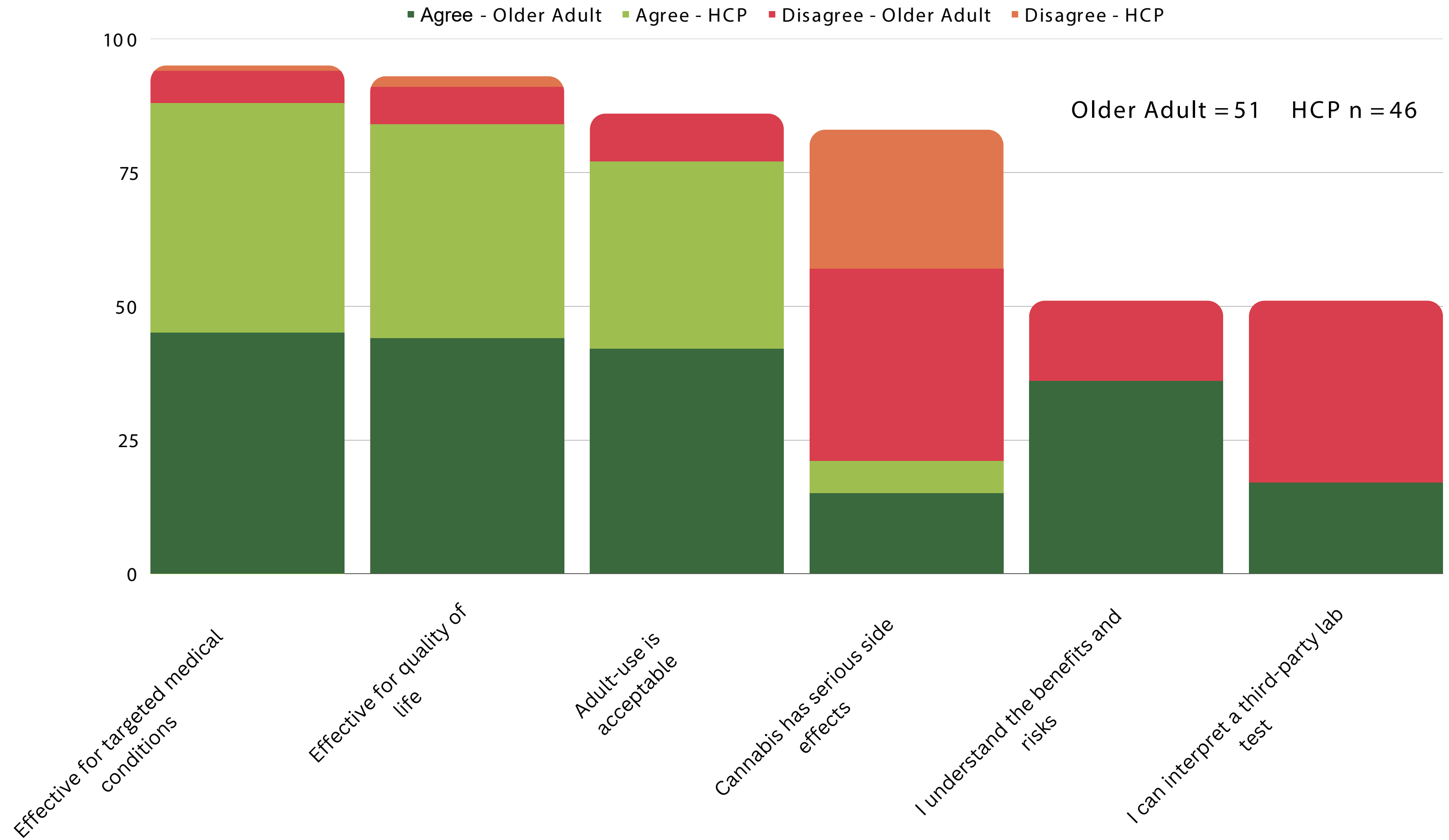
**Research and Education Committee**  
American Cannabis Nurses Association

**Credentialing Committee**  
American Cannabis Nurses Association

**Gerontology Item Writer**  
American Nurse Credentialing Center



# Fostering Cannabis Safety and Literacy for Older Adults and Healthcare Providers





**CANNABIS**

"Hemp Product" means a product, including any raw materials from industrial hemp that are used for or added to a food or beverage , that (i) contains industrial hemp and has completed all stages of processing needed for the product and (ii) when offered for retail sale (a) contains a total tetrahydrocannabinol concentration of no greater than 0.3 percent and (b) contains either no more than two milligrams of total tetrahydrocannabinol per package or an amount of cannabidiol that is no less than 25mg greater than the amount of total tetrahydrocannabinol per package.

"Cannabis Product" means a product that is (i) produced by a pharmaceutical processor, registered with the Board, and compliant with testing requirements and (ii) composed of cannabis oil or botanical cannabis. (§ 54.1-3408.3.)





# CANNABIS

	Hemp	"Marijuana"
Primary Cannabinoids	High CBD or minor cannabinoids	THC
Legality	Federally legal for sale, transport, use under Hemp Farm Act	Schedule I federally, adult + medical program in Virginia
Access	Retail, online	Home grow, dispensary access via medical cannabis certification
Regulatory Oversight	Not regulated by FDA - must be a knowledgeable consumer	Virginia Cannabis Control Authority
Pros	Wider range of options for Entourage Effect, great launching point for cannabis naïve or PALTC	Quality controls, legal access
Cons	Less quality control, low or no THC content	Focus on THC content while excluding other constituents, expensive, cannot be administered in SNF without registered agent

- Medicare and Medicaid regulations do not explicitly address the use of medical cannabis or CBD oil
- No specific survey task is related to cannabis but medication storage, appropriate self-administration, safe smoking, fire safety, etc. are surveyed for compliance
- CMS generally requires compliance with federal, state, and local laws
- The 2014 Rohrabacher -Farr Amendment prohibits the justice department from spending funds to interfere with the implementation of state medical cannabis laws

Wilbert, E & Adinoff, B. "Legislating Cannabis Use in Healthcare Facilities." Washington, D.C.: Doctors for Cannabis Regulation, May 20 23





“Designated caregiver facility” means any hospice or hospice facility licensed pursuant to § [32.1-162.3](#), or home care organization as defined in § [32.1-162.7](#) ..., private provider licensed by the Department of Behavioral Health and Developmental Services pursuant to Article 2 (§ [37.2-403](#) et seq.) of Chapter 4 of Title 37.2, assisted living facility licensed pursuant to § [63.2-170.1](#), or adult day care center licensed pursuant to § [63.2-170.1](#).

H. Upon delivery of a cannabis product by a pharmaceutical processor or cannabis dispensing facility to a designated caregiver facility, any employee or contractor of a designated caregiver facility, who is licensed or registered by a health regulatory board and who is authorized to possess, distribute, or administer medications *may accept delivery of the cannabis product on behalf of a patient or resident for subsequent delivery to the patient or resident and may assist in the administration of the cannabis product to the patient or resident as necessary.*



“AMDA supports patient-centered decision making. If there is consensus from the clinician and resident that ~~marijuana~~ cannabis has substantial clinical benefits that justify the risks, the facility administration must have established policies and procedures in place that address the following:”

State laws

Staff education

Recommendation processes

Storage, disposal, destruction

Documentation

Monitoring mechanisms

Informed consent

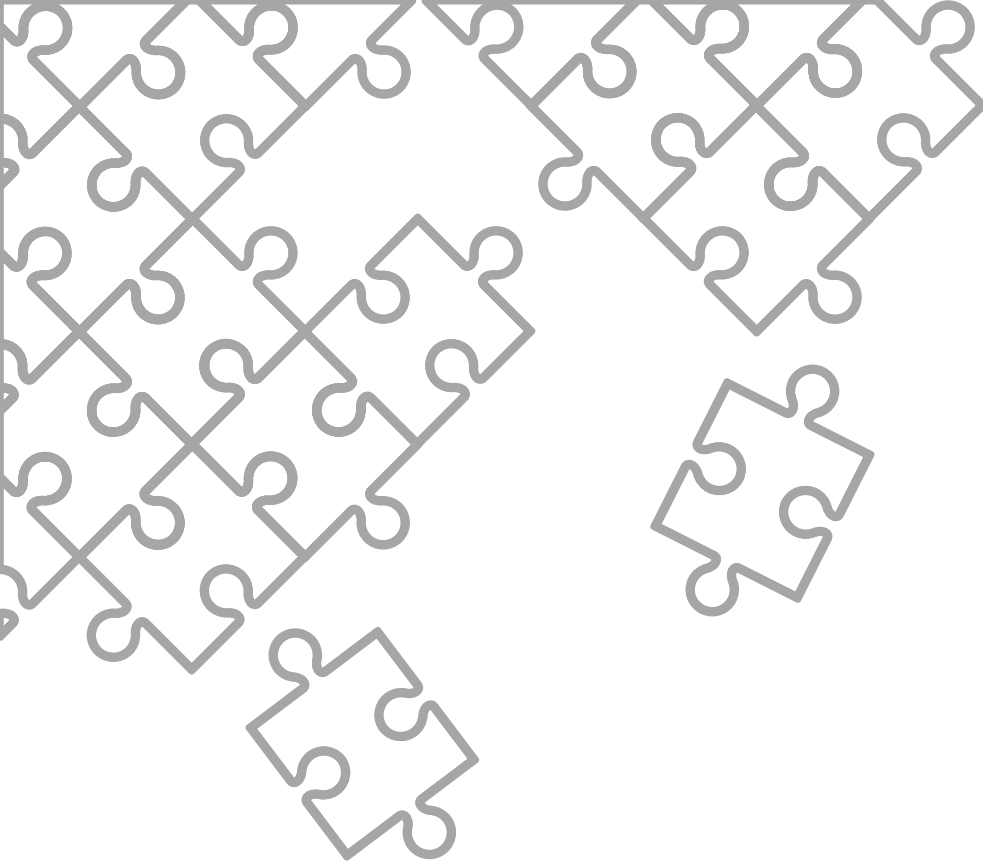
QAPI mechanisms



**AMDA POSITION**







**PHARMACOKINETICS**

**DOSE**

**ROUTE**

**FLAVINOIDS**

**CHEMOVAR**

**THC:CBD**

**PHARMACODYNAMICS**

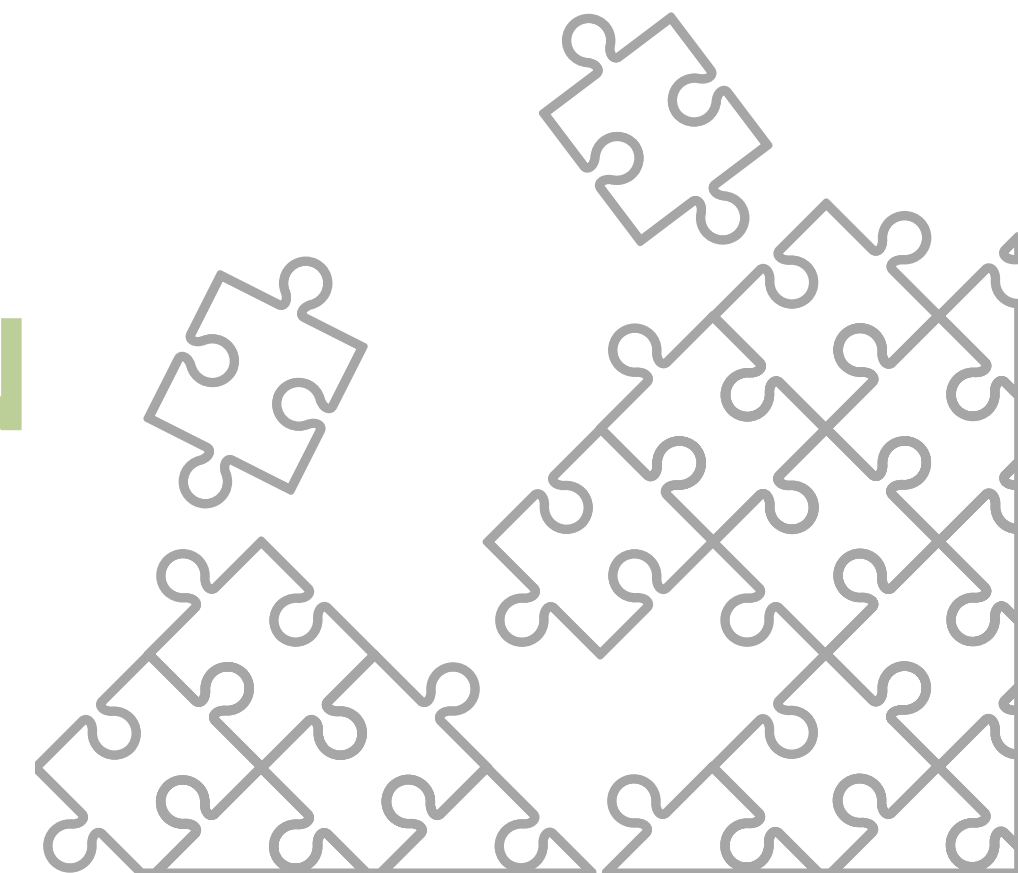
**TIMING**

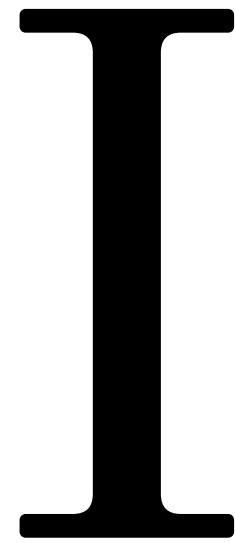
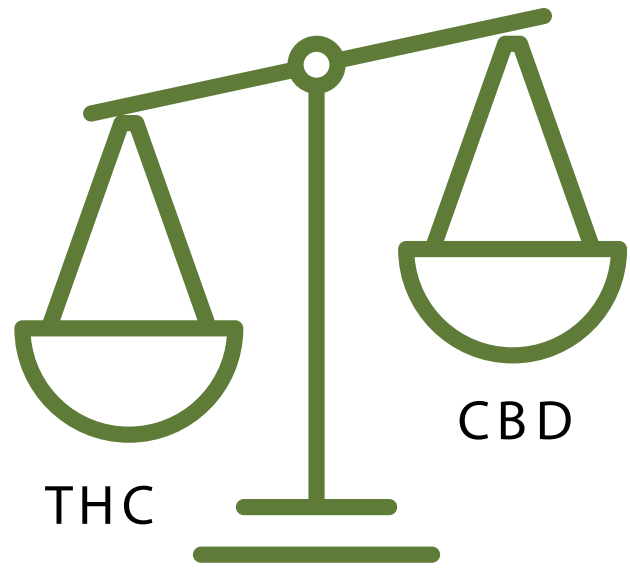
**SETTING**

**INTENTION**

**CANNABINOIDS**

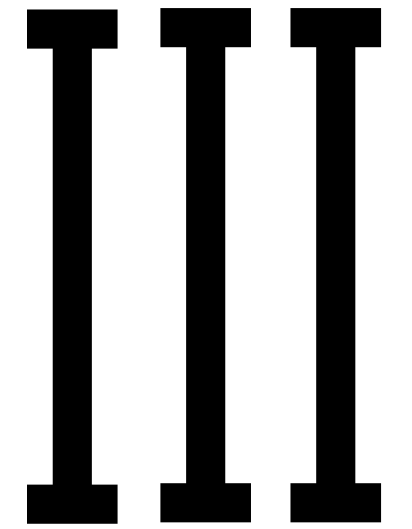
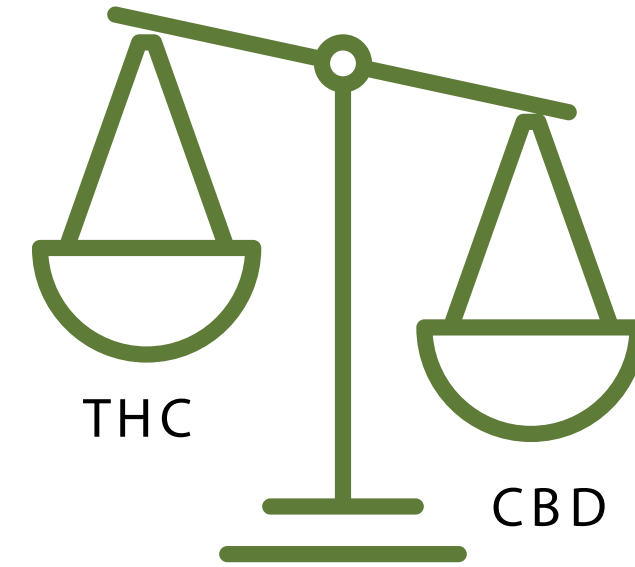
**TERPENES**





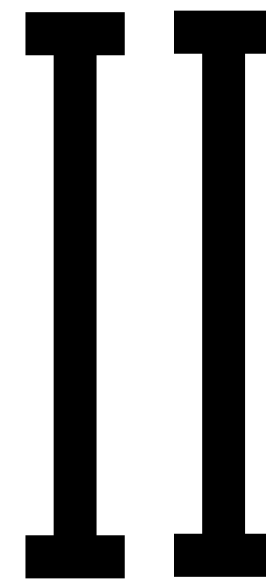
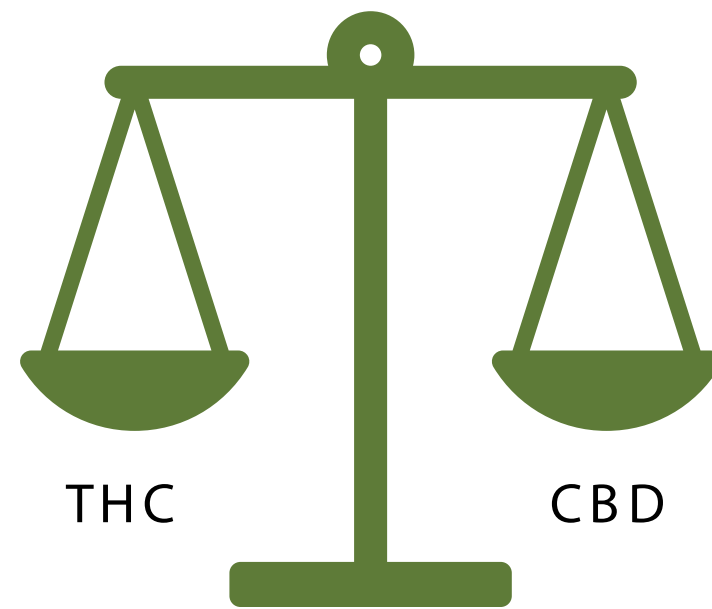
THC activates CB1/CB2 and supports the therapeutic impact of CBD.

CBD minimizes THC's changes in cognition, aka "feeling high."



Effects have a wide range.

What may be adverse to some can be exactly what is therapeutic to others.



Full-spectrum is ideal compared to a single-molecule product.

No effects on cognitive abilities with a gentle uplift in mood.



	Chemotype I THC > CBD	Chemotype II THC = CBD	Chemotype III THC < CBD
Cognitive / Mood Change Potential	High	Moderate	None (cognition) and mild (mood)
Memory Change Potential	Increases ability to relax (fearful memories or anxiety), slows habitual memory (OCD and Addiction)	Milder than Type I	Neuroprotection, especially in cases of dementia
Mood Change Potential	Deep relaxation and stress reduction. Higher sedative feelings	Moderate relaxation and stress reduction. Low to moderate sedative	Mild relaxation and stress reduction, gentle uplift in mood
Adverse Effects Potential	Very fine line between therapeutic and adverse effects	Wider line between therapeutic and adverse effects	Mostly therapeutic, minimal adverse effects

# CHEMOTYPES

	Chemotype I THC > CBD	Chemotype II THC = CBD	Chemotype III THC < CBD
Pain Types	Central, pathological, nociceptive, mental-emotional	Neuropathies, muscle spasms, mental-emotional	General analgesia (opioid synergy), inflammation, chronic pain, mental-emotional
Sample Conditions	Autism/Alzheimer's with agitation, nausea/vomiting, addiction withdrawal	Multiple sclerosis, fibromyalgia, muscle spasms	Epilepsy, heart disease, colitis, mood disorders, seizure disorders

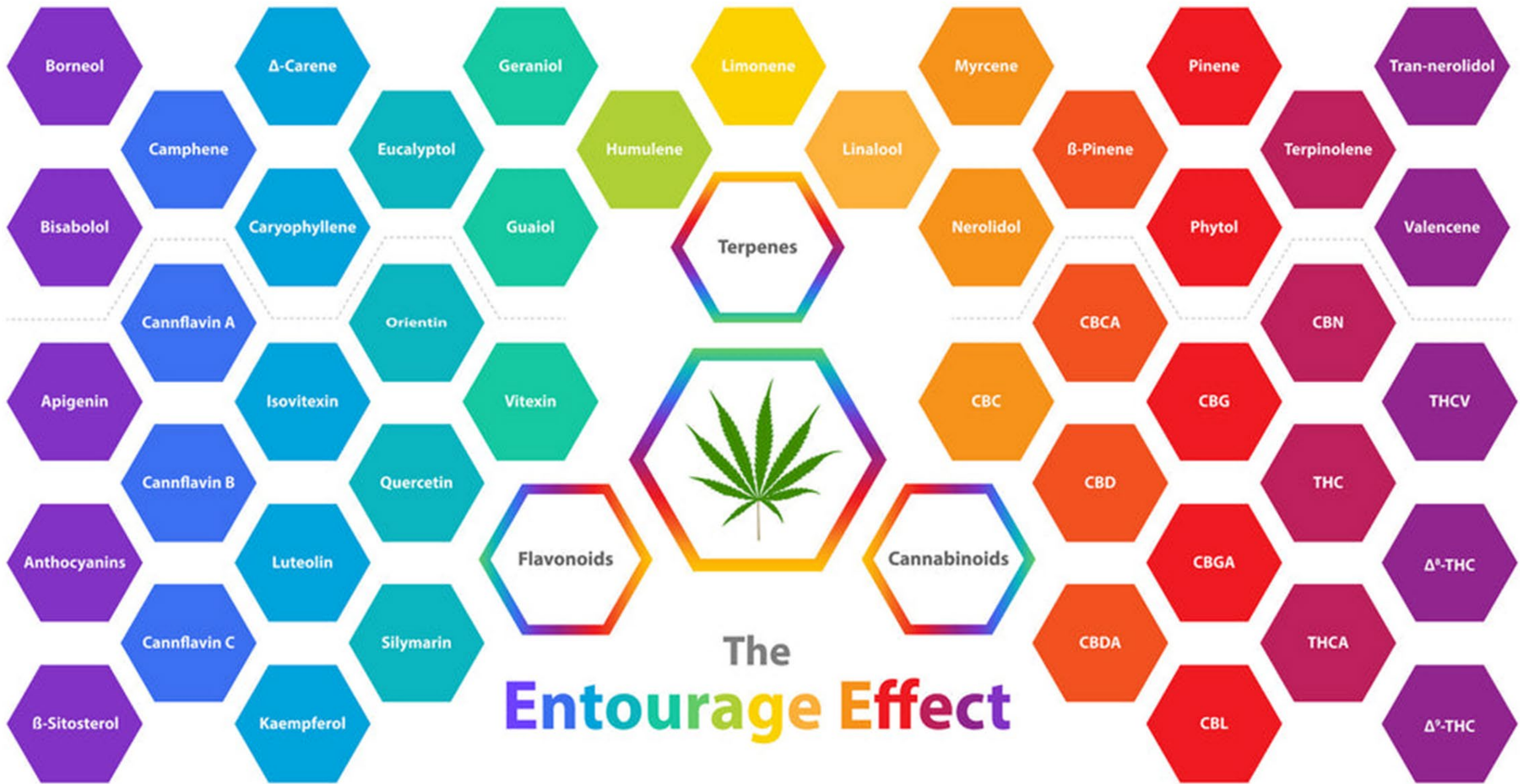
# CHEMOTYPES



# PHYTOCANNABINOIDS

Benefits	Non-Cognition Altering			Cognition Altering		
	CBD	CBG	CBC	CBN	THC	THCV
<b>Analgesic</b>	✓	✓	✓	✓	✓	✓
<b>Anti-Anxiety</b>	✓			✓	✓	
<b>Sleep Promoting</b>				✓	✓	
<b>Anti-Inflammatory, Anti-Proliferative</b>	✓	✓	✓			
<b>Appetite, Anti-Emetic</b>	✓				✓ ↑	↓
<b>Anti-Epileptic, Anti-Spasmodic</b>	✓			✓	✓	✓
<b>Bone Stimulant</b>	✓	✓	✓			✓
<b>Antibacterial, Antifungal</b>	✓	✓	✓			
<b>Antidiabetic</b>	✓					✓

Adapted from Clark (2021), not an all-inclusive list



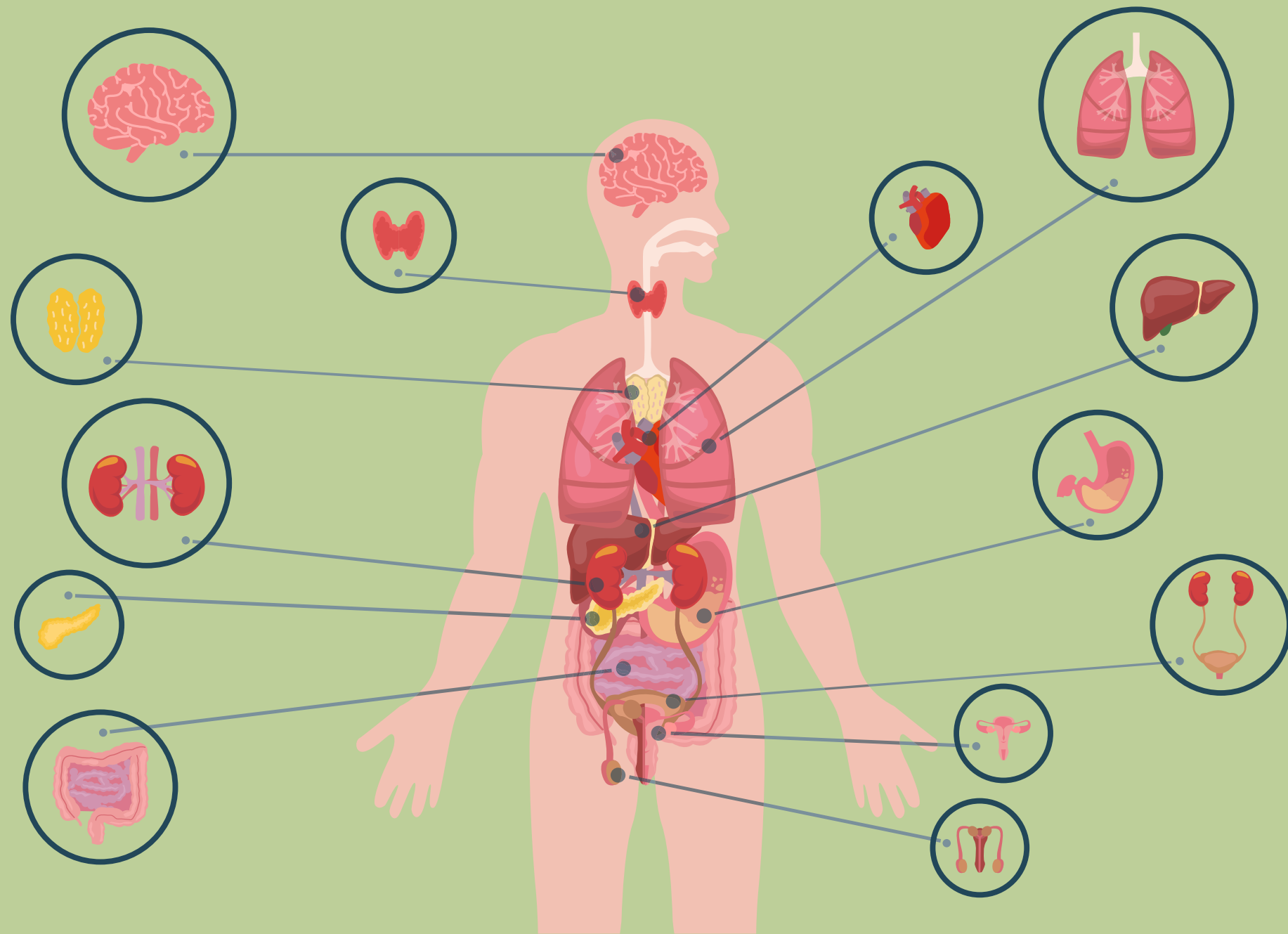




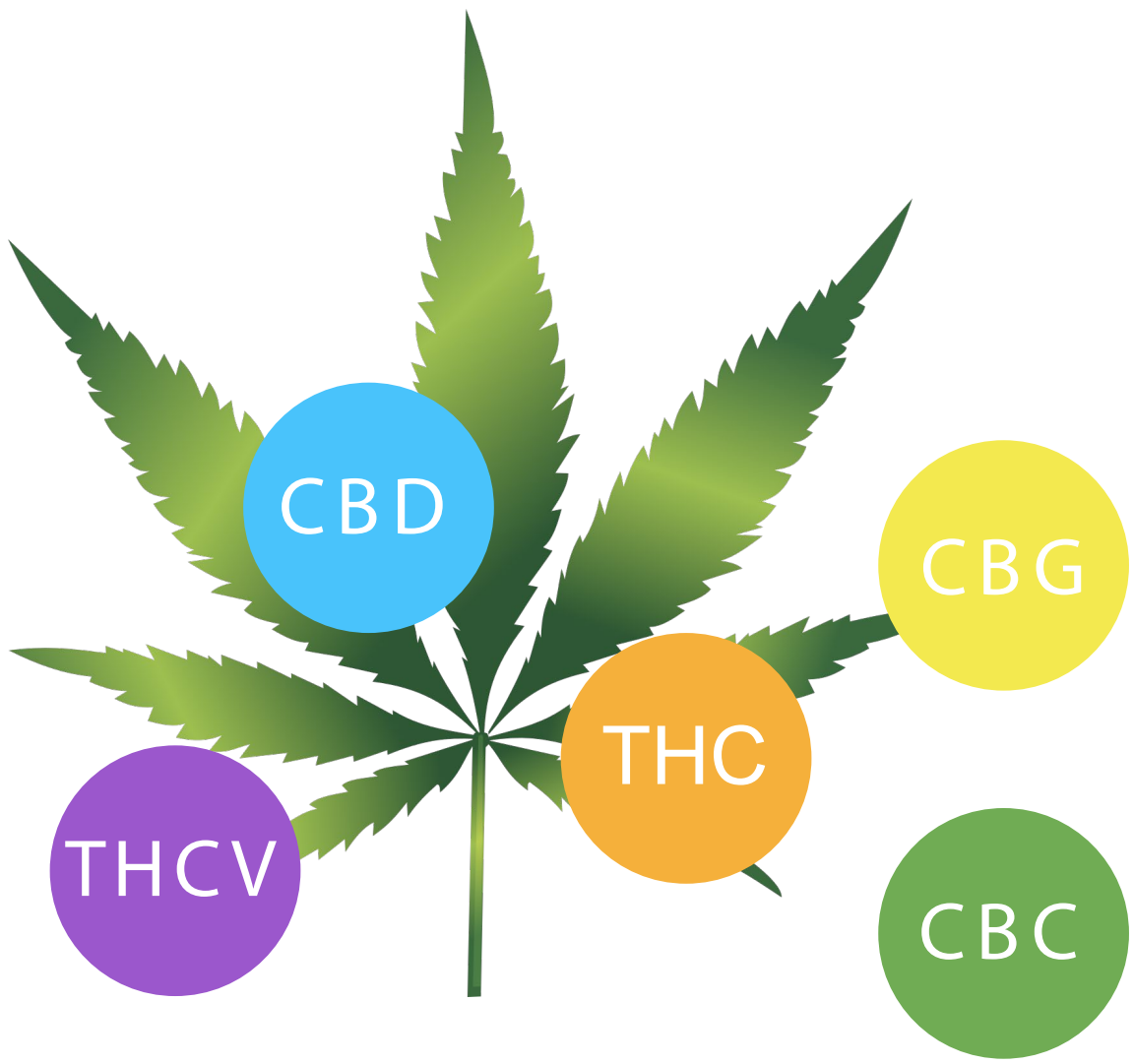
# HUMAN ENDOCANNABINOID SYSTEM



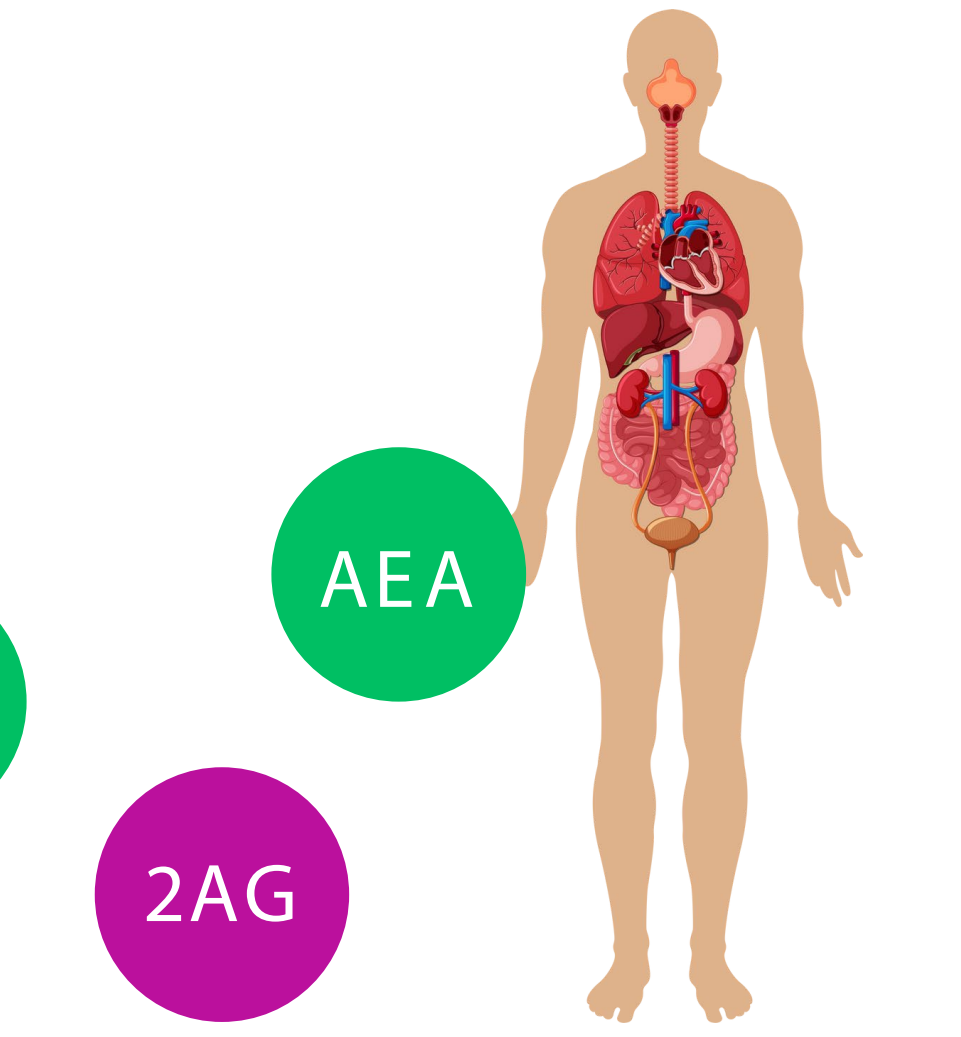
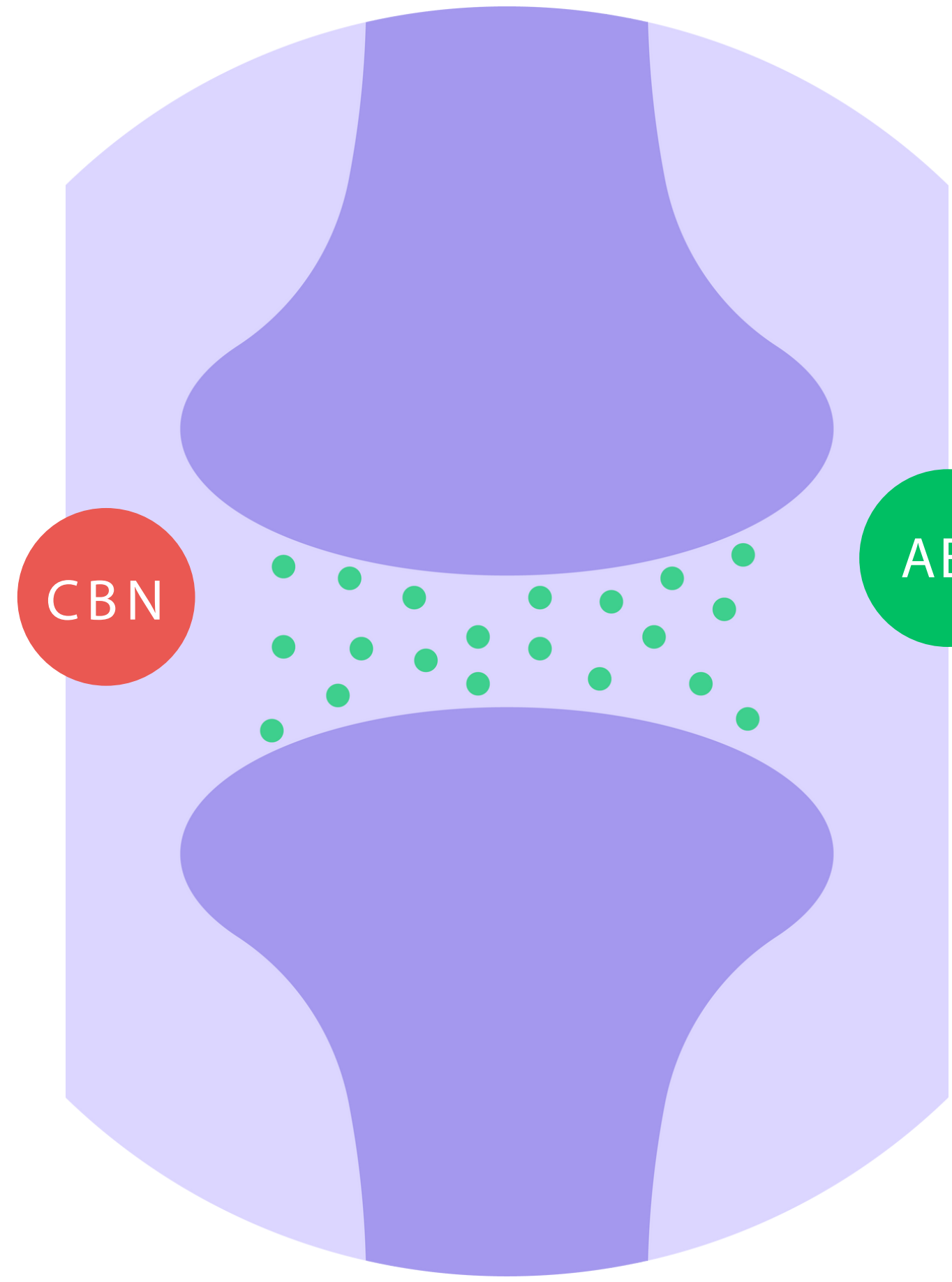
# The Human ECS is the most extensive neuroregulatory system in our body



- Balances cellular signals and minimizes pathological (disease) processes
  - Modulates sleep, mood, appetite, relaxation, protection, and more
- Provides a nurturing response to stress, injury, and inflammation



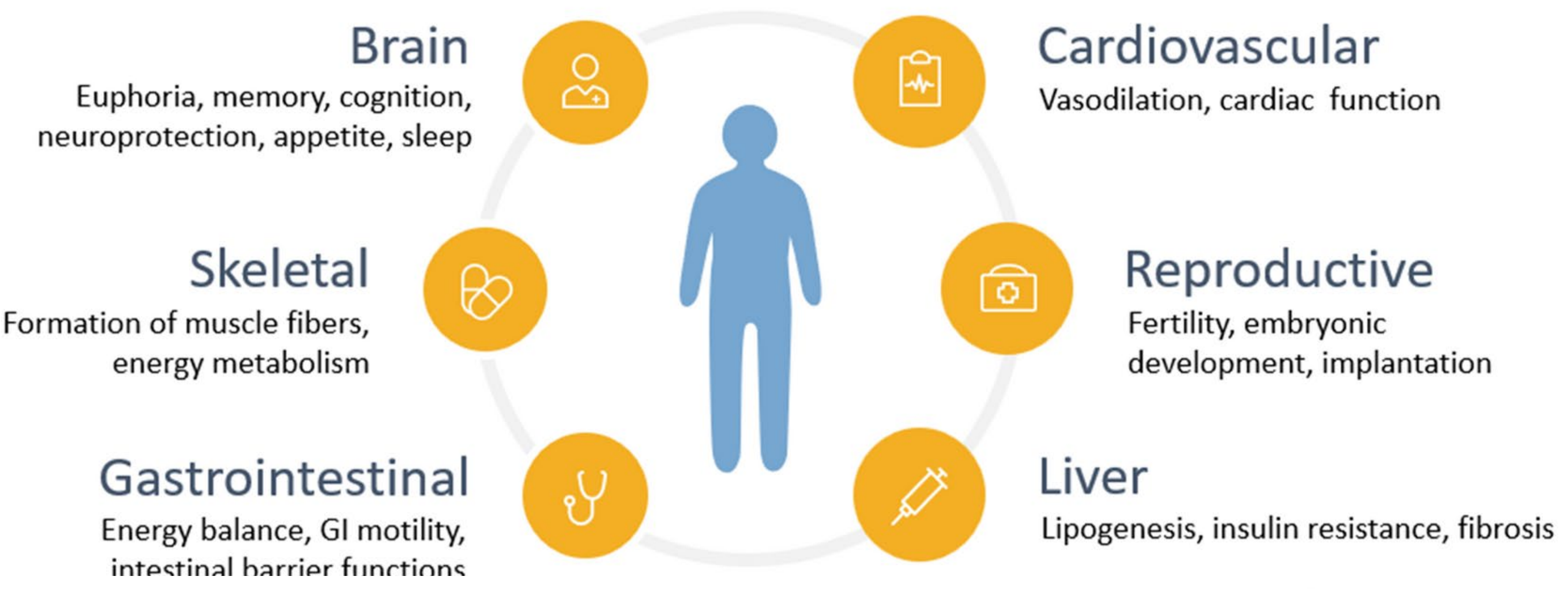
PHYTO  
cannabinoids



ENDO  
cannabinoids

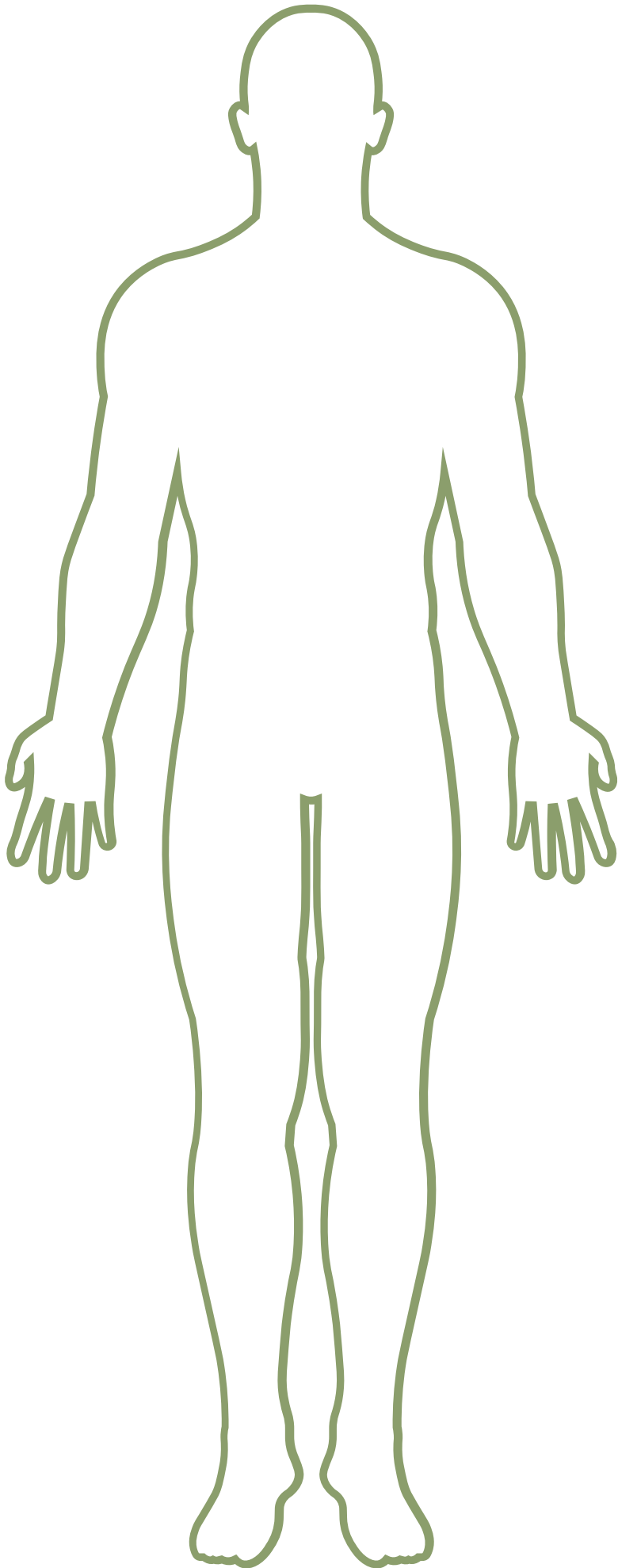


# CB1 Receptors



# CB2 Receptors





Attention, Confidence,  
Motivation

Norepinephrine,  
Testosterone, Dopamine

Hunger and Satiety

Ghrelin, Leptin, Glucagon,  
Insulin

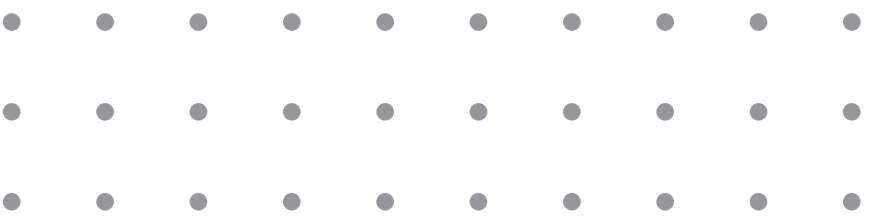
Happiness, Ease, Relaxation

Anandamide, GABA,  
Serotonin, Oxytocin

Fear and Stress

Epinephrine, Cortisol

**EXAMPLES OF  
ECS IMPACT**



"Man should study  
and use the drugs  
compounded in his  
own body."

**ANDREW TAYLOR STILL**

Founder of Osteopathy, 1897





# ENDOCANNABINOID DEFICIENCY

Endocannabinoid deficiency  
hinders neuroprotective abilities  
such as...

- Immune-modulating effects
- Pain relief
- Protection from oxidative stress

and may contribute to the biological  
pathologies of a chronic condition

**Clinical Endocannabinoid Deficiency  
Reconsidered: Current Research Supports the  
Theory in Migraine, Fibromyalgia, Irritable Bowel,  
and Other Treatment-Resistant Syndromes**

Ethan B. Russo 

Published Online: 28 Jul 2016 | <https://doi.org/10.1089/can.2016.0009>

**Care and Feeding of the Endocannabinoid System: A  
Systematic Review of Potential Clinical Interventions  
that Upregulate the Endocannabinoid System**

**John M. McPartland<sup>1,2\*</sup>, Geoffrey W. Guy<sup>1</sup>, Vincenzo Di Marzo<sup>3</sup>**

<sup>1</sup> GW Pharmaceuticals, Porton Down Science Park, Salisbury, Wiltshire, United Kingdom, <sup>2</sup> Department of Family Medicine, University of Vermont, Burlington, Vermont, United States of America, <sup>3</sup> Endocannabinoid Research Group, Istituto di Chimica Biomolecolare, CNR, Via Campi Flegrei, Pozzuoli, Napoli, Italy



# CLINICAL INDICATIONS





US006630507B1

(12) **United States Patent**  
Hampson et al.

(10) **Patent No.:** US 6,630,507 B1  
(45) **Date of Patent:** Oct. 7, 2003

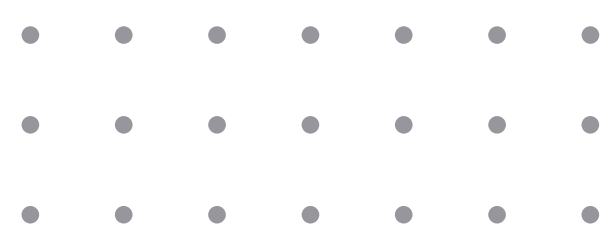
(54) **CANNABINOIDS AS ANTIOXIDANTS AND NEUROPROTECTANTS**

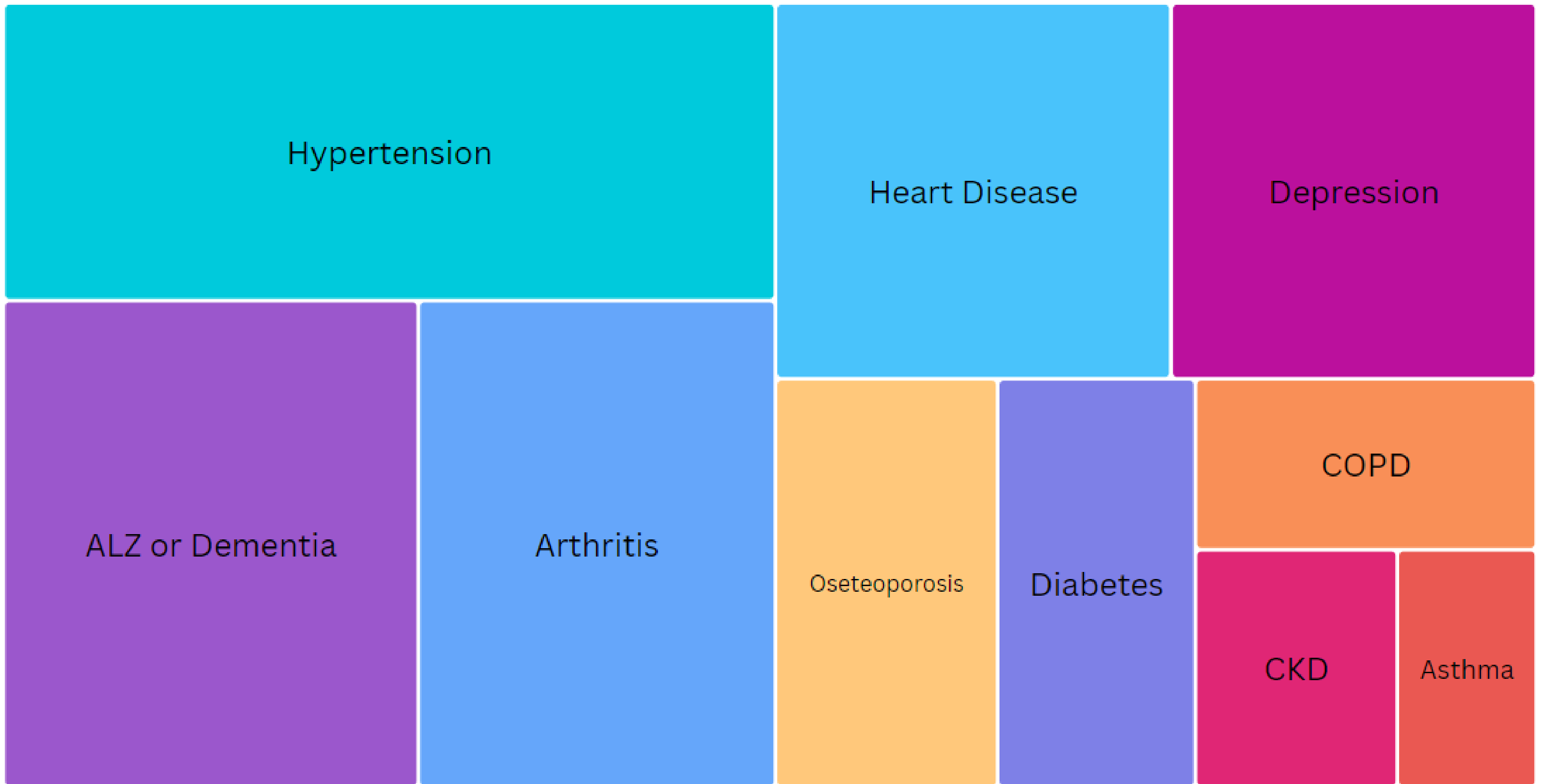
OTHER PUBLICATIONS

Windholz et al., The Merck Index, Tenth Edition (1983) p.

"Cannabinoids have been found to have antioxidant properties and are useful in the treatment and prophylaxis of **oxidation associated diseases**, such as *ischemic, age-related, inflammatory and autoimmune diseases.*"

"They are found to have particular application as neuroprotectants in limiting neurological damage following **stroke and trauma**, or in the **treatment of neurodegenerative diseases**, such as **Alzheimer's, Parkinson's, and HIV dementia.**"



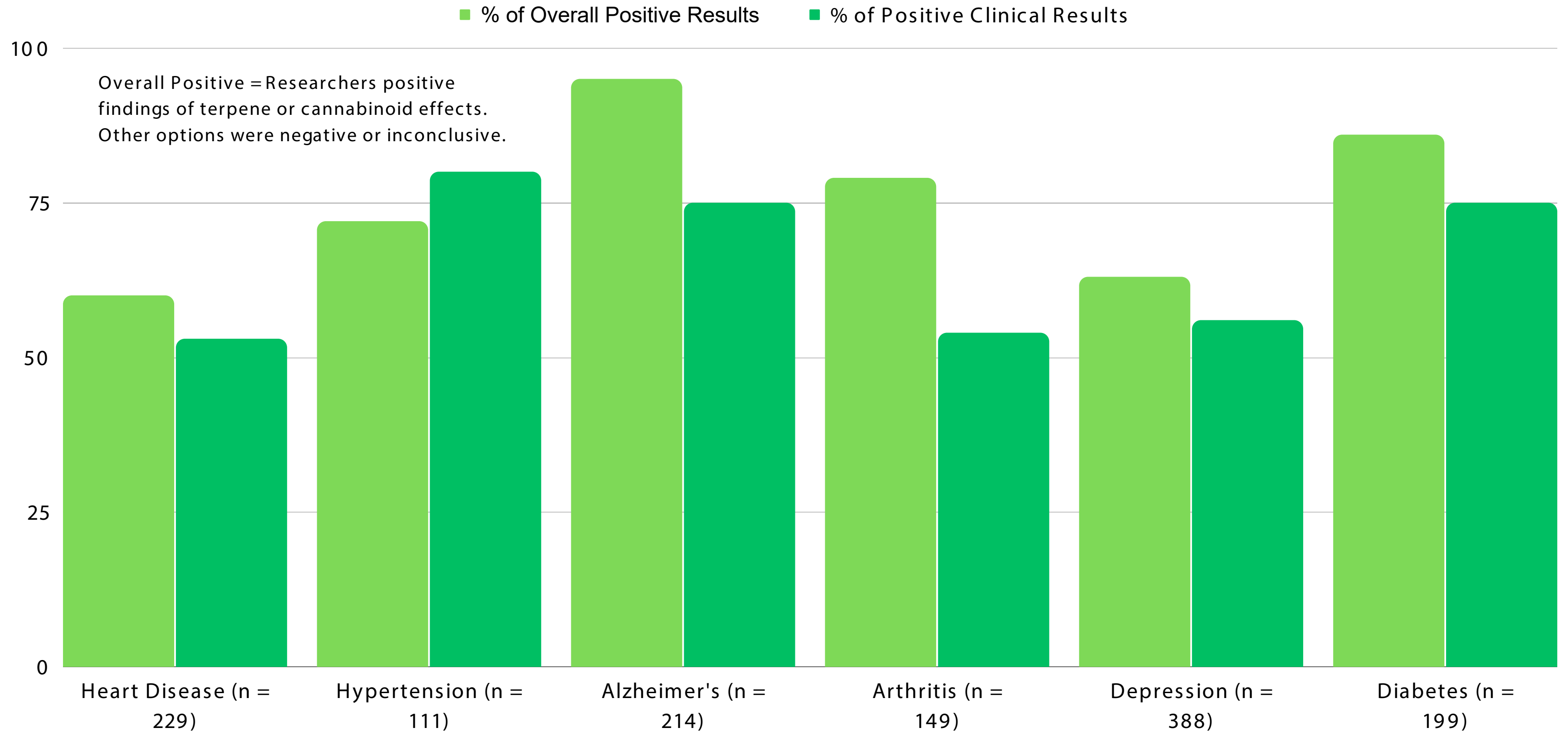


# PALTC User Demographic and Health-Related Characteristics, US 2020

National Center for Health Statistics



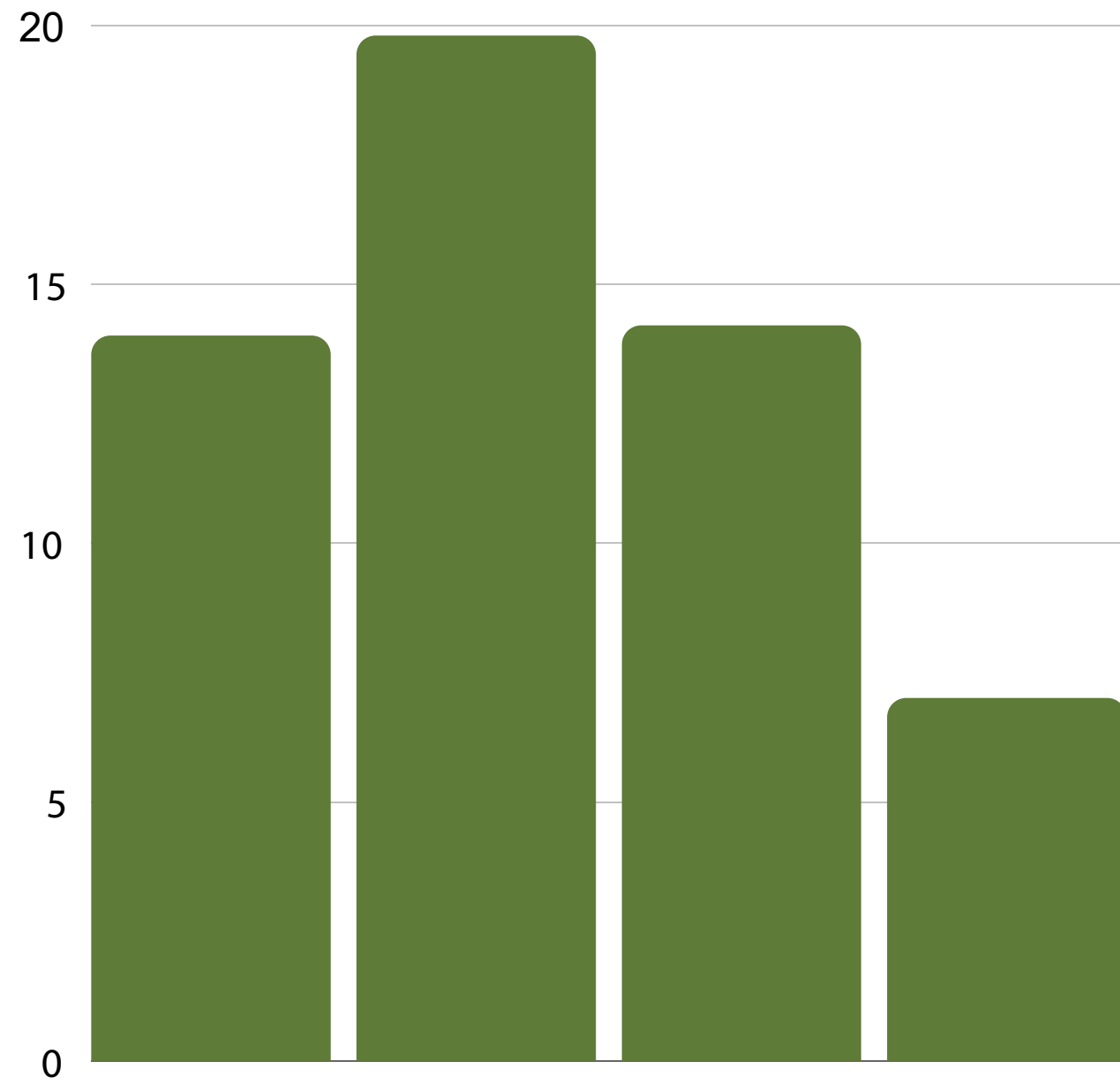
# State of the Science: The Effectiveness of Cannabis for the Top 6 Conditions Affecting Older Adults in Long Term Care



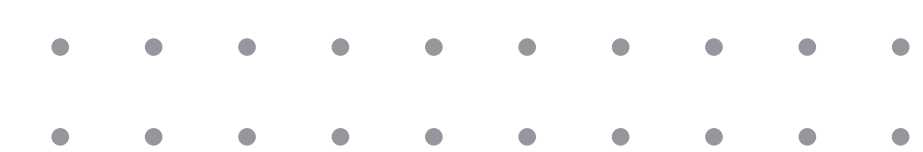
Source: CannaKeys Research Dashboard for each condition

# 01-06/2023 MDS Quality Measures

Virginia Comparison Group



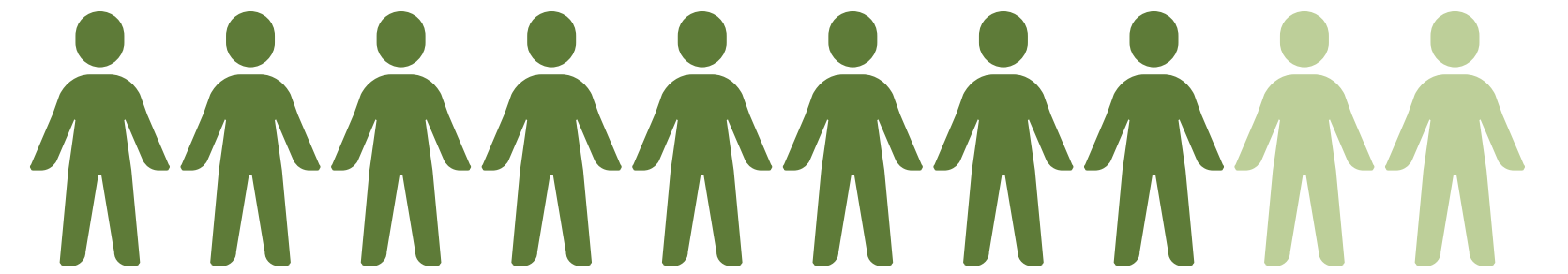
Antipsychotics  
Antianxiety and Hypnotic  
Behaviors Affecting Others  
Depressive Symptoms



U.S. Department of Health and Human Services  
**Office of Inspector General**  
Report in Brief  
November 2022, OEI-07-20-00500

## Psychotropic Prescriptions

2011-2019

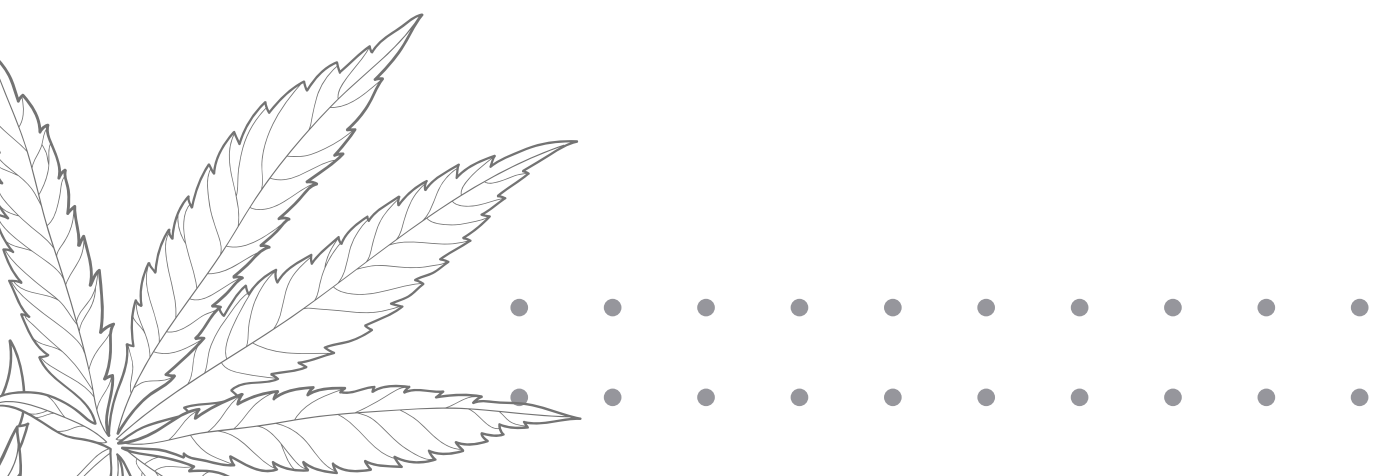
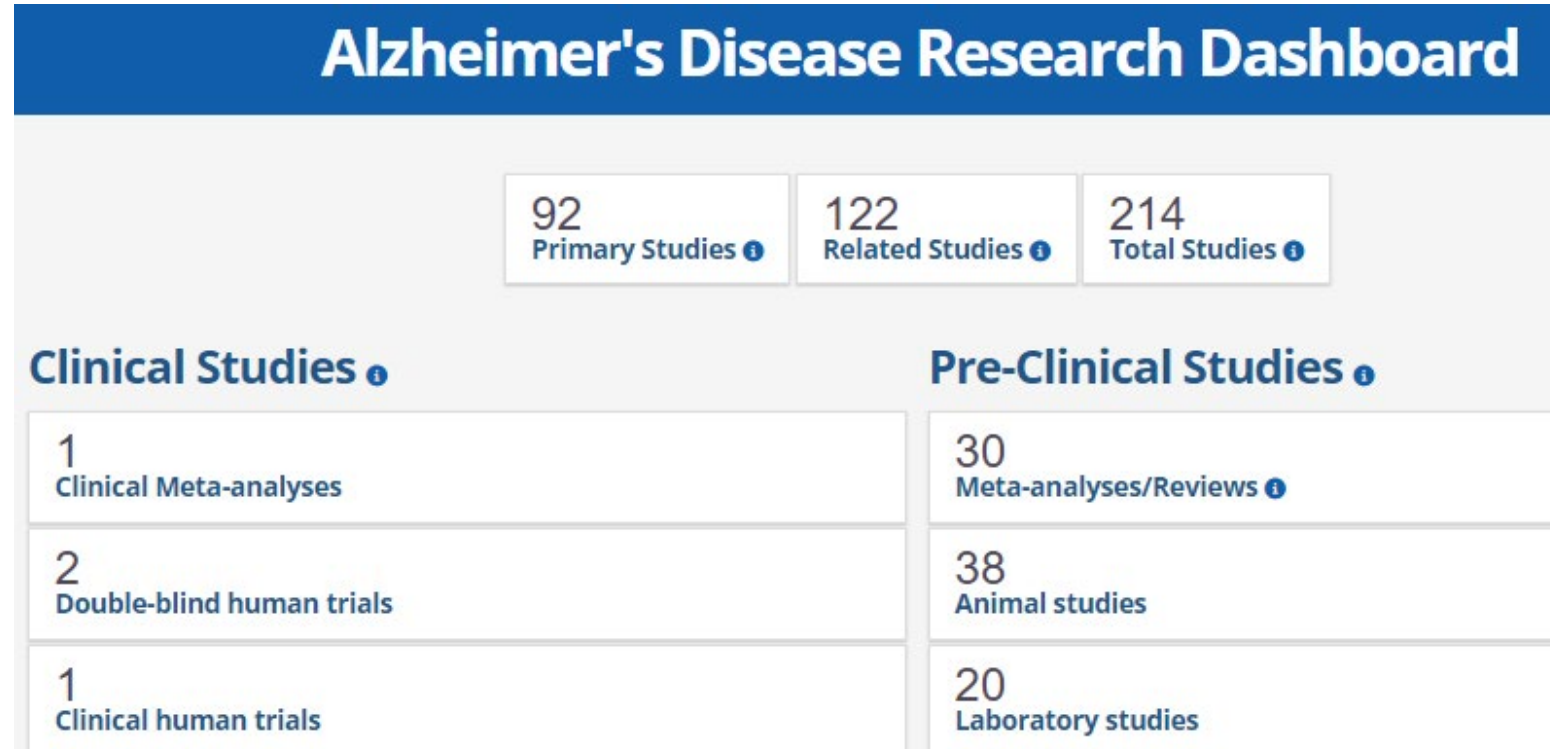
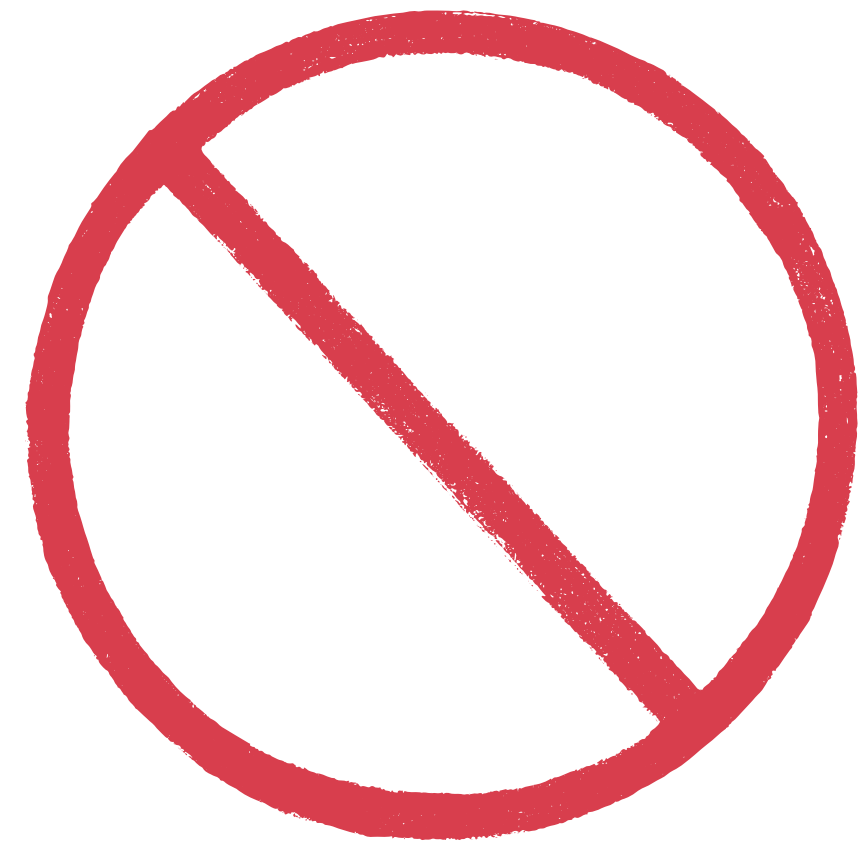


# LONG STAY RESIDENTS

## FDA Approved For Disease Management

- Rivastigmine
- Galantamine
- Donepezil
- Memantine
- Aducanumab
- Lecanemab

## FDA Approved For Symptom Management

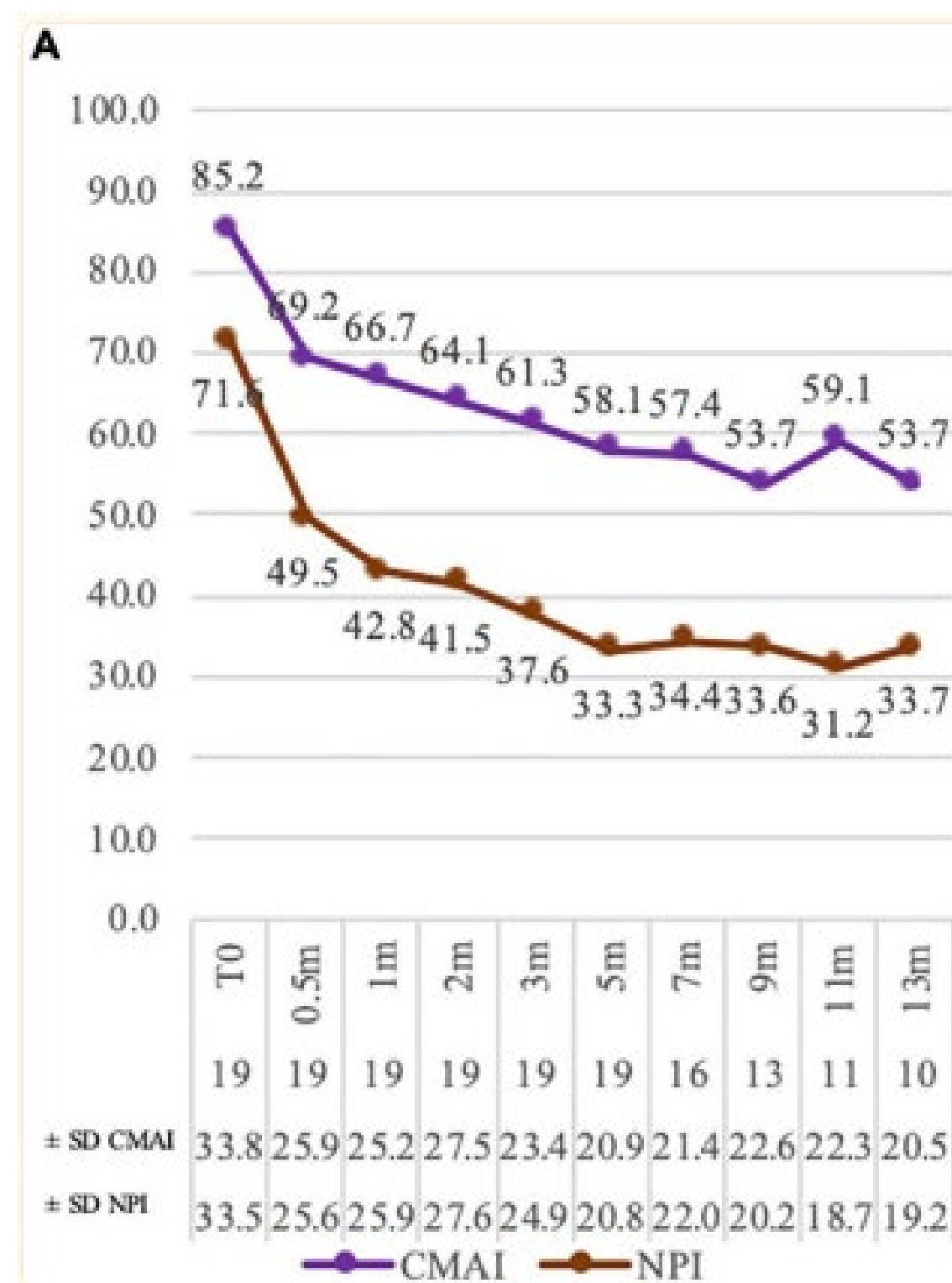
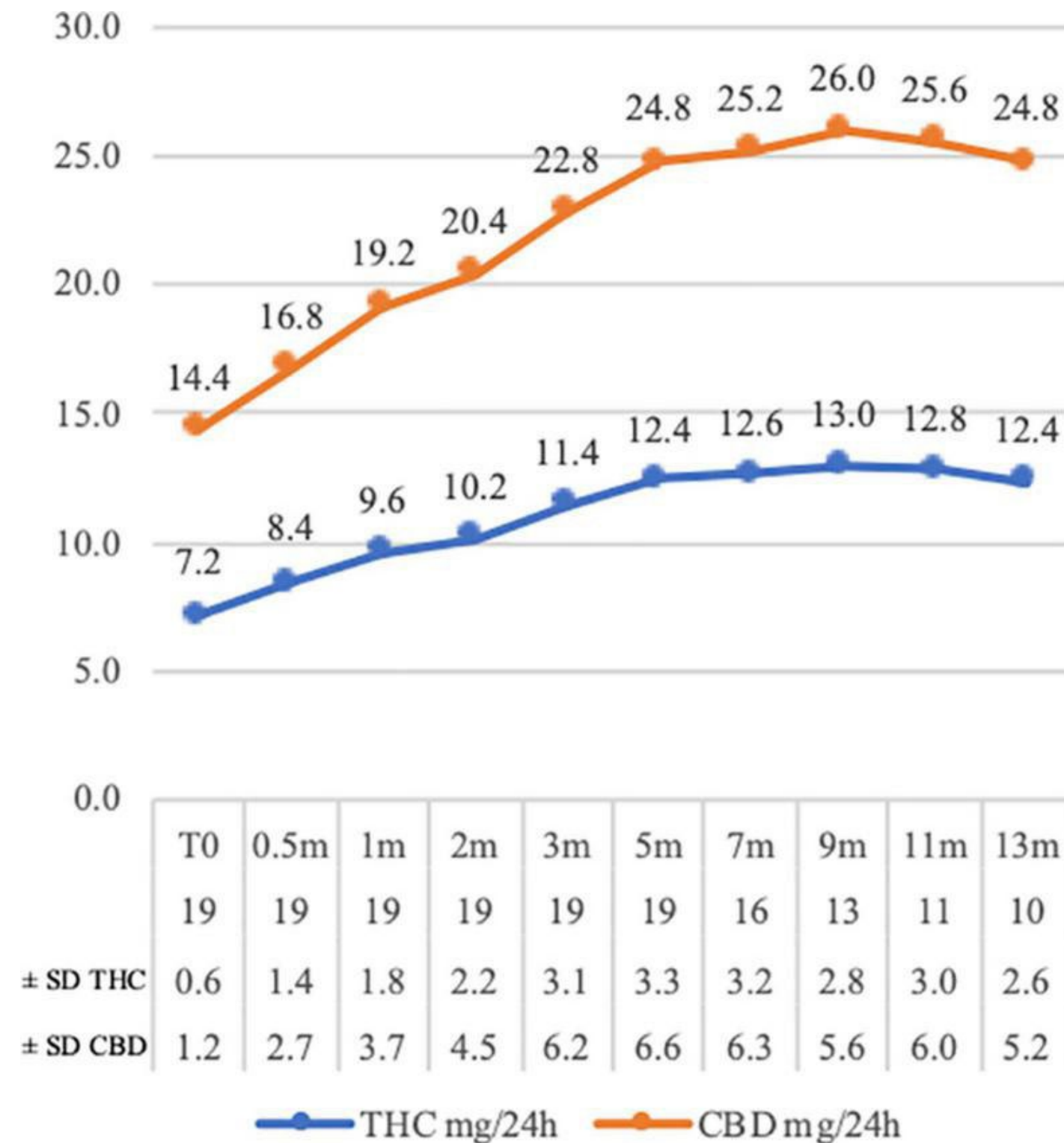


# ALZHEIMER'S AND DEMENTIA



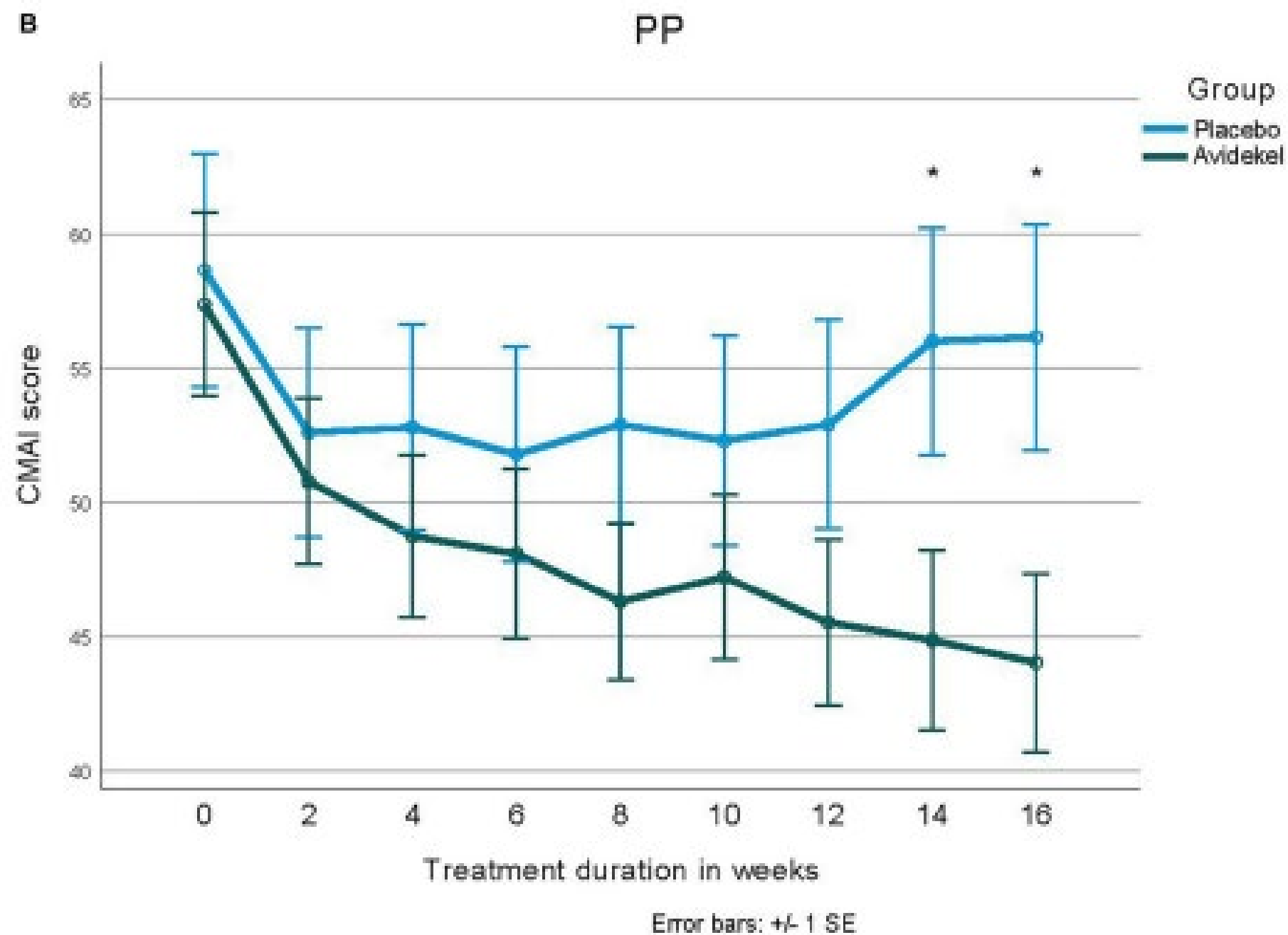
## Cannabinoids for behavioral symptoms in severe dementia: Safety and feasibility in a long-term pilot observational study in nineteen patients

Sophie Pautex,<sup>1,2,†</sup> Federica Bianchi,<sup>1,3,\*</sup> Youssef Daali,<sup>2,4,5</sup> Marc Augsburger,<sup>6,7</sup> Christian de Saussure,<sup>3</sup> James Wampfler,<sup>3</sup> François Curtin,<sup>2,4</sup> Jules Desmeules,<sup>2,4,5,†</sup> and Barbara Broers<sup>2,8,†</sup>



## Effects of rich cannabidiol oil on behavioral disturbances in patients with dementia: A placebo controlled randomized clinical trial

[Vered Hermush](#),<sup>1,2,\*</sup> [Liora Ore](#),<sup>3</sup> [Noa Stern](#),<sup>1,2</sup> [Nisim Mizrahi](#),<sup>1</sup> [Malki Fried](#),<sup>1</sup>  
[Marina Krivoshey](#),<sup>1</sup> [Ella Staghon](#),<sup>1</sup> [Violeta E. Lederman](#),<sup>4</sup> and [Lihi Bar-Lev Schleider](#)<sup>4,5</sup>



Studies have indicated that THC may have both pro- and antidepressant effects, but these effects are likely linked to the dosage amount. Generally, the higher the THC dosage, the greater the risk of experiencing negative effects. On the other hand, CBD has consistently shown to have positive effects in reducing symptoms of depression with a low risk of adverse effects.





# Epidemiological characteristics, safety and efficacy of medical cannabis in the elderly



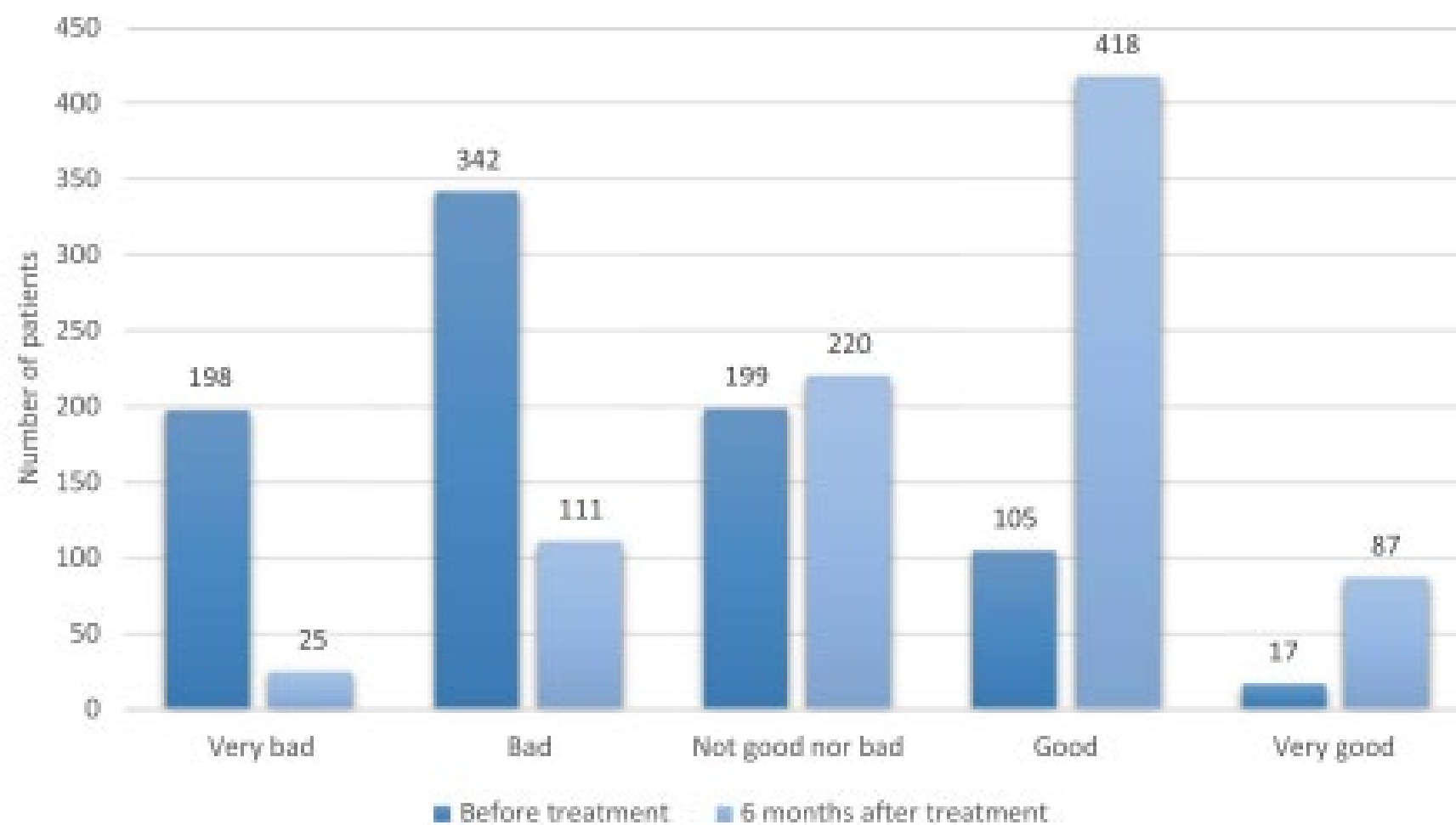
Ran Abuhasira<sup>a,1</sup>, Lihi Bar-Lev Schleider<sup>a,b,1</sup>, Raphael Mechoulam<sup>c</sup>, Victor Novack<sup>a,\*</sup>

<sup>a</sup> Cannabis Clinical Research Institute, Soroka University Medical Center, Faculty of Health Sciences, Ben-Gurion University of the Negev, Be'er-Sheva, Israel

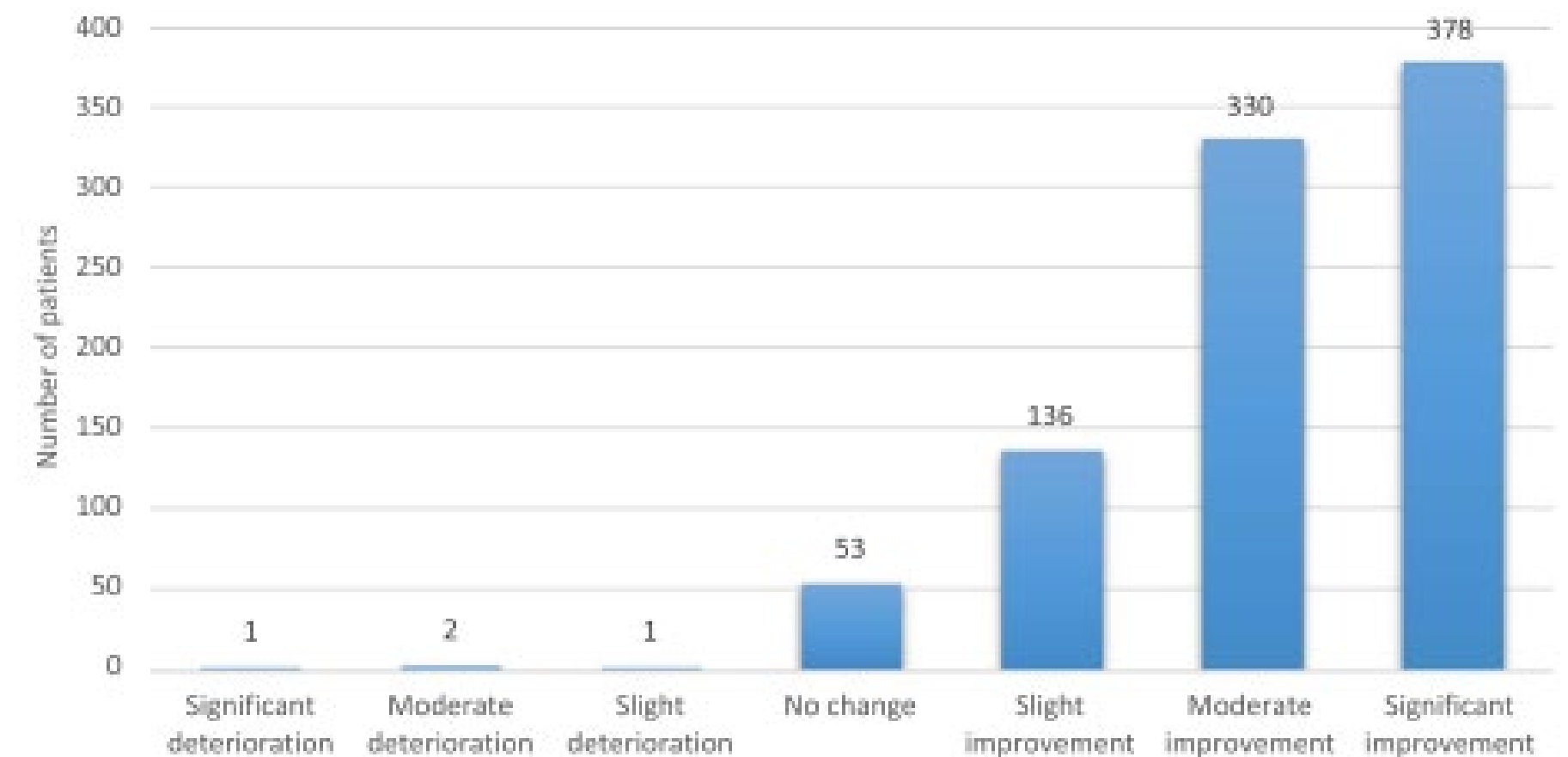
<sup>b</sup> Research Department, Tikun Olam LTD, Israel

<sup>c</sup> Institute for Drug Research, Medical Faculty, Hebrew University, Jerusalem, Israel

Quality of life,  $p < 0.001$  (n=861)



Perception of the general effect of cannabis on the patient's condition after 6 months (N=901)



CBD

- Reduces inflammation and oxidative stress with minimal changes in hemodynamics
- Cardio-protective effects via PPAR $\gamma$
- Anxiolytic via serotonin receptor modulation

AEA

- Suppress cardiac contractility
- Vasodilation
- Modulation of baroreceptor reflex to control SBP



## Heart Disease Research Dashboard

90 Primary Studies ⓘ    139 Related Studies ⓘ    229 Total Studies ⓘ

### Clinical Studies ⓘ

1 Clinical Meta-analyses
2 Double-blind human trials
12 Clinical human trials

### Pre-Clinical Studies ⓘ

43 Meta-analyses/Reviews ⓘ
25 Animal studies
7 Laboratory studies

# Hypertension (High Blood Pressure) Research Dashboard

43  
Primary Studies

68  
Related Studies

111  
Total Studies

## Clinical Studies

0  
Clinical Meta-analyses

3  
Double-blind human trials

7  
Clinical human trials

## Pre-Clinical Studies

10  
Meta-analyses/Reviews

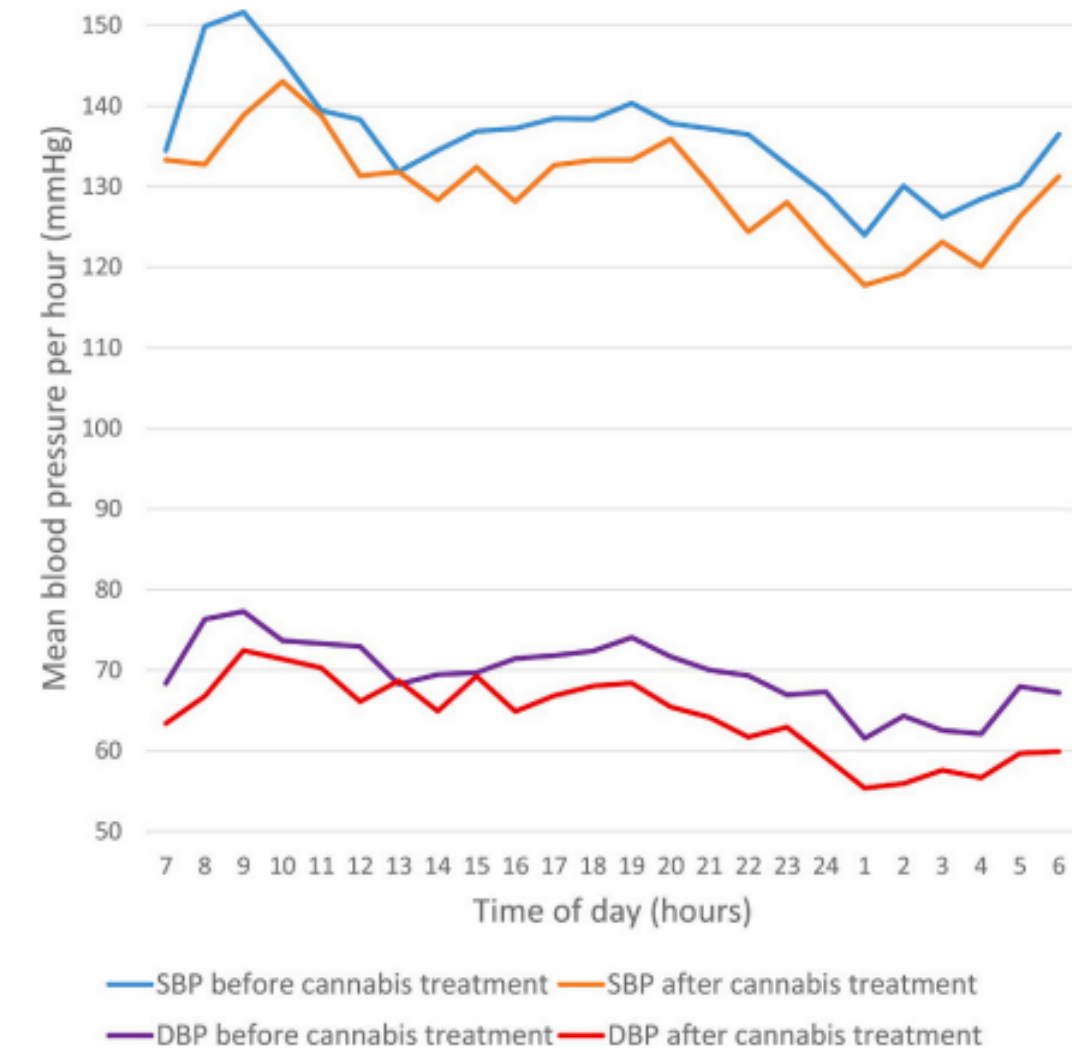
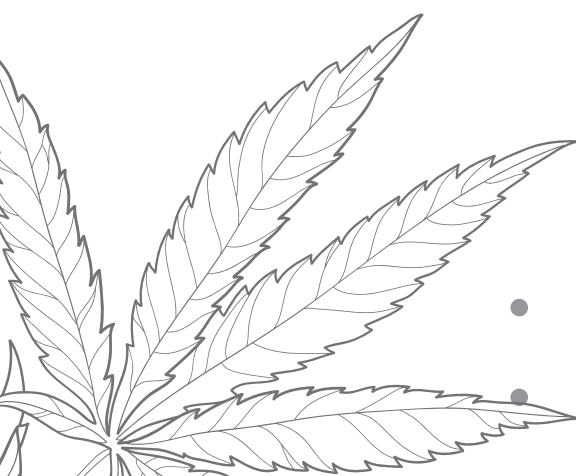
21  
Animal studies

2  
Laboratory studies

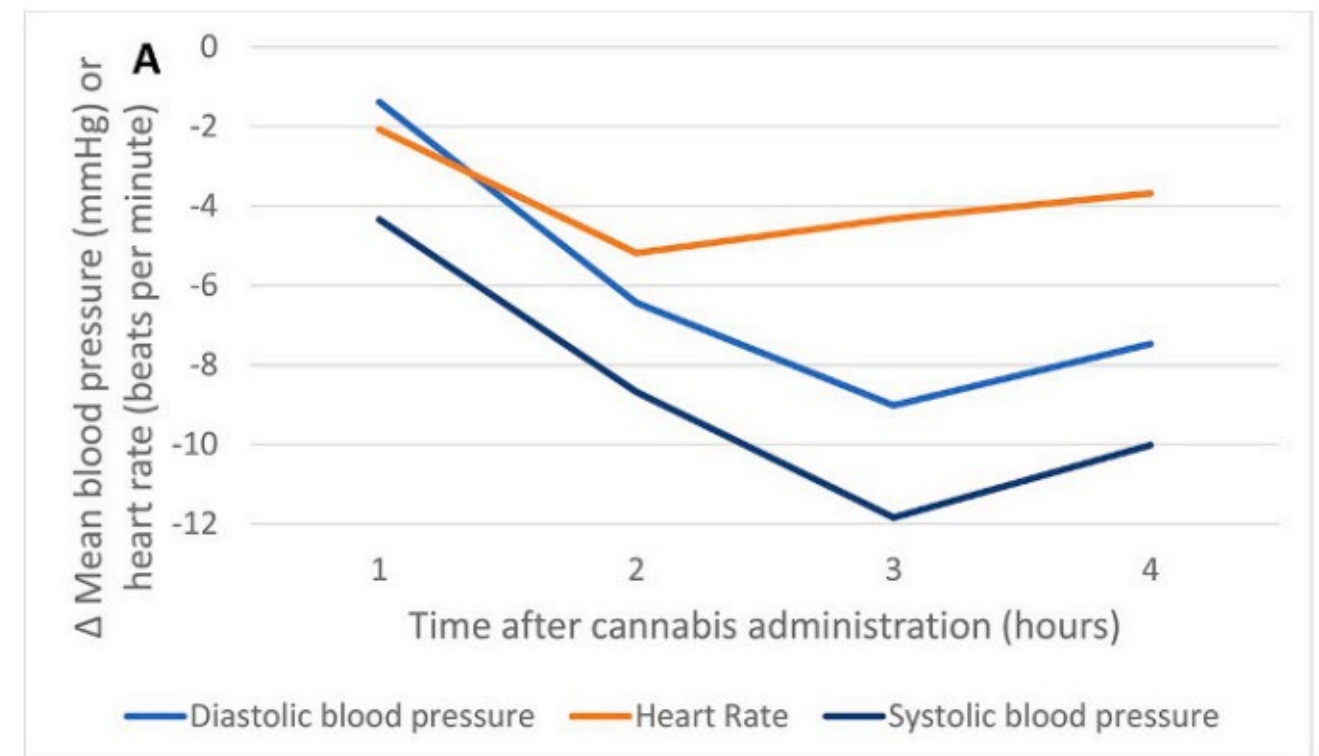
> [Eur J Intern Med. 2021 Apr;86:79-85. doi: 10.1016/j.ejim.2021.01.005. Epub 2021 Jan 20.](#)

## Cannabis is associated with blood pressure reduction in older adults - A 24-hours ambulatory blood pressure monitoring study

Ran Abuhasira<sup>1</sup>, Yosef S Haviv<sup>2</sup>, Merav Leiba<sup>3</sup>, Adi Leiba<sup>4</sup>, Larisa Ryvo<sup>5</sup>, Victor Novack<sup>6</sup>



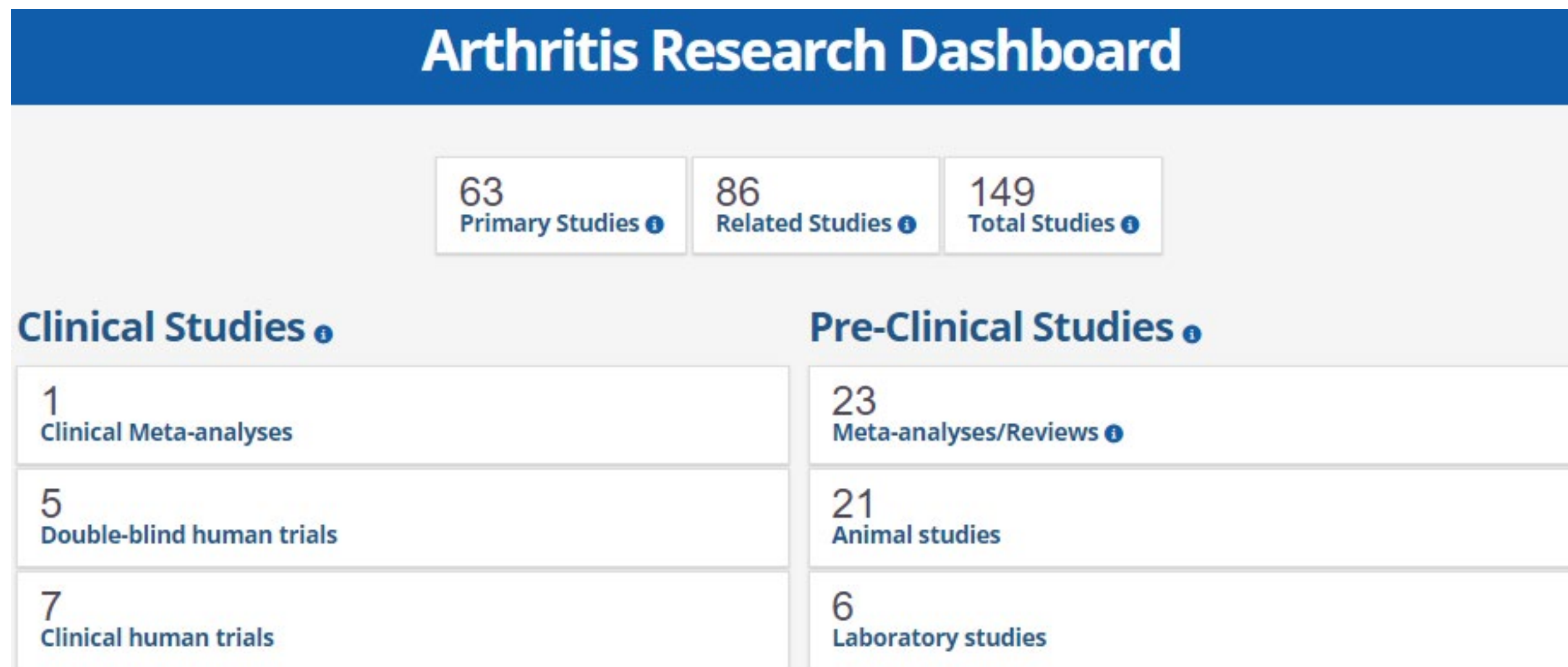
**Fig. 2.** Mean hourly systolic and diastolic blood pressure of all patients (N=26) as determined by 24-h ambulatory blood pressure monitor comparing values before and after 3 months of cannabis treatment. SBP – Systolic blood pressure; DBP – Diastolic blood pressure.





## Summary of cannabinoid mechanisms of action:

- Reduce pro-inflammatory agents
- Produce cytokine homeostasis
- Positive, supportive effects on chondrocytes and osteocytes



THC has twenty times the anti-inflammatory potency of aspirin and two times the anti-inflammatory potency of hydrocortisone, so it should not be left out or ignored if other phytocannabinoids such as CBD are not fully effective.





THCV

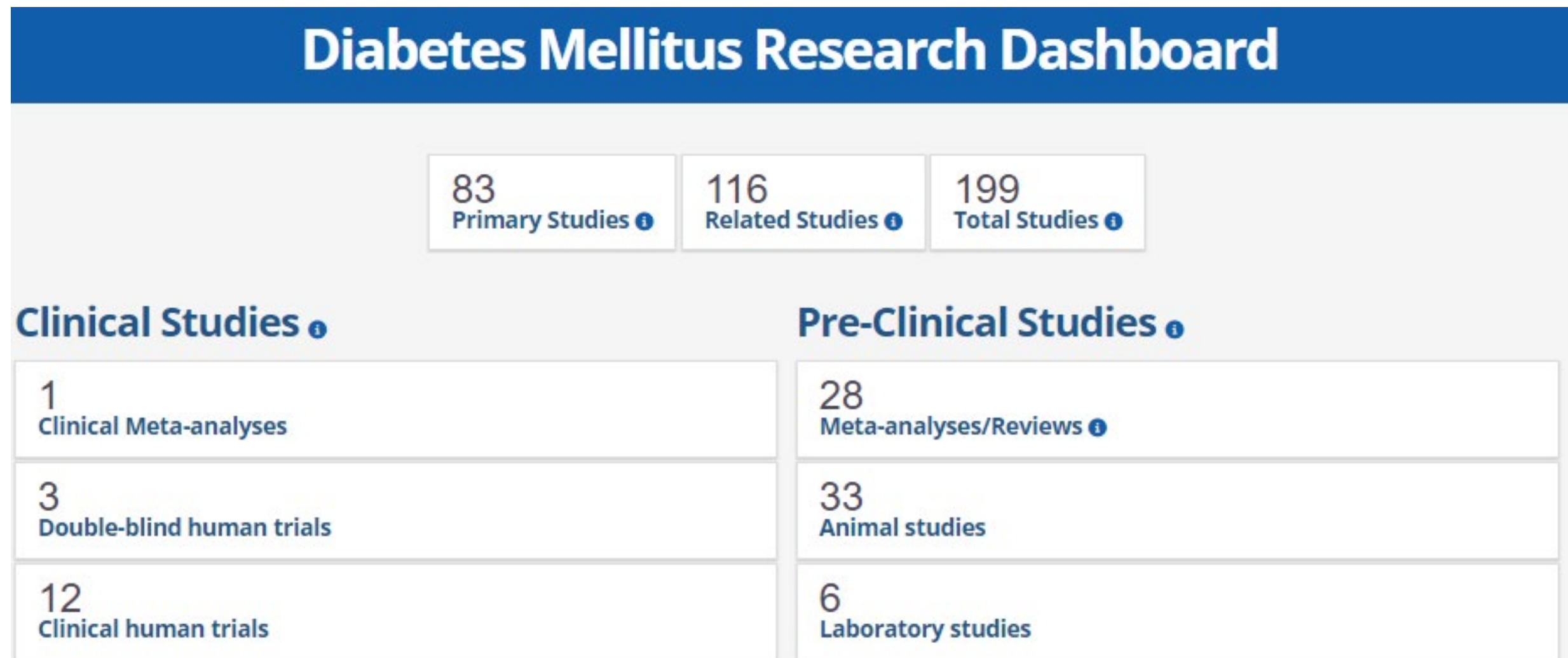
THC

CBD



### Summary of cannabinoid mechanisms of action:

- Enhance the way the body processes energy
- Decrease the body's resistance to insulin
- Lower the prevalence of obesity by improving the levels of fats and sugars in the blood
- Decrease inflammation in the pancreas
- Reduce dysfunction in the immune system
- Antioxidant properties
- Lower the likelihood of other conditions such as heart disease, obesity, and nerve damage



Epub 2016 Aug 29.

## **Efficacy and Safety of Cannabidiol and Tetrahydrocannabivarin on Glycemic and Lipid Parameters in Patients With Type 2 Diabetes: A Randomized, Double-Blind, Placebo-Controlled, Parallel Group Pilot Study**

Khalid A Jadoon<sup>1</sup>, Stuart H Ratcliffe<sup>2</sup>, David A Barrett<sup>3</sup>, E Louise Thomas<sup>4</sup>, Colin Stott<sup>5</sup>, Jimmy D Bell<sup>4</sup>, Saoirse E O'Sullivan<sup>6</sup>, Garry D Tan<sup>7</sup>

Five Randomized Arms: CBD (100 mg twice daily), THCv (5 mg twice daily), 1:1 ratio of CBD and THCv (5 mg/5 mg, twice daily), 20:1 ratio of CBD and THCv (100 mg/5 mg, twice daily), or matched placebo for 13 weeks. n = 62.

Findings: Compared with placebo, THCv significantly decreased fasting plasma glucose and improved pancreatic  $\beta$ -cell function, although plasma HDL was unaffected. Compared with baseline (but not placebo), CBD decreased resistin and increased glucose-dependent insulinotropic peptide.

“It was concluded that THCv and CBD alone and their combination products were well-tolerated in patient volunteers with type 2 diabetes. THCv significantly decreased the fasting plasma glucose, increased  $\beta$ -cell function, as well as adiponectin and Apo A concentrations in type 2 diabetic patients. It was evident that THCv may provide a template for the development of new therapeutic agents for glycemic control, especially for type 2 diabetics.”

[J Cannabis Res. 2020; 2: 6.](#)

Published online 2020 Jan 31. doi: [10.1186/s42238-020-0016-7](#)

PMCID: PMC7819335

PMID: [33526143](#)

**$\Delta$ 9-Tetrahydrocannabivarin (THCv): a commentary on potential therapeutic benefit for the management of obesity and diabetes**

[Amos Abioye](#),<sup>1</sup> [Oladapo Ayodele](#),<sup>2</sup> [Aleksandra Marinkovic](#),<sup>2</sup> [Risha Patidar](#),<sup>2</sup> [Adeola Akinwekomi](#),<sup>2</sup> and [Adekunle Sanyaolu](#)<sup>3</sup>



# PALTC APPLICATIONS



	Inhalation	Ingestion	Sublingual	Topical	Transdermal
Onset	1 - 15 Minutes	1 - 2 Hours	10 - 45 Minutes	Varies	15 Minutes - 1 Hour
Duration	2 - 6 Hours	6 - 12 Hours	2 - 8 Hours	Varies	4 - 8 Hours
Ease of Dosing	Simple	Challenging	Simple	Challenging	Moderate
First Pass	Bypasses	Yes	Bypasses	Bypasses	Bypasses
Pros	Helpful for abrupt onset conditions, vaporized flower	Long lasting, discreet	Rapid onset	Discreet, localized	Direct application, discreet
Cons	Short duration of action, cardio effects	Delayed onset, high variability, easy to overconsume	Variable effects	Can have extended activation time, short duration	Absorption is ingredient dependent

# ROUTES OF ADMINISTRATION



**MILD AND  
COMMON**

Dry mouth and eyes

Dizziness

Euphoria (may cause  
anxiety)

Coughing (with inhaled  
products)

**MODERATE  
AND COMMON**

Blurred vision

Headache

Euphoria (may cause  
anxiety)

**SEVERE AND  
LESS FREQUENT**

Increased heart rate

Orthostatic hypotension

Paranoia

Depression

**ADVERSE EFFECTS**

Use caution with opioids, benzodiazepines, and other CNS depressants

Carbamazepine

Phenobarbital

Phenytoin

Primidone

Rifampicin

St. John's Wort



-zole antifungals

Amiodarone

-mycins

Diltiazem

Verapamil

DRUG INTERACTIONS

# Drug Interactions - Enzymes

## CYP 3A4

- **Inducers:** may decrease THC and/or CBD concentration  
Drugs: Carbamazepine, phenobarbital, phenytoin, rifampin, St. John's wort
- **Inhibitors:** may increase THC and/or CBD concentration  
Drugs: Azole antifungals, clarithromycin, diltiazem, erythromycin, grapefruit, HIV protease inhibitors, macrolides, mifepristone, verapamil
- **Substrates:** CBD is a potential inhibitor of CYP 3A4, and can increase 3A4 substrates. Take Caution with medications with a smaller therapeutic index (e.g. tacrolimus).  
Drugs: Alprazolam, atorvastatin, carbamazepine, clobazam, cyclosporine, diltiazem, HIV protease inhibitors, buprenorphine, tacrolimus, cyclosporine, phenytoin, sildenafil, simvastatin, sirolimus, verapamil, zopiclone

## CYP 2C9

- **Inducers:** may decrease THC conc. (CBD effect unlikely)  
Drugs: Amiodarone, fluconazole, fluoxetine, metronidazole, valproic acid, sulfamethoxazole
- **Inhibitors:** may increase THC conc. (CBD effect unlikely)  
Drugs: Carbamazepine, rifampin
- **Substrates:** THC and/or CBD may increase drug levels, should monitor for toxicity  
Drugs: Warfarin, rosuvastatin, phenytoin

## CYP 2C19

- **Inducers:** may decrease THC and CBD concentration  
Drugs: Carbamazepine, rifampin, St. John's wort
- **Inhibitors:** may increase THC and CBD concentration  
Drugs: cimetidine, omeprazole, esomeprazole, ticlopidine, fluconazole, fluoxetine, isoniazid
- **Substrates:** CBD may increase the level of medications metabolized by 2C19. (THC effect unlikely)  
Drugs: aripiprazole, citalopram, clopidogrel, diazepam, escitalopram, moclobemide, norclobazam, omeprazole, pantoprazole, sertraline

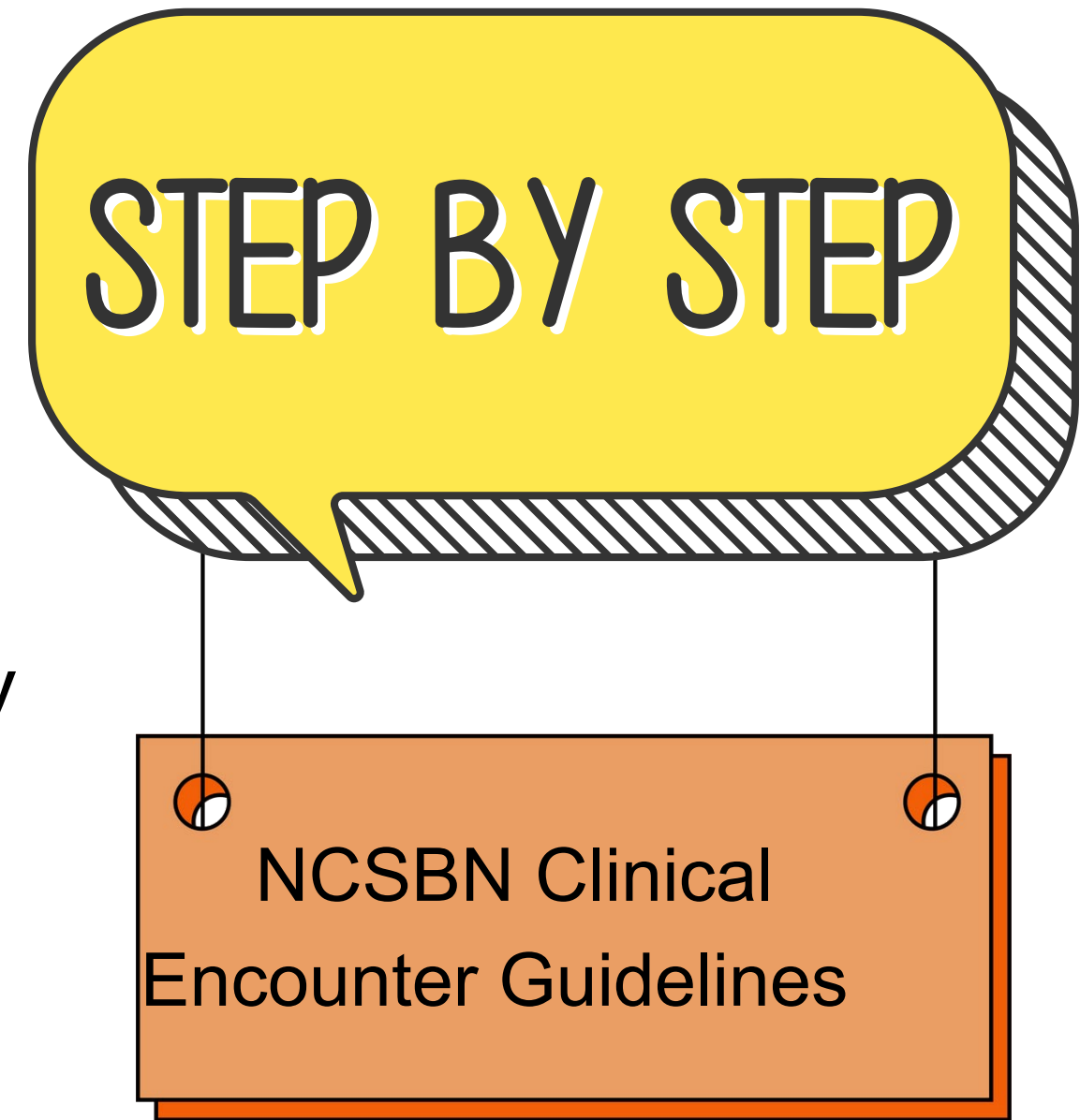
## CYP 1A1 / 1A2

- **Substrates:** Smoking cannabis can stimulate isoenzymes and increase the metabolism of these medications.  
Drugs: Amitriptyline, caffeine, clozapine, duloxetine, estrogens, fluvoxamine, imipramine, melatonin, mirtazapine, olanzapine, theophylline

## p-glycoprotein

- **Substrates:** CBD may inhibit p-glycoprotein drug transport. Monitor for toxicity. (THC effect unlikely)  
Drugs: Dabigatran, digoxin, loperamide

- 1 Clinical assessment and diagnostic review
- 2 Review of current treatment and response
- 3 Medication reconciliation and PMP review
- 4 Review mental health and substance abuse history
- 5 Review of current scientific evidence
- 6 Cannabis history, values, preferences, needs, and knowledge
- 7 Develop monitoring and evaluation plan







USE REQUESTS





# Framework for Evaluating Cannabis Product Quality & Safety (CQS)

MacCallum CA, Lo LA, Pistawka CA, Boivin B

## Q1. What type of product is it?

- a. Are there any concerns with the specific product type?

## Q2. Does the product have appropriate labelling?

- b. Does it show the name of the product?
- c. Does it show the name of the grower/producer?
- d. Is the company's contact information listed?
- e. Does the product have health warnings (eg. THC logo)?
- f. Are there any additional warnings listed?
- g. Are optimal storage details indicated?

## Q3. What is the listed cannabinoid content?

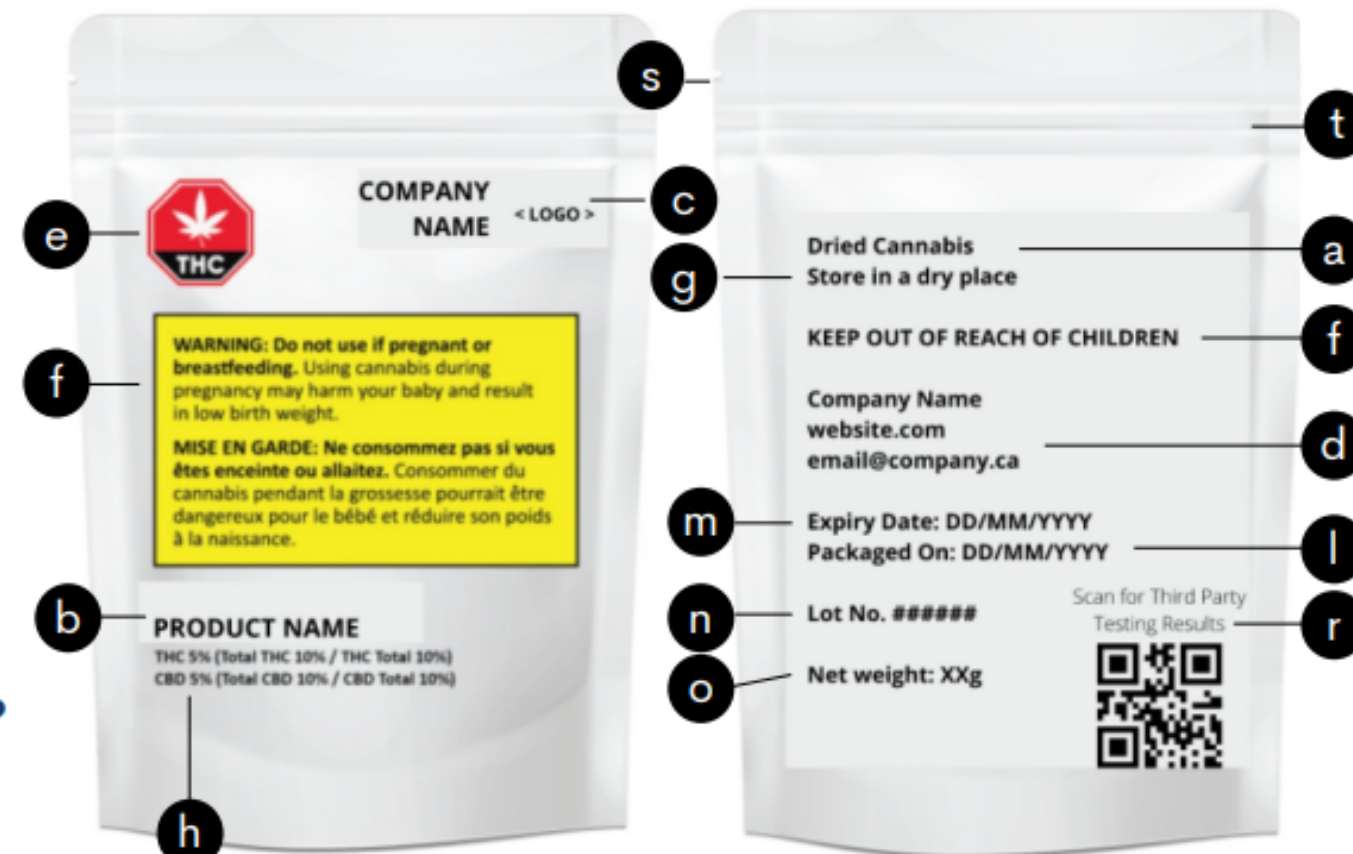
- h. If dried flower or inhaled concentrates:  
Is THC and/or CBD listed (% or mg/g)?
- i. If ingestible oil: Is THC and/or CBD listed (mg/mL)?
- j. If edibles: Is there a 'serving size' or 'dose' listed?
- k. If topicals/creams: Is THC and/or CBD listed (mg, mg/mL)?

## Q4. What are the listed product/manufacturing details?

- l. Is there a packaging date listed?
- m. Is there an expiry date? (including 'no expiry')
- n. Is there a lot/batch number?
- o. Is the net weight/volume listed?
- p. If oil, edible, vape: Are the non-cannabis ingredients listed?
- q. Is the decontamination method specified (label or website)
- r. Is there evidence of third party testing (on label or website)?

## Q5. Is the packaging in line with regional requirements?

- s. Does the package have a security feature (seal)?
- t. Does the product have child-resistant packaging?
- u. Does the packaging/labelling appeal to children/adolescents?  
(cartoon images, vibrant colours, looks like candy, etc)
- v. Is the product labelled within regionally allowable THC limits?



[www.safe-cannabis.com](http://www.safe-cannabis.com)



[info@drcarolinemaccallum.com](mailto:info@drcarolinemaccallum.com)



[@camaccallum](https://twitter.com/camaccallum)



[@dr.carolinemaccallum](https://www.instagram.com/dr.carolinemaccallum)



**GROWN IN OREGON** LAZARUS NATURALS  
 1.888.966.6210  
 lazarusnaturals.com  
 16427 NE Airport Way Portland, OR 97230  
 support@lazarusnaturals.com

**INGREDIENTS:** Organic Flaxseed Oil, Organic Coconut MCT Oil, Full Spectrum Hemp Extract, d-Limonene, Myrcene, Caryophyllene Beta Natural, Vegetable Softgel (Starch, Carrageenan, Purified Water, Glycerin), Tocobiol SF.  
**CONTAINS:** Tree Nuts (Coconut)

**SUGGESTED USE:** CBD's effects are highly individual. Serving sizes can range from 25-200 mg. To find the amount of CBD that's right for you, start with two softgels (50 mg), wait two hours, and increase as needed. **STORE IN A COOL, DARK PLACE.**

**WARNING:** Consult your doctor before use if you have been advised against eating grapefruit. Discontinue use if any adverse reactions occur. Do not use if tamper seal is broken.

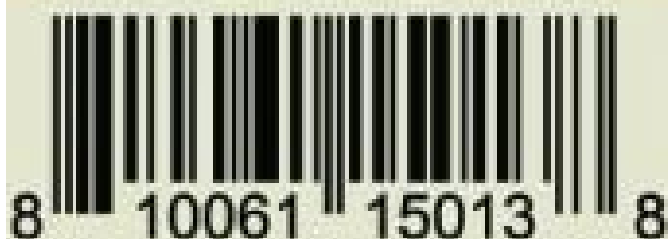
### Supplement Facts

Serving Size 2 Softgels (0.9g)  
 Servings Per Container 100

	Amount per serving	% Daily Value
Calories	5	
Total Fat	1 g	1%*
CBD	50 mg	**

\*Percent Daily Values are based on a 2,000 calorie diet.  
 \*\*Daily Value not established.

GLUTEN FREE

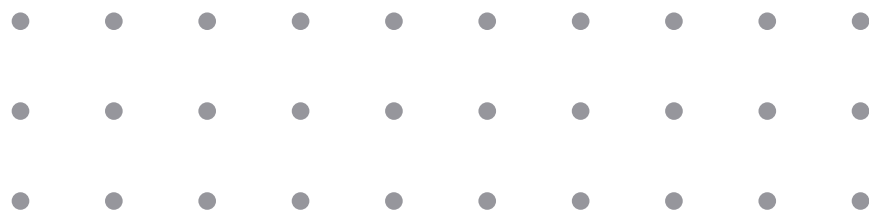


SCAN FOR TEST RESULTS  
 SG25.200L-BA



PLEASE RECYCLE

# LABELING



3.2-5145.4:1 59.1-200 (A)(70) 59.1-200 (A)(71)

An edible hemp product offered for sale must be equipped with a label that has the following information:

All *ingredients* contained in the substance.

The *amount* of such substance that constitutes a single serving.

The *total percentage and milligrams of all tetrahydrocannabinols* included in the substance.

The total *number of milligrams of all tetrahydrocannabinols* that are contained in each serving.

3.2-5145.4:1

A manufacturer shall identify each batch of an industrial hemp extract or a food containing an industrial hemp extract with a unique code for traceability.



Lazarus Naturals SKU and Product name.

Third party testing lab that completed the tests.

Lazarus Naturals products are formulated with a target CBD potency.

Other cannabinoids may be present in our full spectrum products.


Lazarus Naturals tests for heavy metal content in all products.

For products that contain terpenes, the amount of each detected terpene is listed.

Formulation batch number, printed on label or sticker on package.

Suggested serving size, test results are reported based on this.

Test results reported per gram, for liquid products this is based on the products density.



**CONSOLIDATED TEST RESULTS SUMMARY**  
Please see the following pages for full test results.

BULK SKU: TN0550 BATCH #: DF38  
PRODUCT NAME: Org Tincture FS 50mg SERVING SIZE: 1 ml  
LABORATORY: Columbia Laboratory OREGON ACCREDITATION: OR100028  
LOQ: Limit Of Quantitation  
LOD: Limit Of Detection  
1 g = 10<sup>3</sup> mg = 10<sup>6</sup> µg  
1 mg/kg = 1 µg/g = 1000 ppb

POTENCY	PER SERVING	PER GRAM	Percent
Cannabidiol (CBD)	60.3 mg/serving	64.8 mg/g	8.48 %
Total THC (δ9-THC, THCA)	2.08 mg/serving	2.24 mg/g	0.224 %
Cannabigerol (CBG)	1.18 mg/serving	1.24 mg/g	0.124 %
Cannabinol (CBN)	<LOQ mg/serving	<LOQ mg/g	<LOQ %
Cannabichromene (CBC)	2.25 mg/serving	2.42 mg/g	0.242 %
Tetrahydrocannabinolic Acid (THCA)	<LOQ mg/serving	<LOQ mg/g	<LOQ %
Delta 9-THC (δ9-THC)	2.08 mg/serving	2.24 mg/g	0.224 %
Delta 8-THC (δ8-THC)	<LOQ mg/serving	<LOQ mg/g	<LOQ %


HEAVY METALS	PER SERVING	PER GRAM	REGULATORY ACTION LEVEL
Arsenic	<LOQ µg/serving	<LOQ µg/g	10 µg/day <sup>(1)</sup>
Cadmium	<LOQ µg/serving	<LOQ µg/g	4.1 µg/day <sup>(1)</sup>
Lead	<LOQ µg/serving	<LOQ µg/g	3.5 µg/day <sup>(2)</sup>
Mercury	<LOQ µg/serving	<LOQ µg/g	2 µg/day <sup>(1)</sup>

PESTICIDES	REGULATORY ACTION LEVEL
Name of the other 59 pesticides tested found above limit of detection in the sample.	10 ppb <sup>(1)</sup>

RESIDUAL SOLVENTS	Results
Ethanol	<LOQ
Heptane	<LOQ
Name of the 34 residual solvents tested found above limit of quantitation in the sample.	

MICROBIAL	PASS/FAIL
Yeast & Mold	Pass
Coliform	Pass

TERPENES	% OF SAMPLE
Farnesene	32.9 %
β-Caryophyllene	23.3 %
α-Pinene	15.9 %
Geraniol	4.56 %
Limonene	9.55 %
Caryophyllene Oxide	7.98 %



1. American Herbal Pharmacopoeia. (2014). Cannabis Inflammases: Standards of Identity, Analysis, and Quality Control. Washington DC: AHP.  
2. US Food and Drug Administration. (2015). Lead in Food, Feedstuffs, and Dietary Supplements. Washington DC: FDA.  
3. US Food and Drug Administration. (2015). Cadmium in Food, Feedstuffs, and Dietary Supplements. Washington DC: FDA.  
4. US Food and Drug Administration. (2015). Mercury in Food, Feedstuffs, and Dietary Supplements. Washington DC: FDA.

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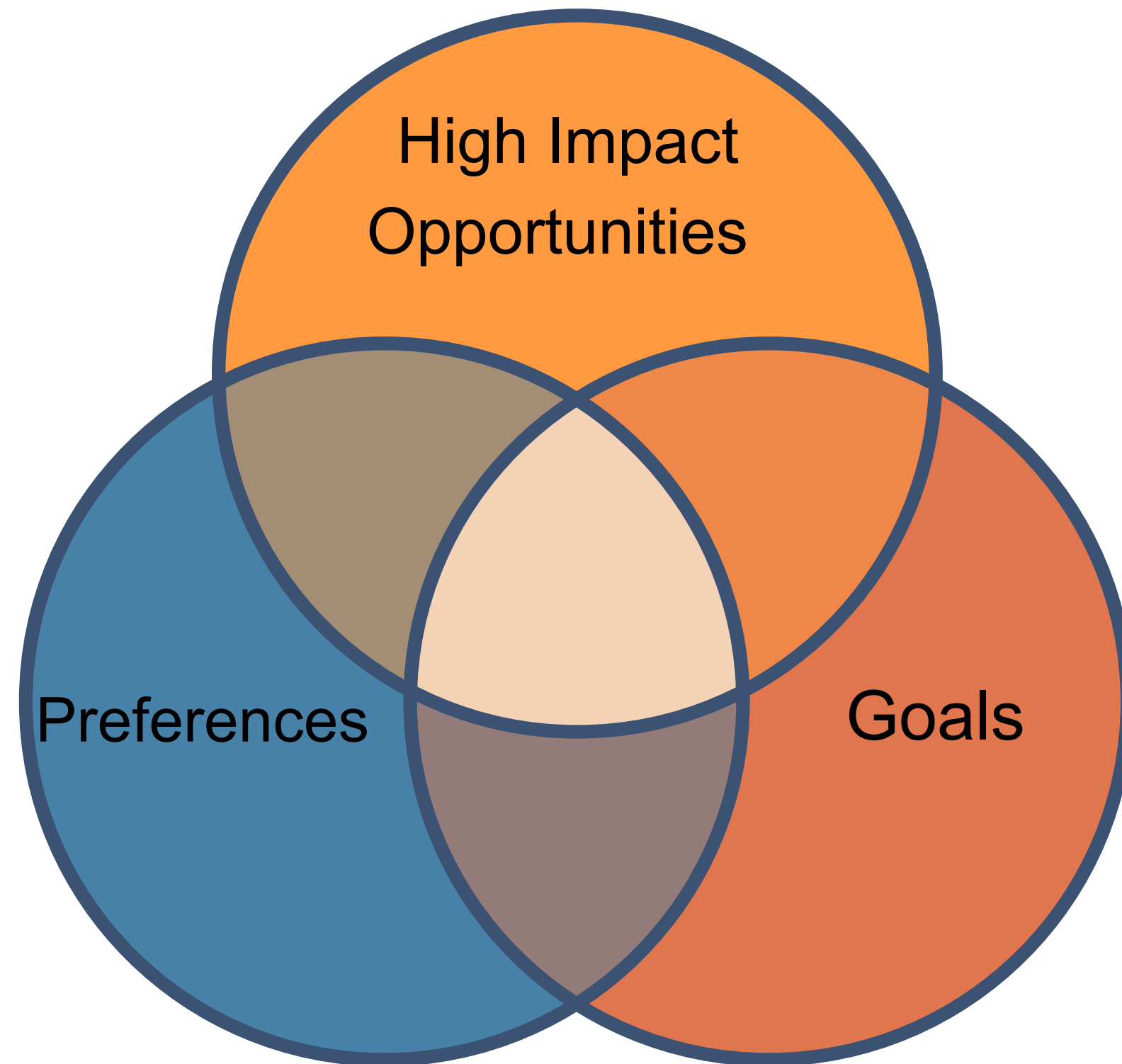
3.2-5145.4:1 59.1-200 (A)(71)  
A regulated hemp product offered for sale must be accompanied by a certificate of analysis, produced by an independent laboratory that is ISO/IEC 17025 accredited, that states the total tetrahydrocannabinol concentration of the substance.

# THIRD-PARTY TESTING





# Treat the patient, not the diagnosis



# Practical considerations in medical cannabis administration and dosing

Caroline A. MacCallum<sup>a,\*</sup>, Ethan B. Russo<sup>b</sup>










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Open Access

Article

## Medical Cannabis for Older Patients—Treatment Protocol and Initial Results

by  Ran Abuhasira<sup>1</sup>  ,  Addie Ron<sup>2</sup> ,  Inbal Sikorin<sup>2</sup>  and  Victor Novack<sup>1,\*</sup> 

<sup>1</sup> Cannabis Clinical Research Institute, Soroka University Medical Center and Faculty of Health Sciences, Ben-Gurion University of the Negev, Be'er-Sheva 8457108, Israel

<sup>2</sup> NiaMedic Healthcare and Research Services, Bnei-Brak 5126107, Israel

- Don't be afraid of THC, especially when used with CBD
  - THC is best started at HS, CBD in AM
- Start low, go slow, and stay low but don't be afraid to titrate upward
- Biphasic and bidirectional dose responses are common
- Dose layering and multimodal approaches address baseline ECS function and episodic issues



# DOSING



Align storage, administration,  
and documentation with  
medication management  
policies

Order with product  
composition as written on  
the label, dose, route,  
frequency, and indication for  
use and/or target symptom

Only accept products in  
sealed, original containers  
and review alignment with  
written order



**LOGISTICS**



See slides for additional references.

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Clark, C. (20 21). Cannabis: A Handbook for nurses. Wolters Kluwer.

Malka, D. (20 22). Medical cannabis: Pearls for clinical practice. CRC Press.

Sulak, D. (20 21). Handbook of Cannabis for Clinicians. Norton.



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