

# How Hemp Helps Heal the Endocannabinoid System & the Benefits for CRPS/RSD



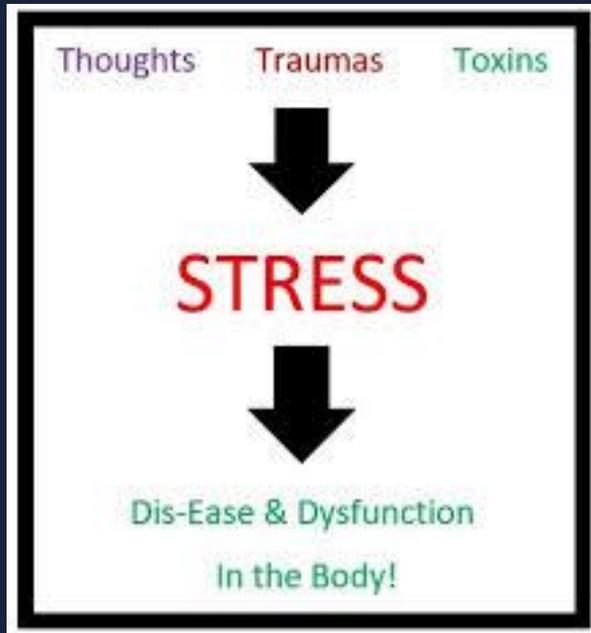
# Objectives:

- 1. Introduction to Heather Caudle**
- 2. Intro to Christy Thiel and 101 on Stress, trauma and pain**
- 3. What is the Endocannabinoid System**
- 4. How Hemp Helps with:**
  - pain**
  - sleep**
- 5. How to supplement with hemp and find a good product**



- ✓ CRPS Warrior
- ✓ Personal story with pain, healing and hemp
- ✓ S2S's National Sales Director

Christy Thiel Master Nutrition Therapist  
Stress can be defined as: thoughts traumas and toxins  
Stress is inflammatory



**Thoughts:** become things, growth or decline

**Traumas:** unresolved leads to suppressed stress, dysfunction of the physiology and PTSD

**Toxins:** your body's immune and nervous system is taxed; repair, growth, protection and cellular regeneration is compromised

The body can not absorb nutrients, repair or regenerate/sleep

“The majority of experts agree that many IF NOT ALL chronic medical conditions carry an element of stress in their development, and stress is actually considered to be at the epidemic of the 21<sup>st</sup> century.” Tanja Bagar PhD in Biomedicine

DID YOU KNOW...  
**95%**  
OF DISEASE MAY BE  
**STRESS-RELATED?**

## CRPS/RSD

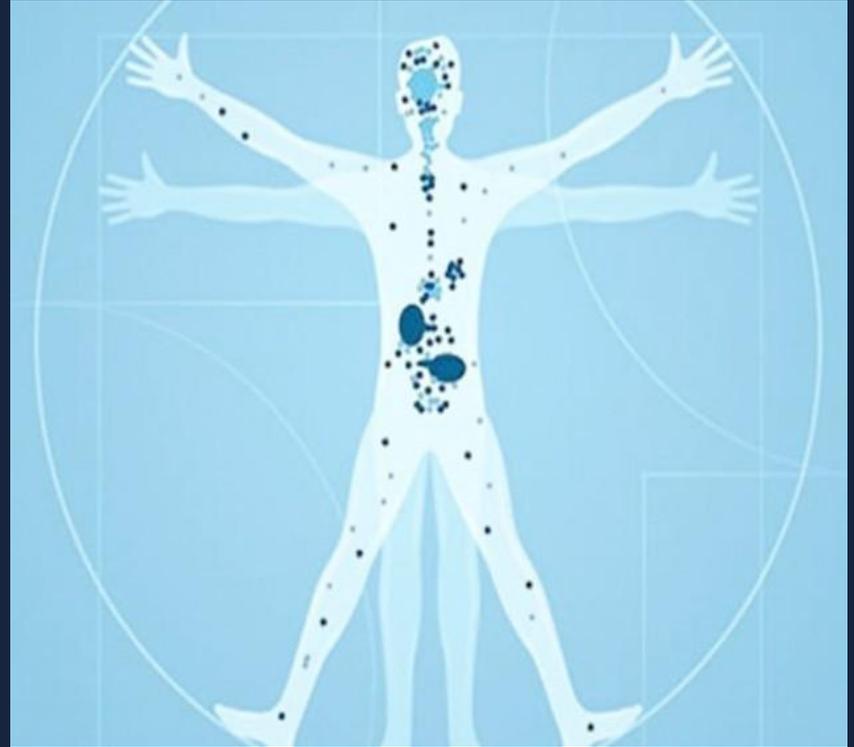
- ✓ Brain based condition
- ✓ Triggered by trauma
- ✓ Cytokine storm or destructive inflammation = chronic pain and very sensitized nerve endings
- ✓ Treatment is most effective when started early. In such cases, improvement and even remission are possible.

1. <https://www.mayoclinic.org/diseases-conditions/crps-complex-regional-pain-syndrome/symptoms-causes/syc-20371151>

2. <https://www.fundacion-canna.es/en/endocannabinoid-system-and-stress-response-implication-fatigue-and-burn-out>

## What is the Endocannabinoid System & Why Is It Important For CRPS/RSD

The endocannabinoid system, with its complex actions in our immune system, nervous system, and all of the body's organs, is literally a bridge between body and mind <sup>[1]</sup>



[1] <https://norml.org/marijuana/library/recent-medical-marijuana-research/introduction-to-the-endocannabinoid-system/>

The Endocannabinoid System is our 'root system' it signals, co-regulates and co-facilitates every system, tissue, organ and gland in the body.

Systems ***already existing***  
in the human body

RESPIRATORY

DIGESTIVE

REPRODUCTIVE

EXCORINE

CARDIOVASCULAR

NERVOUS

MUSCULAR/SKELETAL

ENDOCANNABINOID

LYMPHATIC/IMMUNE

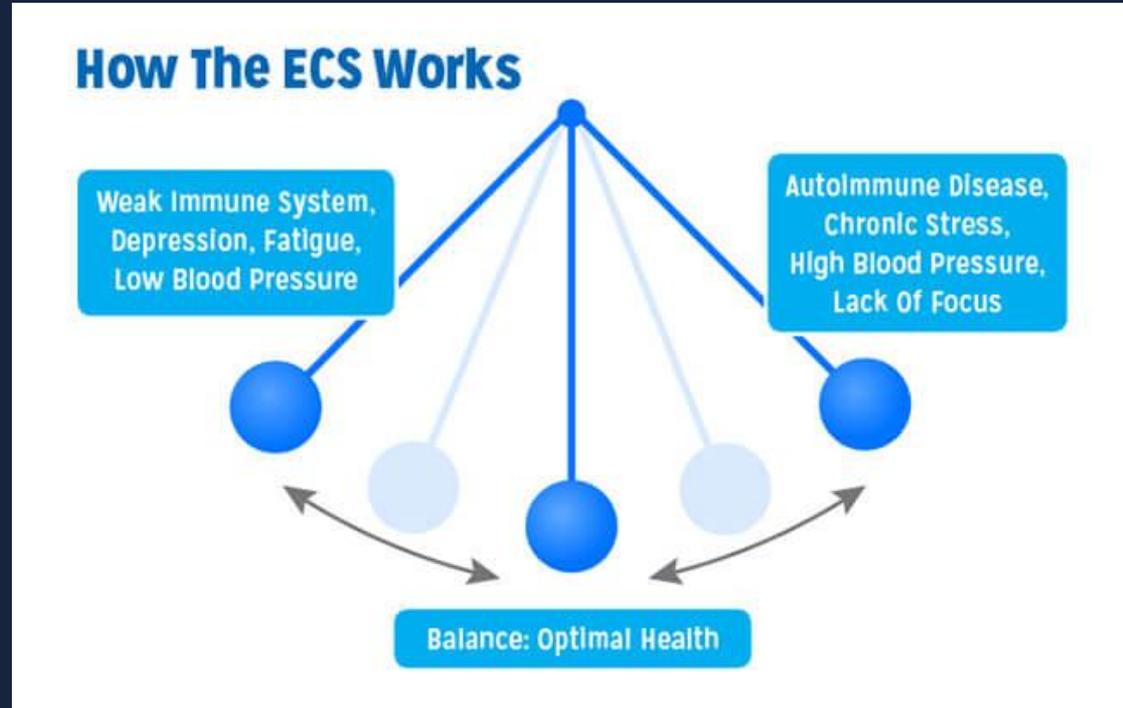
SENSORY

ENDOCRINE

RENAL

## Why a Healthy Endocannabinoid System (ECS) Important?

- ✓ The ECS is the Body's Harm Reduction Center
- ✓ It is our SOS mechanism that is activated whenever our bodies are out of balance for whatever reason
- ✓ The ECS starts at the cellular level, proceeding to the tissues, organs, body and sustains our general well-being

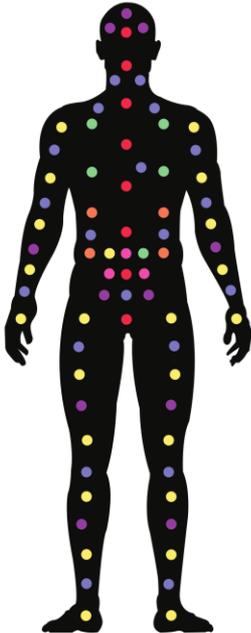


# How does the ECS help with Pain ?

- ✓ The ECS is the largest signaling system in our bodies- we have receptors throughout the ANS and immune system
- ✓ It signals our bodies chemical messengers to respond to inflammation that contributes to pain
- ✓ It brings resilience to the fight and flight response or nervous system
- ✓ It makes it own endo-cannabinoids that signal neurons to balance out, quite down or reduce inflammation

## THE ENDOCANNABINOID SYSTEM

### HUMAN CANNABINOID RECEPTORS



**CB1**   
Receptors are concentrated in the brain & the central nervous system but are also present in some nerves and organs.

**CB2**   
Receptors are mostly in peripheral organs, especially cells associated with the immune system.

**TRVP1**   
Receptors are concentrated in the blood, bone, marrow, tongue, kidney, liver, stomach & ovaries.

**TRPV2**   
Receptors are concentrated in the skin, muscle, kidney, stomach & lungs.

**GPR 18**   
Receptors can be found primarily in bone marrow, the spleen and lymph nodes, and to a lesser extend the testes

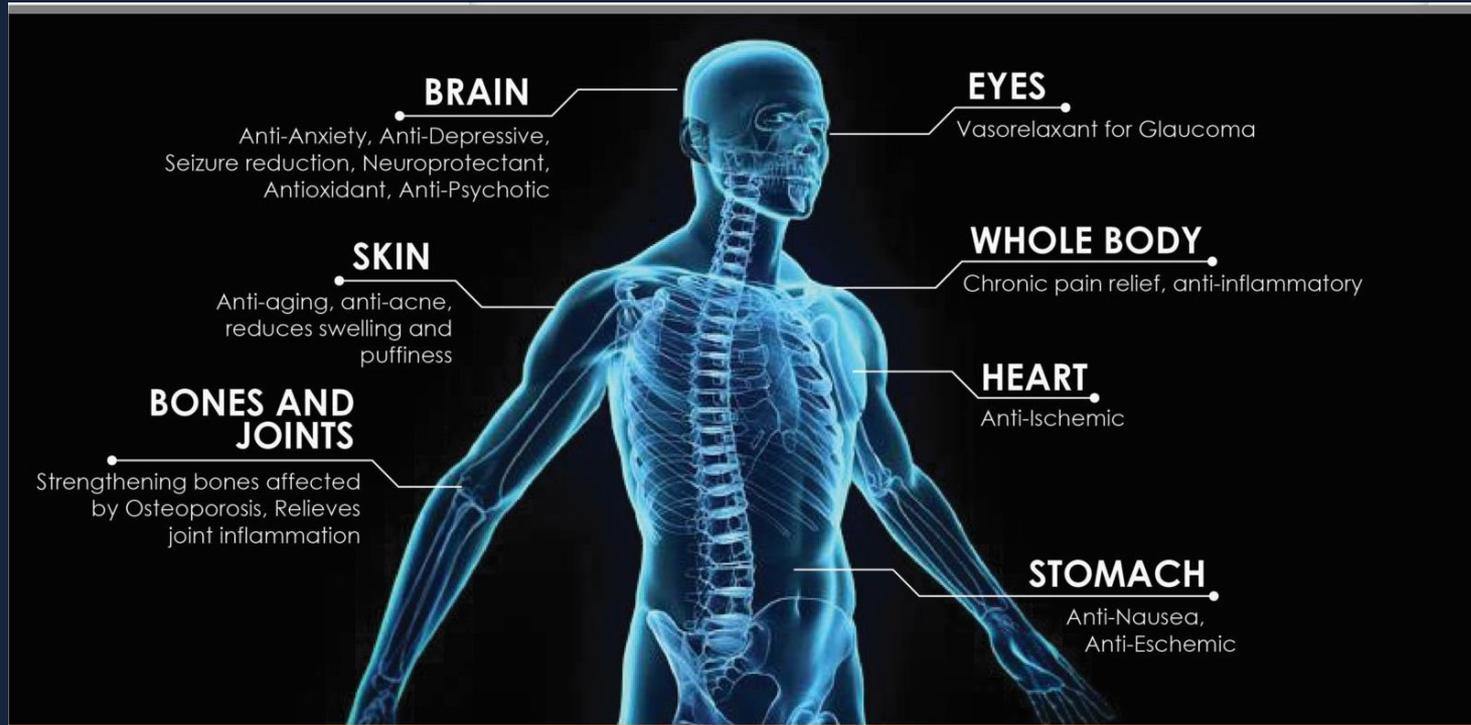
**GPR55**   
Receptors are found in the bones, the brain, particularly the cerebellum, and the Jejunum and Ileum.

**GPR 119**   
Receptors are found predominantly in the Pancreas and the intestinal tract, in small amounts

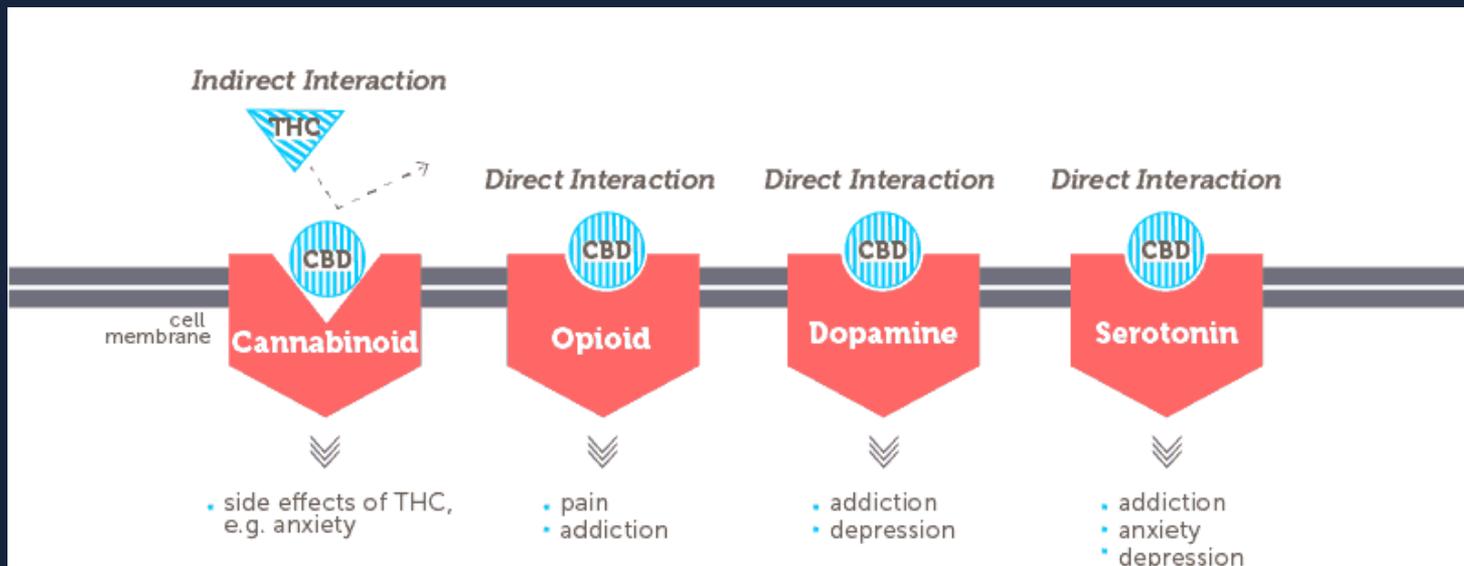
  /MCANewZealand/  
 @MCAwarenessNZ  
 mcawarenessnz.org/

## When the ECS Burns Out It Needs Hemp to Help

Plant Cannabinoids like Cannabidiol or CBD are well researched for their anti-inflammatory compounds and analgesic properties

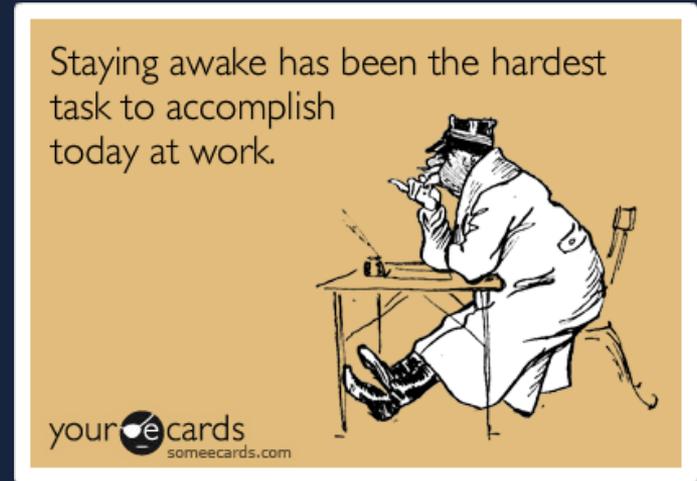


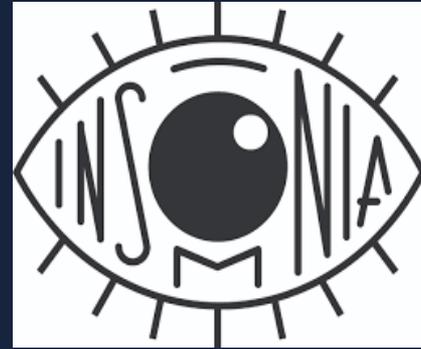
# How CBD Interacts with Receptors?



# The ABC's of Sleep and How CBD Helps

- A. Indicator of our well-being
- B. Sleep plays a housekeeping role that removes toxins in the brain that build up while you are awake
- C. Sleep is an active process and delivers positive effects to our cognition, memory, immunity, blood pressure, blood sugar and more



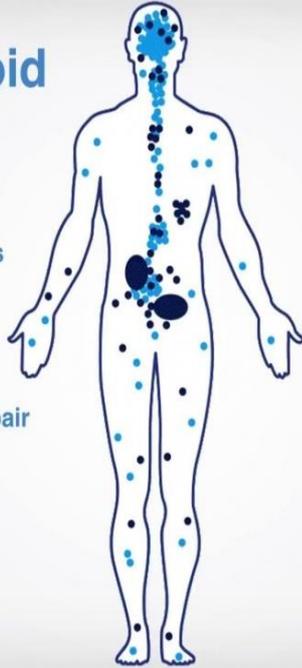


- Lack of sleep causes dysregulation within all system and contributes to accelerated aging, a sign of increased inflammation
- Hormones like HGH, testosterone, melatonin and cortisol are made and/or repaired while sleeping
- Muscular repair depends on deep sleep.

# The Endocannabinoids System & Sleep

## EndoCannabinoid System

- Receptors on cells and nerves
- Every system in the body
- 2-way communication
- Essential for balance
- Essential for recovery and repair



ANTIOXIDANT  
ANTI-INFLAMMATORY  
ANTI-ANXIETY  
ANTI-PSYCHOTIC  
ANTI-EPILEPSY  
NEURO PROTECTIVE  
CARDIO PROTECTIVE  
ANTI-CANCER  
ANTI-NAUSEA  
ANTI-BACTERIAL  
ANTI-DIABETES  
ANTI-ARTHRITIS  
PAIN RELIEF  
BONE STIMULANT  
IMMUNE MODULATOR

- Too little or low-quality sleep can compromise health, healing, metabolism and prevention
- Quality and quantity of sleep can contribute to a healthy ECS
- Sleep is a communication ‘signal’ that your ECS uses as a biological harm reduction system when it’s challenged by stress, infection, injury, or lifestyle

#### NREM - Stage 1

- When You Initially Fall Asleep
- Lightest Stage of Sleep

#### NREM - Stage 2

- When You Start to Lose Awareness of our Surrounding Environment
- Brain Starts To Go "Offline"

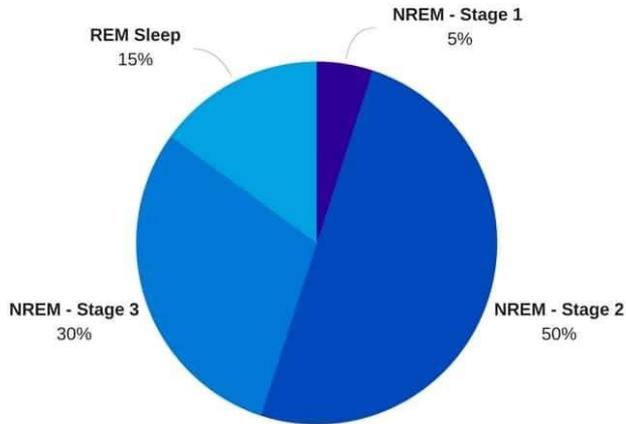
#### NREM - Stage 3

- Deepest Stage of Sleep (Minimal Brain Activity)
- Rebuilding Hormones are Released

#### REM Sleep

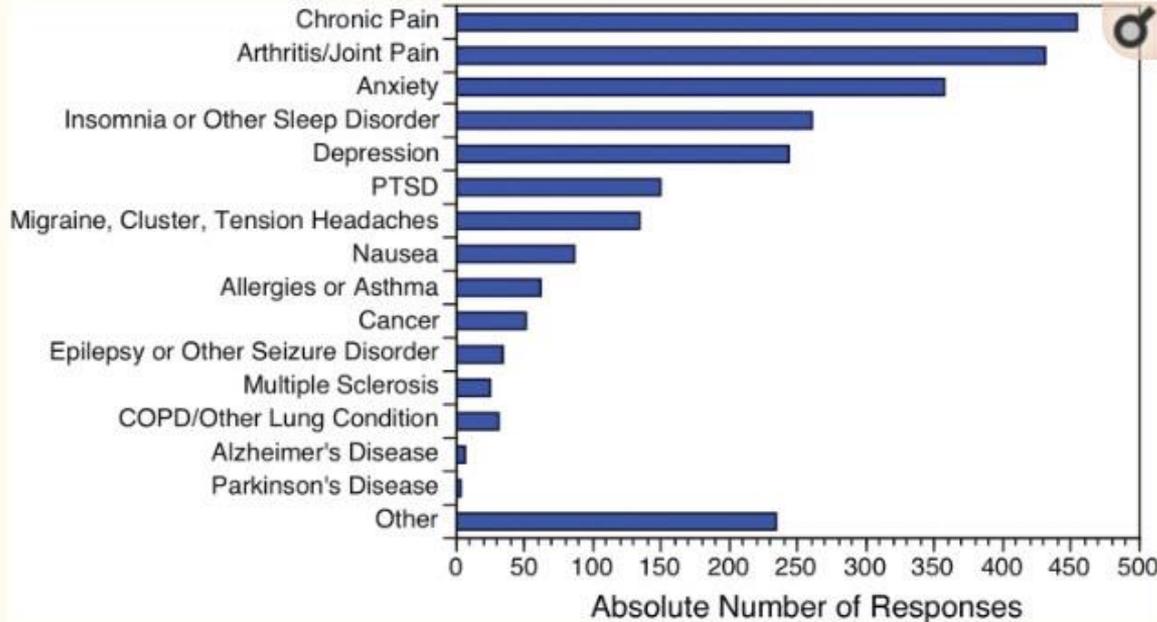
- Brain is Highly Active (Dreaming is Likely to Happen in this Stage)
- Mental Revitalization Starts to Happen

### Stages of Sleep During a Typical Night of Sleep



- ✓ CBD – animal studies show higher doses of CBD ↑ REM sleep
- ✓ CBD - blocks anxiety induced disruption of REM sleep
- ✓ CBD – Human studies of patients with insomnia saw ↑ in total sleep time and ↓ distributions during the night

# Why People Take Hemp CBD



**FIG. 3.**

Number of medical conditions for which respondents report CBD treating “Very Well by Itself” or “Moderately Well by Itself,” by medical condition ( $n=2557$ ).

Pain is a signal that your body has excessive inflammation, nervous system dysregulation and that your ECS needs support and supplementation.

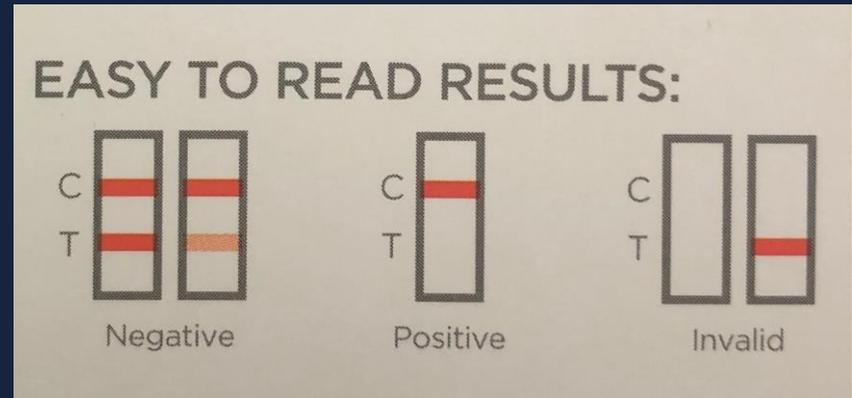


# FAQ's

- 1) From first time users to experienced what is the recommended serving size?
  - A) How do I titrate up or down?
- 2) Will I pass a THC drug test?
- 3) Are there prescription drug interactions?

First Check is cleared by the FDA and was voted the #1 Pharmacist recommended brand according to 2010-2019 Pharmacy Times Annual Pharmacists Recommended OTC Survey.

Equate Equate products are available across all Wal Mart stores nationwide. Their test also boasts 99% accurate and is cleared by the FDA.



# NTI Meds to be Closely Monitored when Co-Administered with Cannabinoids

Pennsylvania State University, College of Medicine, Dept of Pharmacology

<https://sites.psu.edu/cannabinoid>

| Narrow Therapeutic Index (NTI) Medication | Enzyme/Metabolism                       |
|---|---|
| acenocoumarol (VKA)                       | CYP1A2, CYP2C9, CYP2C19, CYP3A4         |
| alfentanil                                | CYP3A, CYP3A4                           |
| aminophylline                             | CYP1A2, CYP3A4                          |
| amiodarone                                | CYP1A2, CYP2C8, CYP2C19, CYP3A4         |
| amitriptyline                             | CYP1A2, CYP2B6, CYP2C19, CYP3A4         |
| amphotericin B                            | Protein Binding (PB)                    |
| argatroban                                | CYP3A4                                  |
| busulfan                                  | CYP3A4                                  |
| carbamazepine                             | CYP1A2, CYP3A4, UGT2B7                  |
| clindamycin                               | CYP3A4                                  |
| clomipramine                              | CYP1A2, CYP2B6, CYP2C19, CYP3A4, UGT2B7 |
| clonidine                                 | CYP1A2, CYP3A4                          |
| clorindione (VKA)                         | CYP3A4                                  |
| cyclobenzaprine                           | CYP1A2, CYP3A4                          |
| cyclosporine                              | CYP3A4                                  |
| dabigatran etexilate                      | UGT1A9, UGT2B7                          |
| desipramine                               | CYP1A2, CYP2B6                          |
| dicoumarol (VKA)                          | CYP2C9                                  |
| digitoxin                                 | CYP3A4                                  |
| dihydroergotamine                         | CYP3A4                                  |
| diphenadione (VKA)                        | CYP3A4                                  |
| dofetilide                                | CYP3A4                                  |
| dosulepin                                 | CYP2B6                                  |
| doxepin                                   | CYP1A2, CYP2C9, CYP2C19, CYP3A4         |
| ergotamine                                | CYP3A4                                  |
| esketamine                                | CYP2B6, CYP3A4                          |
| ethinyl estradiol (Oral Contraceptives)   | UGT1A9, UGT2B7                          |
| ethosuximide                              | CYP2E1, CYP3A4                          |
| ethyl biscoumacetate (VKA)                | CYP3A4                                  |
| everolimus                                | CYP3A, CYP3A4                           |
| fentanyl                                  | CYP3A4                                  |
| fluidione (VKA)                           | CYP2C9, CYP3A4                          |

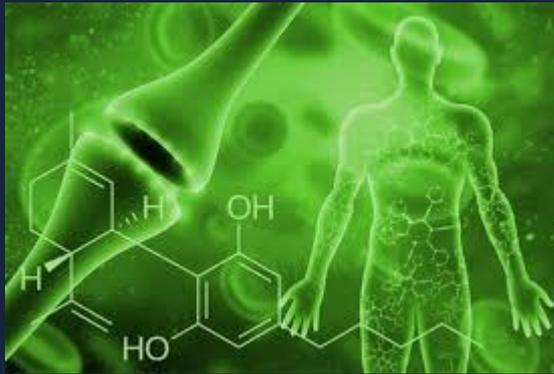


|                 |                                 |
|-----------------|---------------------------------|
| fluidione (VKA) | CYP2C9, CYP3A4                  |
| fospheytoin     | CYP2C8, CYP2C9, CYP2C19, CYP3A4 |
| imipramine      | CYP1A2, CYP2B6, CYP2C19, CYP3A4 |
| levothyroxine   | CYP3A4                          |
| lofepamine      | CYP2B6                          |
| melitracen      | CYP2B6                          |
| meperidine      | CYP2B6, CYP3A4                  |
| mephenytoin     | CYP1A2, CYP2C19                 |



**PennState**  
College of Medicine

[https://sites.psu.edu/cannabinoid/files/2020/06/NTI-Meds-to-be-Closely-Monitored-when-Co-Administered-with-Cannabinoids\\_2020\\_04\\_25.pdf](https://sites.psu.edu/cannabinoid/files/2020/06/NTI-Meds-to-be-Closely-Monitored-when-Co-Administered-with-Cannabinoids_2020_04_25.pdf)



## Drug Interactions and CBD

- ✓ Cytochrome P450, a large family of non-specific enzymes that are involved in **breaking** down an estimated 60 to 80 percent of all pharmaceuticals.
- ✓ Cytochrome P450 enzymes may be inhibited or amplified by CBD, THC and other plant cannabinoids, thereby reducing or prolonging the activity of another drug.
- ✓ “It does not appear that there have been many problems because of cannabinoid-drug interactions.”
- ✓ To the extent that there have been problematic drug interactions with cannabinoids, these have involved high doses of nearly pure CBD isolates, not cannabis in general.
- ✓ Adrian Devitt-Lee graduated from Tufts University with a MS in Math and a BS in Chemistry in 2016
- ✓ <https://www.projectcbd.org/how-to/cbd-drug-interactions>
- ✓ [https://www.projectcbd.org/sites/projectcbd/files/downloads/cannabinoid-drug-interactions\\_2018-10-11.pdf](https://www.projectcbd.org/sites/projectcbd/files/downloads/cannabinoid-drug-interactions_2018-10-11.pdf)

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