

CBD & Your Endocannabinoid System

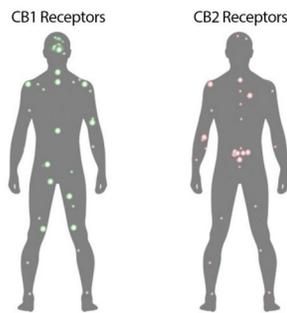
By: Dr. Alex Capano

What Does the Endocannabinoid System do?

Although not widely taught in school, the endocannabinoid system is present in all humans and vertebrates. It is present throughout the brain, the central nervous system and the periphery. It is both exceedingly complex and poorly understood by many. We know that the endocannabinoid system plays a role in a host of homeostasis activities, including mood, the sleep/wake cycle, the HPA axis, inflammatory responses and immunomodulation and more. This happens naturally with endogenous cannabinoids (meaning the cannabinoids our own bodies produce), such as 2-Arachidonoylglycerol (2-AG) and N-arachidonyl ethanolamine (anandamide). When someone experiences a “runner’s high,” that’s the endocannabinoid system working.

Two Major Receptors in our Body

The two major receptors of the endocannabinoid system are G-Coupled protein receptors, known as CB1 and CB2 receptors. CB1 receptors exist in the central nervous system and are abundant in the brain. CB2 receptors have a limited presence in the brain and exist mostly in the periphery, including immune cells, reproductive organs, the gastrointestinal tract, and more. CB1 receptors help control neuronal synapses, whereas CB2 receptors exist primarily on inflammatory cells and have the potential for enormous effects on inflammatory responses. These receptors modulate cellular function locally, but they also affect other cells through paracrine signaling. Therefore, multiple targets can be influenced by cannabinoids activity on CB1 and CB2 receptors.



How do Plant-derived Cannabinoids Work?

In addition to producing endogenous cannabinoids, activating the endocannabinoid system can be achieved through plant-derived, exogenous cannabinoids. CBD has a low affinity for CB1 and CB2 receptors, but it does alter activity within the cells to manipulate the endocannabinoid system and promote a desired response. THC, however, causes intoxication, euphoria, and even psychoses by binding to CB1 receptors. CBD does not bind to CB1 receptors and is not psychoactive. Still, CBDs therapeutic and anti-inflammatory potential is profound.

The mechanisms of action of CBD are many, and some are not yet fully understood. One way CBD works is by increasing the endogenous cannabinoid, anandamide. Aptly named “the bliss molecule,” anandamide promotes elevated mood, while influencing pain, fertility, and more. Preliminary research supports that anandamide may increase neurogenesis, particularly in the hippocampus, an area of the brain that impacts anxiety, depression, and cognition. CBD enhances anandamide levels by inhibiting reuptake and prolonging its otherwise rapid half-life. Additionally, research supports that CBD works on serotonin, dopamine, opioid, and NMDA receptors and even TRP channels to influence pain, mood, seizure activity, and associated chronic disorders.

Full Spectrum Oil vs. CBD Isolate

There is no denying the market is super saturated with CBD products. We often get asked how one should know what exactly it is they are buying. To start, it’s a good idea to understand if you are purchasing a Full Spectrum product or a CBD isolate.

A ‘Full Spectrum’ product refers to the method of plant extraction to an oil, which includes the whole plant and all of its compounds, therefore containing an array of beneficial cannabinoids (such as CBD, CBG, CBC, THCV, CBN etc) and beneficial terpenes. The compounds of the whole plant remain intact in the extracted oil. With Full Spectrum products, you have the advantage of something that is called the “Entourage Effect.” This is where all the cannabinoids and terpenes work together in synergy, something that CBD isolate products will lack.

CBD isolate (often labeled as “pure CBD” or just “CBD oil”) is extracted through a different method where only one compound of the plant – CBD – is extracted to an oil, introduced to harmful solvents, then cooled until it forms crystals. The crystals are then processed into a powder. The isolate results in a single molecular compound of strictly CBD. There are no other molecular compounds of value found in the isolate.

FREE CBD SEMINAR: Thursday, March 21st, 7pm Wilson College, Science Center Auditorium

There is a lot to learn about CBD oil and how it can potentially help you and your loved ones. Join guest speaker Dr. Alex Capano, Chief Science Officer at Ananda Professional, as she shares her knowledge at this free seminar.

*Seating is limited, please be sure to reserve your spot:
inquiry@norlandrx.com or 717-217-6790.*

NON-PROFIT SPOTLIGHT

A portion of our sales for the month of March will be donated to Young Life Franklin County. For more information please visit YoungLife.org.



BIBLICAL KEYS TO PHYSICAL, EMOTIONAL, & SPIRITUAL HEALTH

GOD IS NOT MAN

It is always good to remember that God is the Creator not the created.

Numbers 23:19 - *God is not a man, that he should lie, nor a son of man, that he should change his mind. Does he speak and then not act? Does he promise and not fulfill?*

Magic for Your Mouth

Magic mouthwash, or medicated mouthwash, is the term given to a solution used to treat mouth sores (oral mucositis). These sores may be due to cancer treatments or to an infection such as hand, foot, and mouth; thrush; or stomatitis (cold and cancer sores). Magic mouthwash requires a prescription and is prepared in our compounding lab. There are several versions of magic mouthwash, but it usually contains at least three of these basic ingredients:

- An antibiotic to kill bacteria around the sores,
- An antihistamine to reduce inflammation,
- An anesthetic to reduce pain and discomfort,
- An antifungal to reduce fungal growth, and/or
- An antacid that helps the other ingredients to coat the inside of the mouth.



Most formulations of magic mouthwash are intended to be used every four to six hours and to be held in your mouth for one to two minutes before being spit out or swallowed. It is recommended that you avoid eating and drinking for 30 minutes after using magic mouthwash to allow the medicine time to work.

Magic mouthwash can be used by both adults and children. If stored in the refrigerator, it will keep for up to 28 days. Side effects can include a burning or tingling sensation in the mouth, drowsiness, constipation, diarrhea, and nausea.

Unlike many compounded medications, magic mouthwash is usually available for pick-up the same day we receive the prescription; and, insurance companies often cover this customized medication. If you would like more information, please stop by or give us a call!



THE BEST MEDICINE

A man was admitted into the hospital with eight plastic horses in his stomach... His condition is now stable.

I went to see my doctor this morning. "Someone decided to graffiti my house last night!" I raged.

"So, why are you telling me?" the doctor asked.

"I can't understand the writing," I replied. "Was it you?"

"I used to be afraid of failing at something that really mattered... Now I'm more afraid of succeeding at things that don't matter."

- Bob Goff

Oral Nystatin Shortage

Oral Thrush is a common infection that involves an overgrowth of the *Candida albicans* organism in the mouth and throat. Common symptoms include white patches covering the throat, gums, tongue, and cheeks. These patches may also develop painful sores in the mouth and sometimes lead to secondary bacterial infections.

Nystatin oral suspension is a common antifungal medication that is used as a mouthwash (swishing and swallowing or spitting) to treat thrush. The commercial product, Nystatin 100,000 units/mL Suspension is currently unavailable. While the commercial product is unavailable, we can compound it for you in our lab with a prescription from your provider (\$30, 4oz).

While being treated for thrush, patients are advised to avoid foods containing sugar (including some artificial sweeteners), alcohol, and grains containing gluten. However, the commercial nystatin product contains 50% sucrose (sugar) and some alcohol.

We make a nystatin suspension suitable for use in adults and infants that is without sugar, alcohol, gluten, dairy, soy, nuts, parabens, or food starch. A patent pending synergistic polymer complex allows us to maintain a pleasant taste using a sugar-free sweetener that is both natural and neutral and that will compliment any flavor preference. The following is the formula we recommend:

Nystatin Suspension 100,000 units/mL in Suspedit™ Base

This is just one of the great solutions available through our PCAB Accredited compounding pharmacy. If you have any questions or concerns about nystatin and what we have to offer from our compounding lab, please give us a call or stop by!

Essential Oils TIPS & TRICKS

WELLNESS WEDNESDAYS: MAKE & TAKE DAYS AT THE PHARMACY

Introducing Wellness Wednesdays! If you are interested in using Essential Oils but not interested in buying and storing all the ingredients you might need, stop by on these Wednesdays in March. You will be able to make either of the two recipes shown for \$8 each or make both for just \$15.

Wednesday, March 13th, 1-6pm

Pain Gel, 2oz

Decongestant Roll-On, 10ml

Wednesday, March 27th, 1-6pm

Anxiety Roll-On, 10ml

Sleep Diffuser Blend, 10ml



Keep an Eye Out

With the number of computers, televisions, cell phones, and notebooks growing each year, you are exposed to more blue light than ever before. While you may not be able to eliminate blue light from your life, you can support your eye health with Lutein Plus!

The next time you are at the pharmacy, keep an eye out for **Lutein Plus 20mg** from our Healthy Living Solutions line.

This inexpensive supplement (just 55¢ per day) is formulated especially to help support eye health.

Lutein supplements contain a natural substance classified as a carotenoid, a group of plant pigments with antioxidant effects. Lutein builds up in the retina and lens of the eye and protects from injuries induced by free radicals. Lutein can help protect the eyes from UV rays and delay or prevent the development of cataracts and macular degeneration.

The "Plus" part of this formulation is the added support of three other ingredients for eye health:

1. Vitamin E is an antioxidant that also lowers the risk for macular degeneration and cataracts.
2. Bilberry is a shrub native to Europe that helps slow or prevent cataracts.
3. Zeaxanthin is a carotenoid that helps absorb excess light energy from blue light. It is sometimes referred to as internal "sunglasses."



If you have any questions regarding this product, please stop by and talk to one of our supplement specialists or pharmacists.

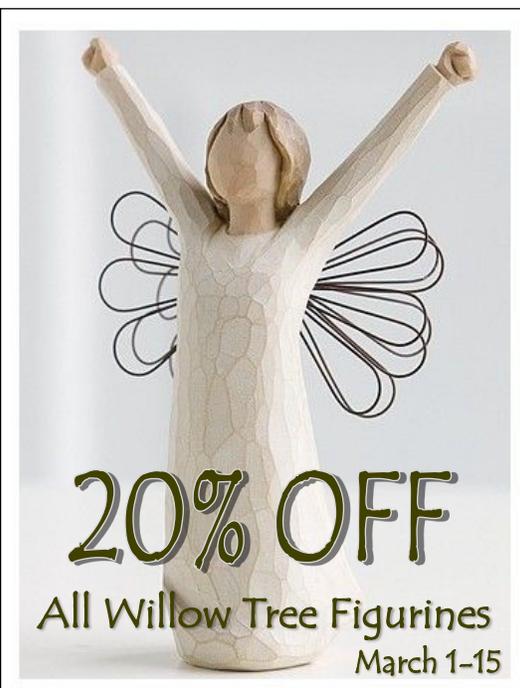
NORLAND REWARDS

Did you know that our Norland Rewards program includes a *Prescription Savings Club*? As a member of our Rewards program, you can take advantage of this special pricing on many medications!

- 30-Day Supply: \$8.99
- 90-Day Supply: \$12.99
- 180/360-Day Tier I: \$20/\$38
- 180/360-Day Tier II: \$37/\$70
- 180/360-Day Tier III: \$59/\$114



For a full list of the medications that are included, please visit www.NorlandRx.com or stop by the store and ask!





- 25% OFF ALL Gifts, Vitamins, Supplements, & Essential Oils
- Double Points for Rewards Members All Day
- Door Prizes
- Cake & Punch from 11am-2pm

Upcoming Events

- Mar 1-15: **20% OFF:** All Willow Tree figurines (page 3)
- Mar 13: **Essential Oil Make & Take Day** (page 3)
- Mar 16-30: **25% OFF:** All Healthy Living Solutions, Country Life & Nordic Naturals Gummies
- Mar 21: **FREE CBD Seminar** (page 1)
- Mar 22: **ANNIVERSARY CELEBRATION** (page 4)
- Mar 27: **Essential Oil Make & Take Day** (page 3)

Seating is limited for seminars, please be sure to reserve your spot: (717) 217-6790 or inquiry@NorlandRx.com.

“Rejoice always, pray continually, give thanks in all circumstances; for this is God’s will for you in Christ Jesus.” - 1 Thessalonians 5:16-18

Friday, March 22nd

Thank you for 18 amazing years!
We are grateful for your business.

In case you can't make the anniversary celebration, enjoy 25% off all Healthy Living Solutions products, Country Life products, & Nordic Naturals Gummies from March 16-30.

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