

SUPPORTING BRAIN FOG, FOCUS, AND MENTAL ENERGY WITH **LDN & METHYLENE BLUE**

Brain fog, poor concentration, fatigue, low motivation, and trouble recalling information have become increasingly common concerns in recent years. While many factors can play a role, two key contributors are now getting more attention: neuroinflammation and mitochondrial dysfunction.

Neuroinflammation refers to inflammation that affects the brain and nervous system. Mitochondrial dysfunction means the cells are not producing energy as efficiently as they should. Since the brain requires a large amount of energy to function well, these issues can affect memory, focus, mood, motivation, and mental stamina.

Two compounds gaining attention for cognitive support are Low Dose Naltrexone (LDN) and methylene blue. They work in different ways, but both support the body at a deeper level by helping improve cellular function, calm inflammation, and support neurological resilience.

Low Dose Naltrexone and Brain Inflammation

Naltrexone is traditionally used at a 50 mg dose for opioid dependence. However, at much lower doses, it behaves very differently.

Low Dose Naltrexone has immune-modulating and anti-inflammatory effects throughout the body and

central nervous system.

One of the main ways LDN supports cognitive function is by helping calm activated microglia in the brain. Microglia are immune cells in the brain. When they stay activated for too long, they can contribute to inflammatory signaling, neurotoxicity, and impaired communication between brain cells.

This may show up as:

- Brain fog
- Poor concentration
- Fatigue
- Mood instability
- Sleep disruption
- Memory impairment
- Chronic pain sensitization

By helping calm neuroinflammatory signaling, many individuals report improvements in mental clarity, focus, motivation, and cognitive stamina over time.

LDN is commonly utilized for:

- Long COVID and post-viral syndromes
- Lyme disease
- Chronic fatigue syndrome
- Fibromyalgia
- Autoimmune conditions
- Mast cell activation syndrome
- Depression associated with inflammation

HOW TO ORDER

You may place refills:

📞 281.828.9088

👉 physicianspreferencerox.com

TAKE A VIRTUAL TOUR

👉 [Click here to view an inside look at our compounding labs.](#)



ACCREDITED

Physicians Preference Pharmacy standards are more stringent than those of the United States Pharmacopeia (USP). In addition to onsite weight testing, we send multiple samples per week to an outside laboratory for potency testing. Physicians Preference Pharmacy ranks first in Houston for the number of samples sent for potency testing and in the top 8% of pharmacies nationwide.

Physicians Preference Pharmacy is a Houston-based, PCAB-accredited compounding pharmacy serving physicians and patients since 2001. We are licensed to work with doctors and ship to patients in 49 states (excludes AL).

Methylene Blue and Cellular Energy

While LDN primarily targets neuroinflammation, methylene blue works at the mitochondrial level to support cellular respiration and ATP production.

ATP is the body's main energy molecule. Since the brain has one of the highest energy demands in the body, poor mitochondrial function can significantly impair cognition, energy levels, and neurological performance.

Methylene blue acts on cytochrome c oxidase in the electron transport chain, helping to support oxygen utilization and mitochondrial efficiency. It also crosses the blood-brain barrier, which makes it especially useful for neurological applications.

At low doses, methylene blue supports:

- Memory retrieval speed
- Focus and concentration
- Mental energy
- Cellular oxygen consumption
- ATP production
- Neuroprotection

Many individuals report improvements in attention, mental clarity, and cognitive endurance, especially in those dealing with chronic inflammatory or post-viral states.

⚠ IMPORTANT! Before prescribing methylene blue, your healthcare provider will order a G6PD lab test to check for G6PD deficiency and avoid adverse reactions.

Why Both Pathways Matter

Ongoing cognitive dysfunction is often associated with both neuroinflammation and mitochondrial impairment. When both pathways are addressed, greater clinical improvement may be possible.

Many providers utilize LDN and methylene blue together as part of a broader cognitive support strategy for Long COVID, chronic inflammatory conditions, neurological dysfunction, and age-related cognitive decline.

Talk with your healthcare provider to determine whether LDN, methylene blue, or a broader cognitive support plan may be right for you.



WATCH AND LEARN MORE:

▶ [Cognitive Benefits of Low Dose Naltrexone](#)

with Bryana Burken, PharmD, RPh

▶ [Methylene Blue FAQs](#)

with Bryana Gregory, PharmD, RPh

FAST FACTS

LDN may help:

- Modulate activated microglia
- Reduce neuroinflammation
- Support immune balance
- Improve brain fog and cognitive clarity
- Support recovery from post-viral syndromes

Methylene Blue may help:

- Enhance mitochondrial respiration
- Improve ATP production
- Support oxygen utilization
- Cross the blood-brain barrier
- Support memory and focus

REFERENCES

[Cognitive Benefits of Low Dose Naltrexone \(LDN\)](#) with Bryana Burken, PharmD, RPh. Dr. Hotze's Wellness Revolution Podcast. 2026.

[Methylene Blue FAQs](#) with Bryana Gregory, PharmD, RPh. Dr. Hotze's Wellness Revolution Podcast. 2026.

Atamna H, et al. Methylene blue delays cellular senescence and enhances key mitochondrial biochemical pathways. *FASEB J.* 2008.

Younger J, et al. The use of low-dose naltrexone as a novel anti-inflammatory treatment for chronic pain. *Clinical Rheumatology.* 2014.