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Lithium Orotate

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Lithium helps prevent mood swings, is anti-anxiety and antidepressant, promotes neurogenesis, protects from neurodegenerative disease, and is anti-aging

Lithium is a soft, silvery-white alkali metal so reactive (it sparks when it touches water) that it's not found in nature. Instead, it's found in mineral compounds and in mineral water.

Cosmologists believe that *lithium* was one of the 3 elements synthesized in the Big Bang.^[1] So it's been around for a long time.

Most of us associate lithium with treating mental illnesses like *bipolar disorder* and *mania*. Or the lithium-ion battery in our phone. Which has a tendency to blow up occasionally.

Turns out that the anti-psychotic medication *lithium* isn't even a drug. It's actually a *mineral*. And part of the same family of minerals that include *potassium* and *sodium*.



As a *nootropic*, *micro-dosing lithium* provides some amazing *anti-aging benefits*. Recent research shows that *low-dose lithium* may also help slow the progression of neurodegenerative diseases like Alzheimer's, dementia and Parkinson's disease.

Low-dose *lithium* also helps *neurogenesis* and *memory*. And is a mood stabilizer.

Here we'll investigate daily or frequent use of ***Lithium Orotate*** as a nootropic, and how it benefits cognitive health.

Lithium helps:

- **Balance mood.** *Lithium* calms mania (extreme highs and lows) by decreasing sensitivity of the post-*synaptic norepinephrine receptor*. [ii] And increases uptake of norepinephrine into *synaptosomes*. Preventing the release of this *neurotransmitter*. And lithium enhances the transport of *Vitamin B₁₂* and *folate* into brain cells. [iii] Affecting mood and aggression.
- **Growth Factors.** *Lithium* upregulates *brain-derived neurotrophic factor (BDNF)*, *nerve growth factor (NGF)*, *neurotrophin-3 (NT3)* and their receptors. And *lithium* stimulates the proliferation of *stem cells* in the brain. All boosting *neurogenesis* and assisting in repair from all types of brain injury.[iv]
- **Neuroprotection.** *Lithium* increases brain *gray matter*, increases *DNA* replication for *neurogenesis*, prevents *apoptosis*, increases *N-acetyl-aspartate (NAA)*, inhibits *beta-amyloid* secretion and

protects against damage once it's formed, chelates aluminum, and protects against *glutamate* toxicity.

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Overview

Lithium is an alkali mineral and one the trace elements considered *essential* for both animal and human reproductive health, and general health and wellness.

Discovered as a chemical element in 1817, lithium's first recorded modern medical use was in 1871 for the treatment of mania.

But the use of *lithium* for therapeutic use goes back to ancient Greek and Roman times. People enjoyed soaking in *alkali* springs to help with physical and mental illness.

People have been using mineral springs for therapeutic use ever since. *Lithia* Springs in Douglas County, Georgia was so popular that people came for miles just to drink the water.

The Sweet Water hotel, a luxury 500-room resort was opened in 1887. And attracted famous authors, business people and prominent politicians who came for the spring's health benefits. The name "Lithia" stems from *water rich in lithium*.



Studies from around the world have shown the critical health benefits of *lithium*. One study using data from 27 Texas counties from 1978 – 1987 found that rates of *suicide, homicide and rape were significantly higher in counties whose drinking water contained little or no lithium.*[\[v\]](#)

Another study of *lithium* levels in tap water in 18 municipalities in Japan showed standard *mortality ratios lower in places with higher lithium levels.*[\[vi\]](#)

Yet another study conducted in Texas in 2013 confirmed the original findings in that state. Drinking water samples from 226 counties found a *correlation between lithium levels and suicide rates.*[\[vii\]](#)

Researchers who conducted meta-analyses of *lithium* levels and public drinking water suggested "*increasing lithium levels of drinking water could potentially reduce the risk of suicide, and justify administering lithium to tap water.*"[\[viii\]](#)

An article in the Lancet in 1949 by John Cade is credited for the modern medical use of *lithium as an effective treatment for manic psychosis.*
[\[ix\]](#)

The United States FDA approved high dose ***lithium carbonate*** and ***lithium citrate*** in 1970 for the treatment of bipolar disorder. *Carbonic*

acid and *citric acid* are mineral carriers used to transport *lithium* throughout your body.

Doctors also prescribe *lithium* off-label for treating migraines, seizure disorders and psychosis usually after other treatments have failed.

But as we dig deeper into the most recently published research on *lithium*, we realize this trace element is *essential* for optimal health and brain function.

The *lithium* we get from our diet prevents many neurological and psychiatric problems. *Micro-dosing lithium as a nootropic* with a supplement like **Lithium Orotate** can help make up for the what we don't get from our food and water.

Lithium is naturally available from fish, processed meat, milk, dairy products, eggs, potatoes and vegetables. Your typical dietary intake of *lithium* can range from 2 – 600 mcg. Amounts vary depending on where the food is grown.

How does Lithium work in the brain?

Lithium helps brain health and function in several ways. But two in particular stand out.

1. **Lithium stabilizes mood.** Recent research has discovered that *lithium's* mood stabilization effects may be due to its ability to boost the production of new brain cells (*neurogenesis*).

Lithium inhibits the enzyme *glycogen synthase kinase-3 β* (*GSK-3 β*). This inhibition upregulates *brain-derived neurotrophic factor* (*BDNF*), and *insulin-like growth factor-1* (*IGF-1*) which stimulates *neural stem cells* to produce new *neurons* in the *hippocampus*.^[x]

When neural stem cells produce new neurons in the *hippocampus*, *mood* and *memory* work as designed. But a breakdown in *neurogenesis* results in mood disorders.

Lithium has long been known to control mania and stabilize mood in bipolar patients. But it was not generally thought of as an antidepressant. Researchers in Tel Aviv provided the first evidence that inhibiting *GSK-3 β* exerted a *rapid antidepressant effect* in mice.^[xi]

Another team at Howard Hughes Medical Institute in Pennsylvania showed that feeding mice chow laced with *low-dose lithium* for 15 days produced a *dose-dependent antidepressant effect*.^[xii]

Lithium induced gene transcription in the *hippocampus*, *amygdala* and *hypothalamus*. All areas implicated in *depression*, *anxiety*, *bipolar disorder*, *autism* and *schizophrenia*.

2. **Lithium protects your brain.** Your brain cells are at constant risk of damage from exposure to toxins you encounter every day from food, air, water and your environment. And the excitotoxins produced by ordinary brain cell metabolism.

Glutamate plays a major role in the *synaptic plasticity* needed for learning and *memory*.^[xiii] But over-activity of glutamate on its *NMDA receptors* causes neuron death and is implicated in Alzheimer's,

Huntington's and Parkinson's disease. *Lithium inhibits this overactivity.*
[xiv]

Lithium also increases the production of a neuroprotective protein called *bcl-2*. [xv] Researchers maintain that *lithium is the only "medication" that has been demonstrated to significantly increase bcl-2 in several brain areas.*

Lithium has also recently been evaluated in preventing and treating *traumatic brain injury*. In a study conducted in 2014, Dr. Peter Leeds stated that *lithium* had "demonstrated robust beneficial effects in experimental models of Traumatic Brain Injury (TBI). These include decreases in TBI-induced brain lesion, suppression of neuroinflammation, protection against *blood-brain barrier* disruption, normalization of behavioral deficits, and improvement of learning and memory, among others." [xvi]

How things go bad

In 1985, the United States EPA estimated that dietary intake of *lithium* from food in the USA varied from 0.6 to 3.1 mg per day. [xvii] For comparison, people who live in the Andes in Northern Argentina

consume 2 to 30 mg per day, with 2 – 3 mg just from drinking water.

[xviii]

As your dietary *sodium* and *caffeine* increases, so does *lithium excretion* in urine which increases your requirement for this essential trace mineral.

Your exposure to stress and toxins from things like mercury, aspartame, MSG, Bisphenol A (BPA) and other excitotoxins also raise cortisol and other stress hormones. Increasing your need for more *water-soluble* nutrients like *B-vitamins*, *magnesium*, *zinc* and *lithium*.

Low *lithium* levels are associated with ...

↑ Depression and anxiety increase

↓ *Memory and learning* ability decline

↑ Insomnia increases

↑ Sensitivity to stress and chronic pain increase

↓ Natural healing processes decline

Adequate daily intake of *lithium* could help prevent many mental and neurological diseases due to this trace minerals effects on nervous system metabolism. And it's anti-inflammatory and antioxidant effects.

Lithium benefits

The clinical research and studies on the neuroprotective benefits of *lithium* are so overwhelming, some scientists are beginning to ask “*why isn’t everyone using lithium*”?

Here’s a summary of *how micro-dosing lithium using **Lithium Orotate** can benefit your brain.*

- **Inhibits apoptosis** – *lithium* inhibits GSK-3 which has been linked to apoptotic cell death
- **NMDA-receptors** – *lithium* reduces **glutamate** induced toxicity mediated by *NMDA-receptors* which helps in mood disorders, Alzheimer’s, and other autoimmune and inflammatory diseases
- **Neuroprotection** – blocks the development of **beta-amyloid tangles and plaque**
- **Neurogenesis** – *lithium* promotes the **BDNF** needed for **synaptic plasticity** in learning and **memory**. Lithium also boosts **nerve growth factor** and **glial-derived neurotrophic factor** affecting learning, memory, mood and overall brain health[xix]
- **Neuronal stem cells** – *lithium* stimulates the *stem cells* needed to produce *new neurons (neurogenesis)*

- **Stabilizes mood** – *lithium* is known for providing a calming effect in healthy people as well as those dealing with depression, bipolar disorder, and mania
- **Suicide prevention** – adequate levels of *lithium* has been shown to reduce suicide risk in multiple studies worldwide
- **Depression** – *lithium* helps with treatment-resistant **depression**. In fact, *lithium* has been shown to improve the effectiveness of antidepressant medications
- **N-acetyl aspartate (NAA)** – *lithium* increases NAA which has been associated with *higher IQ scores*[xx] (i.e. *lithium* will make you smarter!)

The benefits of supplementing with *lithium* go far beyond just optimizing cognitive health. *Lithium* also helps decrease insulin resistance, helps in treatment of alcoholism and other addictions, supports bone health, balances your **circadian rhythm** and more.

How does Lithium *feel*?

My personal experience with **Lithium Orotate** has made me a believer in *micro-dosing lithium*. I'm **Adult ADD** and deal with mood swings from time to time.

If I'm going around the bend because something upset me, I take 5 mg of *Lithium Orotate*. Within 15 minutes my mood stabilizes and I feel normal again. Consistent use *puts me in a happy mood*.

Many others report you'll feel the results taking a low dose of *lithium* quickly. But for some, the full effect can take anywhere from 1 to 3 weeks. Micro-dosing 5 – 10 mg of *lithium* daily results in consistent results within a month or two for some. I've experienced great results within a couple of days.

So if you lash out at people in anger, and don't fully understand why you get so angry – it could be your *lithium* levels are low.

Many neurohackers with depression and anger issues notice results quickly. Within the first couple of days you should feel more calm, relaxed, and *experience less stress*.

Keep in mind that *lithium* at any dose is not for everyone. But if you get adequate *lithium* from your diet and water, and still experience some of the mood swings talked about in this review, you could be dealing with other issues. You should know within a couple of hours of supplementing with low-dose *lithium* if this supplement is for you.

For some, *Lithium Orotate* means feeling excited about life for the first time in a long time. Anxiety and *social anxiety* are no longer a problem. Life is more fun and enjoyable.

Some say *Lithium Orotate works better than any prescription that they've ever tried to treat severe depression*. It provides a nice, smooth mood balance without all the toxicity associated with mega-doses of *lithium carbonate*.

If you're dealing with *PTSD* or mild *insomnia*, you may want to try *Lithium Orotate*. Focus could improve, racing thoughts diminish and motivation levels could increase. You'll have *more coping ability*.

Lithium Orotate Clinical Research

Lithium Improves Memory

A study at McMaster University in Canada set out to determine the effects on *hippocampus* volume in 14 bipolar patients who received *lithium* therapy.

The researchers examined the effects of *lithium* on *hippocampal volumes* and *memory performance* and recall over 2 – 4 years. The patients had not received any type of medication prior to using *lithium*.

The study found *increases in hippocampus volume* over time. And evidence of *improvement of verbal memory performance* over the 4-year measurement period.

The researchers concluded that the results of the study were consistent with the literature stating the neuroprotective effects of *lithium*. And that *long-term treatment of lithium is associated with preservation of memory and recall due to increased hippocampus size.*[xxi]

Lithium Increases Mood in Recovering Addicts

24 adults recovering from heroin or methamphetamine addiction participated in a study in San Diego. Group A received 400 mcg per day

of *lithium* taken orally for 4 weeks. The placebo Group B naturally took a non-active placebo.

Subjects completed a mood test questionnaire containing questions about their ability to think, work, mood and emotions. For the *lithium group*, mood test scores increased steadily and significantly during the 4 week period.

The *lithium group* also reported significantly increased levels of happiness, friendliness and energy. Group B showed no improvement during the same period.

The researchers concluded that *low-dose lithium provided a mood-improving and stabilizing effect.*^[xxii]

Lithium Orotate in the Treatment of Alcoholism

In this study, 42 alcoholic patients were treated with *Lithium Orotate* during alcohol rehabilitation in a private clinical setting for six months. The data was collected from clinical practice records for the 10 years following the initial study.

The patients received 150 mg of *Lithium Orotate* daily for six months along with calcium orotate, magnesium orotate, bromelain and essential phospholipids.

Ten of the patients had no relapse from 3 – 10 years. 13 patients stayed sober from 1 – 3 years. The remaining patients relapsed between 6 – 12 months.

The researchers concluded that *Lithium Orotate therapy was safe in treating addiction with minor adverse side effects.*^[xxiii]

Lithium Orotate Dosage

Lithium retains a grim and undeserved reputation. Likely because it was originally associated with serious mental illness. And like most medications, lithium can produce serious side effects if not monitored properly.

Lithium carbonate or *lithium chloride salts* are typically prescribed for long-term control of bipolar disorder at 900 – 1200 mg per day. The major problem with such high doses of lithium are some very serious and debilitating side effects.

For nootropic use, we suggest ***Lithium Orotate*** which typically contains only 5 mg of elemental lithium. *Lithium Orotate* is ***orotic acid*** combined with ***lithium***.

Orotic acid reportedly makes the lithium more **bioavailable** than lithium carbonate. The lithium is released once it crosses the **blood-brain barrier**. So you'll get the benefits of lithium supplementation while avoiding the toxic side effects of high doses. [xxiv]

Lithium Orotate recommended dose is 5 mg two or three times per day. See "**Available Forms**" for more on lithium amounts in nootropic supplements.

Many neurohackers use Lithium Orotate only *as needed*. For example, when feeling anxious or in the middle of a mood swing.

For someone with bipolar disorder or manic disorders, increasing to two 5 mg tablets up to 3-times per day may be more effective.

Naturopathic doctors suggest **stacking** 1,000 mg of **Omega-3** and 400 UI of **Vitamin E** (as mixed tocopherols) each day you're using *Lithium Orotate*.

Lithium Orotate Side Effects

Do not confuse **Lithium Orotate** with *lithium carbonate*. The carbonate version of lithium is only available by prescription and comes with a host of side effects.

Lithium Orotate at low doses is non-toxic and lab tests are not required to monitor your lithium levels because it does not show up in blood samples.

Lithium Orotate should not be used if you are dealing with significant renal or cardiovascular disease, severe dehydration or sodium depletion, or if you're taking diuretics or ACE inhibitors.

Do not use Lithium Orotate if you are pregnant or breast-feeding.

You should check with your doctor if you are on any medication before using Lithium Orotate.

Where to Buy Lithium Orotate

Mother Nature has already put the antipsychotic "drug" *lithium* in drinking water. And you get some *lithium* from food depending on where it's grown.

Supplemental **Lithium Orotate** typically comes in 120 or 130 mg capsules or tablets containing 5 mg of *elemental lithium*.

I recommend and use *Lithium Orotate by Advanced Research* which was formulated by Dr. Hans Nieper.

Nootropics Expert Recommendation

Lithium Orotate 5 mg 2 or 3 times per day.

I recommend using ***Lithium Orotate*** as a **nootropic** supplement if you're feeling anxious or depressed. Or experiencing mood swings.

Your body *does not* make *lithium* on its own. So you must get this *essential trace mineral* from your diet, or a supplement like *Lithium Orotate*.

Lithium combined with *orotic acid* makes *Lithium Orotate* which readily crosses the **blood-brain barrier**, and you should feel its effects within 15 – 20 minutes of taking it.

Lithium Orotate is especially effective if you're feeling stressed, or mentally overworked. Your brain uses *lithium* faster and it needs to be replaced. Which you can do by using *Lithium Orotate*.

Lithium Orotate is great if you are ADHD because *lithium* calms the *hyperactivity* in your brain.

Supplementing with *lithium* does not change your state of consciousness. It simply helps bring you back to feeling normal and happy.

I suggest trying *Lithium Orotate* as a nootropic supplement with your first dose at 5 mg and see how you react. If you experience no negative reaction, try another 5 mg in a few hours. Up to 3 – 5 mg doses per day.

You'll likely experience the full benefits of *Lithium Orotate* within a week of consistent use.