

Lithium – The Misunderstood Mineral Part 1

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Think young into your 90s with this anti-aging secret for your brain

The biggest problem with lithium treatment is people's perception of it. Since its most well known use is for bi-polar disorder, lithium sometimes encounters the same stigma as mental illness itself.

I've been taking a lithium supplement every day for several years. When I tell people about it, they sometimes get funny looks on their faces and start eyeing the corners of the room for straight jackets. These reactions don't surprise me, since, as I said, lithium is usually associated with mental illness. But I've never suffered from a mental disorder (although certain mainstream medical doctors and possibly a federal agency or two might disagree). Treating manic-depressive (bi-polar) illness is lithium's most widely known use—but it isn't an anti-psychotic drug, as many people believe. In fact, lithium isn't a drug at all. It's actually a mineral—part of the same family of minerals that includes sodium and potassium.

You might remember reading about the various benefits of lithium. In addition to the benefits routinely mentioned, like controlling gout and relieving rashes caused by seborrheic dermatitis, lithium also has some great brain-boosting effects. In fact, I've reviewed both recent lithium research and the research spanning the past few decades, and I'm convinced that lithium is an anti-aging nutrient for human brains. And there are also some very strong reasons to believe that lithium therapy will slow the progression of serious degenerative mental problems, including Alzheimer's disease, senile dementia, and Parkinson's disease.

So there are obviously quite a few "pros" to using lithium, but you're probably wondering about the "cons." In the 1930s and '40s, lithium chloride was sold in stores as a salt substitute. But (as frequently happens) some people used way too much and suffered toxic overdoses, so it fell out of common use. Fortunately, lithium toxicity is entirely preventable, and it's also easily treatable if it ever does occur □ but more about that later. Right now, let's get into some of the specifics on just how you (and your brain) can benefit from lithium.

Taking (grey) matters into your own hands

Hercule Poirot, Agatha Christie's famous fictional detective, had an amusing quirk in his incessant concern for his "little grey cells." I thought of Hercule several years ago when I saw the following headline in an issue of the Lancet: "Lithium-induced increase in human brain grey matter."

That may not sound like an earth-shattering piece of news, but it actually was quite a major discovery. To that point, medical experts believed that once our brains matured, it was all downhill from then on. Decades of autopsies, x-rays, and, more recently, brain scans have repeatedly shown that brains shrink measurably with aging. But according to their report in the Lancet, Wayne State University (Detroit) researchers found that lithium has the ability to both protect and renew brain cells.¹ Eight of 10 individuals who took lithium showed an average 3 percent increase in brain grey matter in just four weeks.

Lithium may help to generate entirely new cells too: Another group of researchers recently reported that lithium also enhances nerve cell DNA replication.² DNA replication is a first step in the formation of a new cell of any type.

The Wayne State study used high-dose lithium, but I'm certainly not using that amount myself, nor do I recommend it. Prescription quantities of lithium just aren't necessary for "everyday" brain cell protection and re-growth. Studies done years ago have shown that very low amounts of lithium can also measurably influence brain function for the better.

Protect yourself from brain damage you didn't even know you had

Aside from boosting brain mass, recent research also shows that lithium can help protect your brain from the "beating" it gets in the course of everyday life. Your brain cells are constantly at risk of damage from exposure to toxins of all sorts—even ones produced by your own body. Toxic molecules are formed naturally during the course of normal brain metabolism.³⁻⁷ Since these "normal" toxic molecules (sometimes called "excitotoxins") are produced every day of your life, eventually they start to wear down or erode away brain mass.

Another well-known cause of brain cell injury is overactivated N-methyl-D-aspartate (NMDA) receptors. Lithium can inhibit this overactivity.⁸ And lithium also increases production of a major brain protective protein called "bcl-2" in both human and animal brain cells.⁹

So it appears that lithium can protect against normal brain erosion and shrinkage that would otherwise occur over the course of our lives. But lithium also protects the brain from other less "normal" problems too, like damage caused by prescription medications and strokes.

When a clot or other obstruction occurs in a blood vessel serving the brain, it causes a reduction of blood flow to that area. If it's bad enough, the lack of blood flow will cause a stroke and death of brain cells. (This type of stroke is known as an ischemic stroke.) Research in experimental animals with deliberately induced ischemic strokes has shown that lithium reduces the areas of cell death.^{10,11}

In one of these studies, researchers blocked a brain artery in rats. Some were pre-treated with lithium for 16 days, the rest weren't. The researchers reported that the lithium-treated rats experienced 56 percent less cell death and significantly fewer neurologic deficits than the control rats.¹²

And sometimes medications designed to treat other problems end up having a negative impact on the brain. For example, anti-convulsant medications cause abnormal levels of brain cell death. But lithium significantly protects against this type of cell death—so much so that this effect has been called "robust" (a term scientists use to mean "It really works!").¹³

In fact, based on its general neuroprotective effect, researchers have recently suggested that "the use of lithium as a neurotrophic/neuroprotective agent should be considered in the long term treatment of mood disorders, irrespective of the 'primary' treatment modality being used for the condition."¹⁴ Translation: Lithium should be used along with any patent medicine being used for depression, anxiety, or any other "mood-altering" reason, since it will protect brain cells against their unwanted toxic effects. The researchers didn't say so, but I will: Any list of "mood altering substances" should include alcohol, tobacco, caffeine, "uppers," "downers," and—for those who do inhale—marijuana. Harmless as some of them might seem, these substances can cause brain damage with medium to long-term abuse.

Keeping your brain's lines of communication open -and healthy

Scientists determine how healthy brain cells are by measuring levels of a molecule called N-acetyl-aspartate (NAA). A decrease in NAA is thought to reflect decreased nerve cell viability, decreased function, or even nerve cell loss.¹⁵ In a study of 19 research volunteers given four weeks of lithium, 14 experienced a significant increase in NAA, one had no change, and four had a small decrease.¹⁶

Now, what about the interaction between those new, protected, healthy brain cells? Communication between brain cells and networks of brain cells is called "signaling." And lithium is actually necessary for at least two signal-carrying pathways.¹⁷ Researchers have also reported that lithium may help to repair abnormally functioning signaling pathways in critical areas of the brain.¹⁸

Lithium and Alzheimer's: New hope for a "hopeless" situation

As you know, there's no cure for Alzheimer's disease and there's very little available for patients (and families) that can offer even partial relief from the turmoil it causes. So when new treatments are developed or discovered, it's usually big news—a ray of hope for people stuck in a seemingly hopeless situation. One of these newly developed patent medications, called Memantine,^(tm) was recently approved in Europe. Even though it's not officially "approved" in this country (yet), thousands of people are already importing Memantine to the U.S. via various

Internet sources. But why go through all the trouble (not to mention risk) of getting and using this new patent formula? Apparently, it “works” by protecting brain cells against damage caused by a major excitotoxin, glutamate. But protecting against glutamate-induced nerve cell damage is also one of the well-known actions of lithium. So if it’s true that this newly approved patent medication slows the progress of Alzheimer’s disease in this way, then lithium should slow Alzheimer’s disease progression, too. Of course, lithium treatment, which isn’t patentable and doesn’t have nearly the profit potential of patented Alzheimer’s medications, hasn’t made any headlines. But that doesn’t mean it isn’t a promising option for patients struggling with Alzheimer’s disease.

There are many other research findings that also strongly suggest that lithium will protect against potential Alzheimer’s disease and slow the progression of existing cases. Researchers have reported that lithium inhibits beta-amyloid secretion, and also prevents damage caused by beta-amyloid protein once it’s been formed.²⁰⁻²³ Beta-amyloid peptide is a signature protein involved in Alzheimer’s disease: the more beta-amyloid protein, the worse the Alzheimer’s becomes.

Overactivation of a brain cell protein called tau protein also contributes to neuronal degeneration in Alzheimer’s disease, as does the formation of neurofibrillary tangles. Lithium inhibits both of these nerve-cell damaging problems.^{24,25}

And you’ve likely read that individuals with Alzheimer’s disease usually have excess aluminum accumulation in brain cells. While it’s not yet known whether this excess aluminum is a cause, an effect, or just coincidental, most health-conscious individuals take precautions to avoid ingesting aluminum. Unfortunately, it’s impossible to completely avoid all aluminum, since it’s naturally present in nearly all foods. But lithium can help protect your brain against aluminum by helping to “chelate” it so that it can be more easily removed from the body.²⁵

Although Alzheimer’s disease and senile dementia aren’t technically the same, they do share many of the same degenerative features so there’s every reason to expect that lithium will help prevent or slow the progression of senile dementia too.

A younger, healthier brain with just one small dose a day

As I mentioned earlier, some of these studies used rather high doses of lithium. And in some instances, as in the case of manic depression, doses as high as 90 to 180 milligrams of elemental lithium from 900 to 1800 milligrams of lithium carbonate are necessary. Quantities of lithium in that range must be monitored closely to guard against overdose and toxicity.

But you really don’t need large amounts to improve your “every-day” brain function. Studies have repeatedly shown that substantially lower amounts of lithium can significantly improve brain function (as reflected in behavior).

The amounts of lithium I recommend for brain anti-aging range from 10 to 20 milligrams (from lithium aspartate or lithium orotate) daily. I’ve actually been recommending these amounts since the 1970s. At first I was exceptionally cautious and asked all of my patients taking lithium to have regular “lithium level” blood tests and thyroid function tests. After a year or so, I quit asking for the lithium level blood tests, since 100 percent of them came back very low. Another year after that, I stopped requesting routine thyroid function tests, too, only doing one when I was suspicious of a potential problem. In the 30 years since, I’ve rarely found one.

Protect your brain starting today—no prescription necessary

High-dose lithium is available only by prescription. But low-dose lithium (capsules or tablets containing 5 milligrams of lithium from lithium aspartate or lithium orotate) is available from a few natural food stores and compounding pharmacies.

If you’re interested in keeping your brain as young as possible for as long as possible, you should definitely consider lithium therapy. Review this information with your physician...but make sure he is skilled and knowledgeable in nutritional and natural medicine!

Using lithium safely

Over a decade ago, a woman visited the Tahoma Clinic on the advice of her psychiatrist. She was severely bipolar, requiring a maximum dose of lithium carbonate to keep her symptoms under control. Despite close monitoring of serum lithium levels to maintain a safe range, she was starting to show many signs of lithium toxicity, including hypertension, tremor, nausea, and protein in her urine. She and her psychiatrist had tried other medications, but

none provided the control of her bipolar symptoms that lithium did. So she came to the Tahoma Clinic to see if there were any natural options for her.

Fortunately, there was a simple solution. Without changing her lithium dose, the clinic doctor treating her asked the woman to start taking 1 tablespoon of flaxseed oil along with 800 IU of vitamin E (mixed tocopherols) three times a day. One month later, the woman's blood pressure had normalized, her tremors and nausea were gone, and there was no further protein in the urine. And best of all, her bipolar symptoms remained under control. At that point, she was able to cut the flaxseed oil to 1 tablespoon daily along with 400 IU of vitamin E. Several years later, her lithium toxicity hasn't returned.

To be on the safe side, I always recommend that anyone taking lithium also take a teaspoonful or two of flaxseed oil (or other essential fatty acid) along with 400 IU of vitamin E (as mixed tocopherols) each day.

A sneak peek at even more lithium secrets

In Part 2, I'll review lithium's many other effects—from preventing anorexia to relieving cluster headaches, to lowering blood sugar (and that's just to name a few!). I think you'll be surprised at just how versatile this misunderstood mineral can be.

-Jonathan V. Wright, MD

Citations are as follows:

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