# The Misunderstood Mineral Part 1

By Jonathan V. Wright, M.D.
(Reprinted From "Nutrition and Healing")

## 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 several editions of Health e-Tips a few months ago that discussed various benefits of lithium. In addition to the benefits mentioned in the e-Tips, like controlling gout and relieving rashes caused by sebhorric 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 Alzheimers 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, as well as from the Tahoma Clinic Dispensary.

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!

**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.

In the meantime, if you'd like to read the Health e-Tips on lithium (or to sign up to begin receiving these free e-mail updates), visit the Nutrition & Healing website at www.wrightnewsletter.com.

# The Misunderstood Mineral Part 2

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**Lithium fights crime and some of your most nagging health concerns**

Turns out it's not only the strict use of the death penalty lowering crime rates in some areas of Texas. And while I'm sure "Dubya" would be quick to take credit, it's not stricter laws or changes in sentencing guidelines either. Using 10 years of data accumulated from 27 Texas counties, researchers found that the incidence of homicide, rape, burglary, and suicide, as well as other crimes and drug use, were significantly lower in counties whose drinking water supplies contained 70-170 micrograms of lithium per liter than those with little or no lithium in their water.

The researchers wrote: "These results suggest that lithium at low dosage levels has a generally beneficial effect on human behavior...increasing the human lithium intakes by supplementation, or the lithiation [adding lithium] of drinking water is suggested as a possible means of crime, suicide, and drug-dependency reduction at the individual and community level".

And that's not to mention all of the lithium health benefits we went over in Part 1: It may be useful in treating Alzheimer's disease, senile dementia, and possibly Parkinson's disease. Lithium not only protects brain cells against normal wear and tear, but also offers additional protection against a whole variety of toxic molecules, including patent medications. It can also promote brain cell regeneration and increase brain cell mass. In essence, the research suggests that lithium is a brain anti-aging nutrient.

All of these results are every bit as good as (if not better than) the data that led to dumping toxic waste (fluoride) into so many public water supplies. So why haven't public health and safety "authorities" been pushing for further intensive research on water-borne lithium and criminal behavior?

I'm certainly not in favor of the government adding anything to pure drinking water. But if it insists on forcibly mass-medicating us through our water supply (a thoroughly un-American concept I'm 100 percent against no matter what the added substance is), why haven't they considered adding something that might actually do some real good for people's health and safety? Isn't the possibility of reducing homicide, suicide, rape, robbery, burglary, theft, mental hospital admissions, and drug addiction related arrests just as important as the possibly of preventing tooth decay?

Call me pessimistic, but I suspect lithium is still being ignored because no huge, politically connected industry has enormous quantities of lithium-containing waste lying around. (In the 1940s, that's exactly how water fluoridation began, by using up huge quantities of fluoride-containing toxic waste generated by the politically connected aluminum industry.)

But if there's one thing we all know about the U.S. government, it's that we shouldn't wait for the people running it to do anything to help us, especially when we can help ourselves. So today let's go over a few more of lithium's benefits and I'll tell you how you can help yourself to this valuable mineral right now.

## Lithium tackles another addiction

In 30 years of nutritionally oriented practice, I've been told by many alcoholics and their relatives that low-dose lithium can be very helpful for both alcoholism and associated mood disorders. For "practicing" alcoholics, I recommend a trial of lithium orotate, 10 milligrams three times daily (along with diet advice, niacin, glutamine, and other supplements). I ask recovering alcoholics to try 5 milligrams, three times daily (occasionally more). The majority of these patients report improved mood and decreased desire for alcohol after about six weeks using lithium therapy.

According to one review article in the British Journal of Addiction, "both controlled and uncontrolled experiments show that symptoms of both alcoholism and affective disturbance are reduced in patients treated with lithium".[2] (All of the studies reviewed used high dose prescription lithium.)

I also often recommend direct blood relatives of alcoholics (parents, children, or siblings) consider a trial of lithium orotate, 5 milligrams two or three times daily, even if they have never noticed a mood problem. I explain that this is a "personal clinical trial," and a safe one, that they can discontinue in six to eight weeks if they don't feel a difference. I also ask that the individual discuss this personal clinical trial with their husband, wife, or other close household member, since I've found that the individual doesn't always notice subtle (or even not-so-subtle) mood changes in himself. But immediate family members notice-particularly when the changes are for the better! I haven't kept a count of exactly how many individuals have tried this approach over the last 30 years, but it's probably somewhere in the vicinity of 300 to 400-maybe more. And the majority report positive changes: less depression and irritability for women, and less irritability and "temper" for men.

## Can lithium help solve your health mysteries?

So far, you've read about how lithium can help combat mental illness, mood disorders, and chemical dependency. All of these benefits, in turn, help communities become safer places overall by reducing rates of violent crime. And, yes, increased safety does benefit you and me. But right now, let's discuss some ways that you might be able to put lithium to work in your own life with some surprising applications for a few rather "mysterious" conditions.

By "mysterious," I don't mean brand-new, mutated viruses like the recent outbreak of SARS. No, the conditions I'll go over today have been around for quite a while. But the mystery lies in the fact they each of them is still considered "incurable". Let's start with one of the most painful.

## Fibromyalgia relief: This "last resort" could rank No. 1

This condition primarily strikes women and causes debilitating pain and stiffness. Lithium can help alleviate these symptoms without the problems associated with conventional fibromyalgia treatments, which include tranquilizer, antidepressant, and non-steroidal anti-inflammatory medications (which only temporarily mask the pain and sleeplessness that often occur).

One study examined three women suffering from fibromyalgia, none of whom had responded to conventional treatment. When researchers added lithium to the women's current treatment, all three noticed a marked reduction in their symptoms.[3]

The authors of the study didn't explain why they didn't have the women discontinue their ineffective conventional treatments, but I've got a pretty good idea that their motives might have had something to do with the fact that the conventional treatments, as useless as they were for these women, are the "standard" protocol.

But I digress.

## The gout-eliminating combination that tastes as good as it feels

You might remember reading the Health e-Tip on lithium and gout several months ago (2/3/03, subject line: "Help! My big toe is on fire!"). As the e-Tip mentioned, gout occurs when the body can't process and eliminate excess uric acid. The result is a painful burning or stabbing sensation usually in the ball joint of the foot.

Although there are no published studies on this topic, over the years I've found the combination of low-dose lithium (10-15 milligrams twice daily) and vitamin C (2 grams twice daily) can be very effective in preventing recurrent attacks of gout. Vitamin C significantly reduces serum uric acid levels. Lithium makes uric acid more soluble so it doesn't crystallize into painful "needles". These two actions combine to significantly reduce gout attacks. If you have gout, I also recommend that you drink 32 oz. of cherry juice at the first sign of an attack. Just please make sure it's real cherry juice--no sugar added. Although no one is sure why or how it works, studies have shown that cherry juice usually eliminates the pain of acute gout.

## 85 percent cluster headache relief in just two weeks

Cluster headaches are another one of those inexplicable conditions that my patients tell me always seem to come on at exactly the wrong time. In fact, they might actually be one of the most "mysterious" of the conditions I've listed so far since, like fibromyalgia, the cause isn't known. They tend to attack relentlessly for weeks to months and then often go into remission for months or even years. But lithium (in relatively high doses) can significantly reduce both the severity and frequency.

One study examined lithium's effects on 19 men with cluster headaches. Eight had rapid improvement-an average 85 percent reduction-in their "headache index" in just two weeks. Four individuals had both cluster headaches and psychiatric symptoms; these four had almost complete elimination of their headaches. The remaining seven had only a slight benefit.[5]

Another research group tried lithium therapy (again, relatively high quantities) for 14 individuals with cluster headaches. Five individuals had complete disappearance of their headaches, four had significant improvement, and four had no change.[6]

There's no guarantee that lithium will cure your cluster headaches, but there is a good chance that it might help. With so few other options available, it's at least worth a try.

## Simple relief from those annoyingly persistent problems

Along the same lines as these mysterious conditions are a few other conditions that lithium can benefit. But these are less on the mysterious side and more in the vein of annoyingly persistent. Even so, lithium can still help in a number of ways.

One research group reported that lithium inhibits the reproduction of several viruses, including herpes simplex viruses (HSV 1, HSV 2), adenovirus (the "common cold" virus), cytomegalovirus, Epstein-Barr virus (associated with mononucleosis and many cases of chronic fatigue), and the measles virus. [7]

Another randomized, double-blind, placebo-controlled study of lithium carbonate (doses ranging from 150-900 milligrams daily) demonstrated "a consistent reduction in the number of herpes episodes per month, the average duration of each episode, the total number of infection days per month, and the maximum symptom severity. In contrast, treatment with placebo resulted in an increase in three of the four severity measures". [8]

In addition to lithium, selenium, lysine, and other nutrients can also help suppress the reproduction of herpes simplex (and other viruses) and speed the recovery process should an active infection occur. I tend to think it's better-and safer-to follow this approach (using small quantities of several effective nutrients rather than a larger quantity of just one), so nearly 10 years ago I worked with Bio-Tech Pharmacal to create a useful anti-herpes formula. We combined low-dose lithium with selenium, lysine, vitamin C, olive leaf extract, and other nutrients into two formulas, one (called HPX) for prevention of herpes simplex, and the other (called HPX2) for treatment of outbreaks. Those who have used it tell me it does the job, cutting down or eliminating recurrent herpes infections and/or helping them heal more quickly when they do occur. HPX and HPX2 are both available through natural food stores, compounding pharmacies and the Tahoma Clinic Dispensary.

## A quick end to a Grave disease

Hyperthyroidism can be persistent and difficult to treat. It comes on either very suddenly or very gradually-so gradually, you might not even notice that something is really wrong until the symptoms become severe. Graves' disease is one of the common names for hyperthyroidism. In this condition, the immune system disrupts the functioning of the thyroid gland, causing it to become enlarged and to secrete too much hormone.

Mainstream treatments completely shut down the production of thyroid hormone using dangerous patent medicines. But lithium can get to the root of the problem much more safely.

In 1972, Mayo Clinic researchers published the first clinical investigation of lithium treatment for Graves' disease.[9] Using high-dose lithium for 10 individuals, they reported that thyroid hormone levels fell by 20-30 percent within five days.

Twenty-six years later, in a review of more than 10 successful trials of lithium therapy for Graves' disease, the authors wrote: "a small number of studies have documented its [lithium's] use in the treatment of patients with Graves' disease... it's efficacy and utility as an alternative anti-thyroid [treatment] are not widely recognized..".[10] They also note lithium's rapid effect: "Lithium normalizes [thyroid hormone] levels in one to two weeks..". But they also caution that "toxicity precludes its use as a first-line or long-term therapeutic agent". If they'd just added flaxseed oil and vitamin E to their treatment, they would have basically eliminated the risk of toxicity.

## Lithium's benefits: Ripe for the picking

Perhaps the budding evidence about lithium and brain protection will spark even more interest in researching this mineral. Maybe researchers will accumulate enough evidence to prove that lithium can slow or even reverse brain aging. And perhaps researchers will conclude that putting very low dose lithium into drinking water to reduce violent crime is even more important than adding fluoride to prevent tooth decay.

But I won't hold my breath. Lithium isn't patentable, so I doubt that patent-medicine companies will even consider funneling huge amounts of research dollars into it. And if the patent-medicine companies aren't interested in it, it isn't likely to be "approved" for these or other uses any time soon. But remember, "approval" does not ensure safety or effectiveness; it just means that procedures have been followed, forms have been filled out, and money-lots and lots of money-has changed hands.

Now for the good news: Just because lithium won't be formulated into the next wonder drug and isn't likely to be making the headlines of your local news, that certainly doesn't mean you can't enjoy all of its benefits-from brain anti-aging to headache relief--right now. Low-dose lithium supplements are available in some natural food stores or from the Tahoma Clinic Dispensary.

If you decide to give lithium a try, as with any new treatment or preventive measure (even an all-natural one), it's always a good idea to consult with a physician skilled and knowledgeable in natural medicine as part of your decision.