



L-Theanine

The Essence of Mellow in a Capsule



Ribbitt ... Ribbitt ... Ribbitt ...

Translation ...

**Hey dude, that looks so cool !!
Can we get some of that stuff too?**

Just how good is L-Theanine?



Well, let me tell you ...

- It helps to keep Your Brain Young
- Regulates brain function in ADD and ADHD
- A very Effective (and safe) Flavour Enhancer
- Protects Nerve Cells against Death and Injury
- Calms the Mind, Improves Sleep, Reduces Anxiety
- Immune Boosting, Anti-Cancer and Antibacterial Properties
- Helps to protect from and improve brain conditions such as Alzheimer's, Parkinson's and Huntington's diseases, Epilepsy, Stroke and Lou Gehrig's disease (ALS - amyotrophic lateral sclerosis)

L-Theanine: The Essence of Mellow in a Capsule

By Michael Rath ND Dip Ac Dip C

The amino acid L-theanine shows tremendous potential for calming, protecting and restoring the brain, stimulating the immune system, and even making cancer chemotherapy more effective with fewer side effects.

Theanine Calms and Focuses the Mind and Reduces Anxiety

For example, researchers found that Theanine can reduce stress and anxiety, induce deep states of relaxation without sedation³, calm both PMS and menopausal symptoms⁴, increase focused attention and improve learning⁵, relieve nicotine addiction⁶ and promote sleep⁷.

All these effects appear to be brought about by the interaction of Theanine with various signalling molecules in the nervous system (neurotransmitters). The irony is that for centuries in Japan green tea has been associated with states of meditation and relaxation, but until the research of the 1990's no one suspected that the flavours of tea might be responsible for so many of its effects within the brain.

A Way to Better Sleeping

Theanine's effect on the brain can be visualized on an EEG. Brain waves are actually smoothed out—but not flattened out—by supplemental L-theanine.¹⁶ The body is relaxed, the mind is calmed, but no drowsiness occurs.⁵ This is exactly the type of relaxation prescribed by sleep therapists. The person seeking help will be asked to listen to music or engage in a similarly relaxing activity immediately before retiring. Studies show that pre-sleep relaxation is very effective against insomnia, even in tough cases.¹⁸⁻²⁰

Falling asleep is one thing; staying asleep and getting quality sleep is another. Researchers in Japan gave volunteers 200 mg of L-theanine daily and recorded their sleep patterns on devices worn around their wrists. The L-theanine didn't cause the subjects to sleep longer, but it did cause them to sleep better.

It was documented that sleep quality, recovery from exhaustion, and refreshed feelings were all enhanced by L-theanine. Those taking L-theanine felt like they slept longer than they actually did.²¹ This is good news for people who don't get enough sleep, or those who want to sleep less and do more.

Theanine = Tranquillity



The relaxing effects of Theanine partly depend on its ability to interact with the brain's glutamatergic system. For example, Theanine has been reported to cause the release of GABA in the brain. GABA is the main inhibitory neurotransmitter known for counterbalancing the stimulatory effects of another neurotransmitter, glutamate ²².

Just as glutamate excites nerve cells into greater activity, GABA quiets them down. Unfortunately, it's difficult to supplement with GABA because it doesn't cross the blood-brain barrier readily. Theanine, on the other hand, crosses the blood-brain barrier with relative ease as does Glutamine (the main building block of GABA). This makes Theanine and Glutamine the supplements of choice for relieving anxiety and stress.

Coffee, Caffeine and Theanine

Theanine also has a reputation for counteracting the anxious jitters associated with caffeine without interfering with caffeine's ability to fight fatigue or sharpen mental focus ^{22, 23, 24}. In fact, that's why drinking tea has always been a mellower experience than drinking coffee. **You might get a comparable dose of caffeine from drinking either one, but with Theanine present in the tea you're much less likely to notice a caffeine buzz or increased anxiety.**

You can reduce the overstimulating effects of caffeine from coffee by taking 1-2 capsules of L-Theanine with your coffee. This represents nothing less than the redemption of caffeine.

For too long we've been urged by nutritional faddists to eliminate caffeine from our diets. The fact is, **caffeine is a potent antioxidant with many benefits, including an ability to increase the effectiveness of cancer chemotherapy** (a characteristic it shares with theanine, by the way).

The ability of Theanine to block caffeine-induced anxiety while preserving the positive effects of caffeine means that people who are caffeine-intolerant can finally take advantage of this unfairly maligned nutrient.

Reduce the Harmful Effects of Stress on the Brain with Theanine



Stress and anxiety are debilitating conditions that upset the balance of our hormones leading to a loss of our well-being, performance, and even lifespan. Stress impairs our immune system, leaving us vulnerable to opportunistic infections, and can cause depression.

Way back in 1998 ... 12 years ago, pharmaceutical sales of anti-anxiety drugs totalled over 700 million dollars, while sales of antidepressants totalled close to 5 billion dollars!

People under stress can relieve many of the harmful effects of stress with L-theanine without becoming sedated in the process. L-theanine doesn't make one drowsy, nor does it promote sleep

because this amino acid does not produce theta waves in the brain.

If theanine is present in the body at the time a stroke occurs, the damaged area will be significantly reduced.⁴⁵ This is supported by a Chinese study of 14,000 people, which found that drinking tea slashes the risk of stroke by 40%.⁴⁶ Maintaining healthy levels of Theanine and other tea-related compounds in the body may thus help prevent memory loss and stroke-induced damage to brain tissue.

Theanine Protects Nerve Cells and helps Alzheimer's, Parkinson's

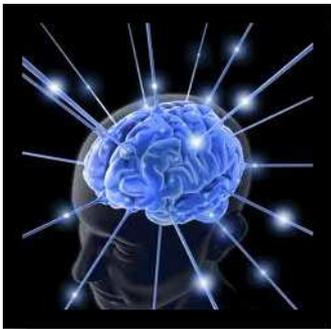
Too much glutamate can kill nerve cells. This is exactly what happens in certain neurological disorders, including **Alzheimer's, Parkinson's and Huntington's diseases and epilepsy, stroke and amyotrophic lateral sclerosis** as well ¹².



The good news is that **Theanine appears capable of blocking cell death** caused by kainic acid ¹³, a neurotoxin known to bind to a particular set of glutamate receptors, as well as by an excess of glutamate itself ¹⁴.

Furthermore, **Theanine is effective at protecting nerve cells from injury caused by low levels of oxygen**, a condition known as ischemia that is also characterized by excessive glutamate release ¹⁵.

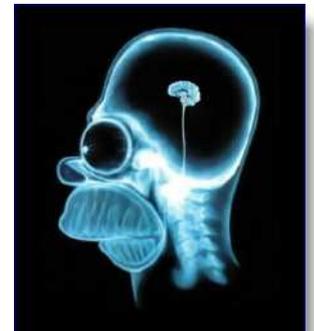
How to Keep Your Brain Young



Normal Healthy Brain

Theanine has also been reported ^{16, 17} to stimulate the release of Nerve Growth Factor (NGF), a protein needed by cholinergic brain cells for survival. (Cholinergic cells are the ones that use acetylcholine for signalling.)

When fed to cultured neurons, NGF increases the formation of neurites, extensions of the cell that are essential for making connections with other neurons. In animal models, NGF reverses the age-related degeneration of cholinergic cells of the basal forebrain.



Homer Type Brain

These cells are also the same ones that atrophy in Alzheimer's. Therefore, maintaining NGF production may be crucial for keeping a youthful brain and for slowing or avoiding Alzheimer's disease ¹⁸. NGF can also be deficient in other neurological conditions as well, such as diabetic neuropathy.

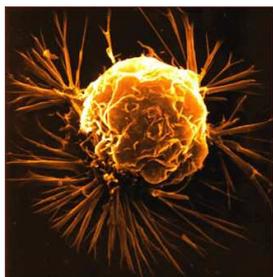
Theanine should be part of a daily nutritional prescription for maintaining neurological health, either alone or combined with other NGF inducers such as Acetyl-L-carnitine ¹⁹ and Co Enzyme Q10 ²⁰ or with an NGF booster such as DHA (docosahexaenoic acid) ²¹ from fish oil.

Theanine, Dopamine, Noradrenaline and ADHD

Theanine has been reported to trigger Dopamine release in the brain ¹⁰. Dopamine is the brain's master regulator of reward and pleasure, and the release of dopamine contributes to the sense of wellbeing associated with Theanine intake (or with drinking green tea). Theanine also stimulates Noradrenaline release, through its effect of increasing GABA levels in the brain ²⁵.

Because dopamine and noradrenaline are the neurotransmitters released by drugs such as Ritalin which are used to treat ADHD (attention deficit hyperactivity disorder), **Theanine is a natural alternative to Ritalin for treating ADHD** ²⁶.

Immune Boosting, Anti-Cancer and Antibacterial Properties



Theanine has antibacterial activity against *Staphylococcus aureus* and *E. coli* by acting as antagonist (anti-metabolite) of glutamate^{28, 29}. It inhibits the oxidation of low density lipoprotein (LDL), suggesting that Theanine contributes to the protective effects of green tea against atherosclerosis³⁰.

Perhaps even more important, Theanine has some surprising, recently documented effects on priming the immune system^{32, 33}. Regular consumption of Theanine can boost the body's defences against infection by many different pathogenic organisms, bacteria and viruses — and, as it turns out, against tumours as well.

Theanine and Cancer

Tumours secrete antigens to which gamma-delta T cells respond. Once the gamma-delta T cells have been primed by circulating ethylamine produced from Theanine, they can provide enhanced immune surveillance against cancer³³.

In this way Theanine can help the body stamp out tumours before they get established and conceivably even shrink existing tumours. The concept is reminiscent of the mechanism behind Coley's toxins, a bacterial vaccine first used over 100 years ago by a pioneering New York surgeon to treat inoperable cancer³⁷. There's reason to think that Theanine may be able to enhance immune response and cause tumours to regress or even disappear in a number of cases by boosting the body's immune responsiveness.

Finally, Theanine has at least two more characteristics of interest to anyone dealing with cancer. One is that both Theanine and green tea can shrink liver tumours (hepatomas), at least in rats³⁸. Although the significance of this finding for human health is not yet known, the study confirms that the catechins aren't the only component of green tea with anticancer effects. The same study also showed that Theanine could decrease the elevated levels of serum cholesterol and triglycerides (fats) associated with this kind of tumour³⁸.

In addition, data collected both in the laboratory and in animal studies show that Theanine **increases the tumours-killing properties of various chemotherapy drugs**, including cisplatin³⁹, Adriamycin^{16, 40} (generically known as doxorubicin) and similar drugs related to it^{41, 42}.

Theanine does so while decreasing the toxic effects of these drugs on normal cells.

Tumour cells typically have high levels of glutathione and the ones with the highest levels are the most resistant to killing with cytotoxic drugs⁴⁵. A tumour cell will attempt to dispose of such a drug by fusing it enzymatically ("conjugating" it) with glutathione and then excreting the resulting glutathione-drug combination.

By inhibiting glutathione production in tumour cells only, Theanine raises the intracellular concentration and tumour-killing effectiveness of doxorubicin⁴⁴ and other anti-cancer drugs³⁹.

The dose of Theanine typically administered in the chemotherapy studies is a relatively modest 10 mg per kg body weight, **which would translate to 700 mg of Theanine per day for a 154 pound human.**

Glutamate transporters on normal cells are of a different type from the ones on tumour cells and hence Theanine does not inhibit glutamate uptake, glutathione production or the disposal of cancer drugs in normal cells⁴⁴. Consequently a non-cancerous heart, liver or bone marrow cell can get rid of the toxic drug much more effectively than a cancer cell. The net result is to widen the therapeutic window for cancer chemotherapy.

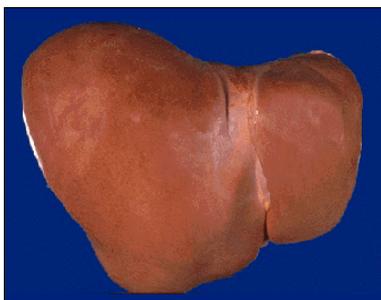


When administered with Theanine, smaller, less toxic doses of cancer drugs can be as effective (or even superior to) larger doses without Theanine⁴².

Theanine can increase the anti-tumour activity of chemotherapy even in drug-resistant tumours^{39, 46} without increasing side effects. Furthermore, the combination of Theanine with doxorubicin can not only shrink existing tumours, it can also inhibit metastases more effectively than doxorubicin alone^{46.2}.

Interestingly enough, caffeine has likewise been shown to potentiate tumour killing by doxorubicin while leaving normal cells unharmed^{46.3}. The combination of Theanine and caffeine might be especially useful for this purpose, since the Theanine will quiet a case of “caffeine nerves” while at the same time adding to the caffeine-induced enhancement of doxorubicin anti-tumour activity.

Balancing the Liver: Alcohol



Another part of the body that responds positively to theanine is the liver.

Research from Japan shows that theanine is a powerful antidote to the effects of alcohol.



If theanine is given to mice before or after they drink alcohol, it significantly lowers blood levels of alcohol.⁴⁷ It works by modulating alcohol chemistry.

Alcohol is converted to a toxic chemical known as acetaldehyde, which is similar to formaldehyde and more toxic than alcohol itself. Theanine accelerates the break-down of acetaldehyde and blocks toxic radicals.⁴⁷ The remarkable powers of theanine to intercept free radicals was demonstrated in the same study. It not only blocked radicals caused by alcohol, it suppressed levels to below normal for five hours.

One reason theanine is able to reverse damage caused by alcohol is that it restores the liver’s all-purpose antioxidant and detoxifier known as Glutathione. Drinking alcohol causes significant suppression of this critical factor. If the suppression is infrequent, the liver bounces back; if suppression is chronic, however, the liver can’t overcome the stress. It breaks down and the effects are felt throughout the body. Theanine helps counteract the alcohol-induced loss of glutathione.⁴⁷

Balancing Fat and Muscle



If there's one place people want to restore balance, it's in the area of body fat. As everyone knows, when fat loss is the goal, calorie expenditure is the game plan. One of the differences in people who are overweight and those who are not is that overweight people sit about two hours longer every day.⁵⁰ Clearly, inactivity causes imbalance in the system, yet the mere thought of exercising makes some people tired. Motivation is lacking, and they might as well try to climb Mt. Everest as do a round on the stair climber.

But what if they really did have to climb Mt. Everest? Researchers in the United Kingdom made a surprising discovery in a study of mountain climbers. Hot tea, they found out, does wonders for fatigue and vigour (as in let's get up and go!).⁵¹ Finnish researchers made a similar discovery when questioning people about depression. None of the subjects who drank five or more cups of tea a day was depressed; whereas those drinking no tea had the highest rate of depression.⁷

Neither research team attributed the motivational effects of tea to caffeine. Caffeine is effective for a different aspect of weight loss: speeding up metabolism. But 100 milligrams of caffeine only increases the resting metabolic rate 3-4%.⁵² Upping the dose can leave a person tired and shaky. So, caffeine by itself isn't the answer to weight loss. Enter green tea.

Researchers know that green tea extract promotes an increase in metabolic rate and fat burning above and beyond its caffeine content.⁵³ They have been aware for several years that compounds in green tea increase caffeine's calorie-burning effects. What those compounds are was a mystery until Japanese researchers decided to look into it in 2004. They divided green tea into its various components and investigated how catechins, theanine, caffeine, and green tea powder itself affect weight gain in female mice.⁵⁴ They found that all the components suppressed weight gain. Green tea powder, catechins, and theanine also reduced triglyceride levels.

The researchers concluded that not only can caffeine help prevent weight gain and fat accumulation, but Theanine can as well.

How Much to Take and How Often

Although there is no set schedule for taking L-theanine, it may generally be taken at the first signs of stress. Based on the results of the clinical studies, L-theanine is most effective in the range of 100-200 mg, with the effect being felt within 15-30 minutes and lasting for 8-10 hours. Individuals with high stress levels may increase their dosage of L-theanine to at least 200 mg, with up to 600 mg being taken in a six hour period.

L-Theanine

200mg L-Theanine per capsule