ADVANCED ORTHOMOLECULAR RESEARCH

AOR CODE: AOR04079
Premium

Zen Theanine

$40.95 CAD

The Calm In The Eye Of The Storm

- Pure L-theanine
- Promotes a calm, relaxed alertness without causing drowsiness
- Fast-acting and effective with one high dose capsule

Gluten Free Vegan Non-GMO Stress & Energy

AOR Code	Variant	Price
AOR04079	60 VEGI-CAPS	$40.95
AOR04341	120 VEGI-CAPS	$62.95

Details
Zen Theanine contains L-theanine, a calming amino acid which is beneficial for those who suffer from stress and anxiety and find it difficult to focus, relax, or fall asleep. First discovered in 1949, L-theanine is a unique amino acid found in green tea which helps reduce nervousness and restlessness, promoting relaxation without causing drowsiness. L-theanine rapidly enters the body when ingested (within roughly 30-40 minutes) and relaxes the brain, calms racing thoughts and creates feelings of “zen” while promoting alertness and concentration. L-theanine influences the levels of the neurotransmitters dopamine, serotonin and GABA in the brain, balancing mood, sleep and learning capacity. L-theanine reduces feeling of stress by inhibiting some of the actions of norepinephrine (a stress hormone) in the central nervous system.

AOR’s Zen Theanine provides an optimal dose of L-theanine to provide fast-acting mental relaxation, with its stress reducing effects typically felt within 30 minutes of consumption.

Label Info

Discussion

Zen Theanine™ is L-theanine, a unique amino acid found primarily in green tea. Studies show that theanine promotes calm, relaxed alertness.

Product Variation

Product Code	Size
AOR04079	60 VEGI-CAPS
AOR04341	120 VEGI-CAPS

Supplements Facts

Serving Size: 1 Capsule	Amount	% Daily
L-Theanine	225 mg	

Microcrystalline cellulose. Capsule: hypromellose.

Guarantees

AOR™ guarantees that all ingredients have been declared on the label. Contains no wheat, gluten, corn, peanuts, sulphites, soy, dairy, eggs, fish, shellfish or any animal byproduct.

Adult Dosage

Take 1 capsule daily without food, or as directed by a qualified health care practitioner.

Cautions

Consult a health care practitioner prior to use if you are pregnant or breastfeeding.

Source

Camellia sinensis (green tea)

Main Application

Mood

Stress

Cognitive function

Disclaimer

The information and product descriptions appearing on this website are for information purposes only, and are not intended to provide or replace medical advice to individuals from a qualified health care professional. Consult with your physician if you have any health concerns, and before initiating any new diet, exercise, supplement, or other lifestyle changes.

Research

Background

What Is L-Theanine?

L-theanine is a rare amino acid. This amino acid, with apparently only one exception, is found only in certain species of tea plants. It constitutes between 1 and 2% of the dry weight of tea leaves and accounts for approximately one half of all the free amino acids present in the leaves. First discovered in 1949, L-theanine not only is an important health-giving constituent of tea, but also is the major flavor component of green tea.

The Relaxation Factor

Researchers have often wondered why it is that tea, despite its caffeine content, tends to relax individuals without making them drowsy. Similarly, those engaging in meditation practices may drink tea to dispel mental sluggishness and yet not become mentally agitated, as is typical with the consumption of too much coffee. L-theanine appears to be the component in green tea which is responsible for these particular benefits. This is good news for the 65% of adult Americans who suffer from daily stress.

Research

Alpha Brain Waves

Various tests have demonstrated the anti-stress effects of L-theanine. One of the more revealing of these experiments examined brain wave patterns after the ingestion of L-theanine. This research built upon the knowledge that humans produce specific patterns of electrical pulses on the surface of the brain which mirror brain states. The four primary wave patterns are known as the alpha, beta, delta and theta (a, b, d and q) brain waves, representing, respectively, 1) relaxed wakefulness, 2) excitation, 3) sound sleep, and 4) dozing sleep.

50 women volunteers (aged 18-22 years old) were divided into high-anxiety and low-anxiety groups. Each group was given either 50 or 200 mg L-theanine in water once a week. Their brain waves were measured during the 60 minutes after ingestion. The measurements were repeated twice during a two-month test period. The results were a marked increase in alpha-waves starting roughly 40 minutes after ingestion. Researchers concluded that L-theanine rapidly enters the system when ingested and that it heightens the index of the brain wave which is known to be linked to a state of relaxed wakefulness. Researchers also have explored whether the response to L-theanine might be influenced by the level of anxiety found in test subjects. As might be expected, the greater degree of change is found in those manifesting high anxiety.

Improved Learning

Animal tests have been used to find out if L-theanine exerts an impact upon memory and learning ability. In one memory experiment based upon learned avoidance, both active and passive in nature, the L-theanine-treated animals were more successful than controls, and their superiority increased in proportion to the number of tests. In another test which measured learning ability, the L-theanine-treated animals, similarly, out-performed the controls, especially as the tests became more advanced.

Neurotransmitter Metabolism

Various experiments have attempted to determine how L-theanine achieves its benefits in the areas of relaxation and learning. These tests have shown that the amino acid influences the levels of neurotransmitters in the brain. The metabolism of dopamine and serotonin is influenced by L-theanine ingestion.

Neuroprotective

L-theanine, furthermore, appears to protect against certain so-called “excitotoxins.” It modulates the motor-stimulation associated with caffeine, and it inhibits some of the actions of norepinephrine in the central nervous system, for instance. In tests with gerbils, L-theanine protected against the destruction of neurons due to a rapid increase in glutamate in neurons and their resulting cellular death.

Benefits for the Liver

Yet another trial with L-theanine looked at its effects upon liver health. A known liver toxin, D-galactosamine, was employed. L-theanine was shown to be active in preventing injury to the liver, whereas glutamine in equal amounts showed no protective effect. Studies using other models of liver injury also have demonstrated benefits.

Market Trends

Theanine is an amino acid which is found in green tea. People use theanine for relaxation, to calm their mood and to increase alertness without the stimulating effects of caffeine.

AOR Advantage

Theanine is one of the primary components of tea that gives it its relaxing and healthful properties. AOR’s Zen Theanine provides an optimal dose of this remarkable amino acid. Zen Theanine is fast-acting, and its calming effects can be felt within 1 hour of consumption.

References

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Sugiyama T, Sadzuka Y, Tanaka K, Sonobe T. “Inhibition of glutamate transporter by theanine enhances the therapeutic efficacy of doxorubicin.” Toxicol Lett. 2001 Apr 30; 121(2): 89-96.

Yokogoshi H, Kobayashi M, Mochizuki M, Terashima T. “Effect of theanine, r-glutamylethylamide, on brain monoamines and striatal dopamine release in conscious rats.” Neurochem Res. 1998 May; 23(5): 667-73.

Yokogoshi H, Kobayashi M. “Hypotensive effect of gamma-glutamylmethylamide in spontaneously hypertensive rats.” Life Sci. 1998; 62(12): 1065-8.

Yokozawa T, Dong E. “Influence of green tea and its three major components upon low-density lipoprotein oxidation.” Exp Toxicol Pathol. 1997 Dec; 49(5): 329-35.

Abstract

Kinetics of L-theanine uptake and metabolism in healthy participants are comparable after ingestion of L-theanine via capsules and green tea.

J Nutr. 2012 Dec;142(12):2091-6.

Scheid L, Ellinger S, Alteheld B, Herholz H, Ellinger J, Henn T, Helfrich HP, Stehle P.

L-Theanine, an amino acid in green tea, is suggested to improve cognition and mood. Therefore, L-theanine is available as a supplement and is now used as an ingredient in functional drinks. Because data on the metabolic fate of L-theanine from human studies are lacking, we investigated the kinetics of L-theanine uptake and its metabolites, ethylamine and glutamic acid, in healthy participants. Within a randomized crossover study, 12 participants ingested a bolus of 100 mg L-theanine via capsules or green tea. On further occasions, 3 participants received 50 and 200 mg L-theanine via capsules. Blood and urine were collected before and up to 24 h postconsumption to determine the concentrations of L-theanine, proteinogenic amino acids, and ethylamine in plasma, erythrocytes, and urine by HPLC. L-Theanine increased in plasma, erythrocytes, and urine with comparable results after both treatments. The maximum plasma concentration of L-theanine occurred 0.8 h after intake of 100 mg L-theanine via capsules (24.3 ± 5.7 ?mol/L) and tea (26.5 ± 5.2 ?mol/L), respectively. The AUC of L-theanine in plasma increased dose dependently after intake of 50, 100, and 200 mg L-theanine via capsules. Moreover, ethylamine and glutamic acid increased in plasma and were excreted by urine after intake of capsules and tea. In conclusion, L-theanine is rapidly absorbed and seems to be hydrolyzed to ethylamine and glutamic acid. A minor part of L-theanine is retained in erythrocytes. Kinetics and urinary excretion of L-theanine, ethylamine, and glutamic acid are comparable after both treatments. Thus, functional effects of L-theanine intake may result from L-theanine, ethylamine, or glutamic acid.

Assessing the effects of caffeine and theanine on the maintenance of vigilance during a sustained attention task.

Neuropharmacology. 2012 Jun;62(7):2320-7.

Foxe JJ, Morie KP, Laud PJ, Rowson MJ, de Bruin EA, Kelly SP.

Caffeine and L-theanine, both naturally occurring in tea, affect the ability to make rapid phasic deployments of attention to locations in space as reflected in behavioural performance and alpha-band oscillatory brain activity (8-14 Hz). However, surprisingly little is known about how these compounds affect an aspect of attention that has been more popularly associated with tea, namely vigilant attention: the ability to maintain focus on monotonous tasks over protracted time-periods. Twenty-seven participants performed the Sustained Attention to Response Task (SART) over a two-hour session on each of four days, on which they were administered caffeine (50 mg), theanine (100 mg), the combination, or placebo in a double-blind, randomized, cross-over fashion. Concurrently, we recorded oscillatory brain activity through high-density electroencephalography (EEG). We asked whether either compound alone, or both in combination, would affect performance of the task in terms of reduced error rates over time, and whether changes in alpha-band activity would show a relationship to such changes in performance. When treated with placebo, participants showed a rise in error rates, a pattern that is commonly observed with increasing time-on-task, whereas after caffeine and theanine ingestion, error rates were significantly reduced. The combined treatment did not confer any additional benefits over either compound alone, suggesting that the individual compounds may confer maximal benefits at the dosages employed. Alpha-band oscillatory activity was significantly reduced on ingestion of caffeine, particularly in the first hour. This effect was not changed by addition of theanine in the combined treatment. Theanine alone did not affect alpha-band activity.

The effects of L-theanine (Suntheanine®) on objective sleep quality in boys with attention deficit hyperactivity disorder (ADHD): a randomized, double-blind, placebo-controlled clinical trial.

Altern Med Rev. 2011 Dec;16(4):348-54.

Lyon MR, Kapoor MP, Juneja LR.

INTRODUCTION: The purpose of this study was to investigate the efficacy and safety of L-theanine as an aid to the improvement of objectively measured sleep quality in a population of 98 male children formally diagnosed with attention-deficit/hyperactivity disorder (ADHD).

METHODS: A randomized, double-blind, placebo-controlled trial was conducted involving boys, ages 8-12 years, who had been previously diagnosed with ADHD. An experienced physician confirmed the diagnosis of ADHD in each subject. Randomization was stratified based upon current use of stimulant medication to ensure an equal distribution of stimulant/non-stimulant treated subjects into active and placebo treated groups. Participants consumed two chewable tablets twice daily (at breakfast and

after school), with each tablet containing 100 mg of L-theanine (total 400 mg daily Suntheanine®, Taiyo Kagaku, Yokkaichi, Japan) or identical tasting chewable placebo for six weeks. Subjects were evaluated for five consecutive nights using wrist actigraphy at baseline, and again at the end of the six-week treatment period. The Pediatric Sleep Questionnaire (PSQ) was completed by parents at baseline and at the end of the treatment period.

RESULTS: Actigraph watch data findings indicated that boys who consumed L-theanine obtained significantly higher sleep percentage and sleep efficiency scores, along with a non-significant trend for less activity during sleep (defined as less time awake after sleep onset) compared to those in the placebo group. Sleep latency and other sleep parameters were unchanged. The PSQ data did not correlate significantly to the objective data gathered from actigraphy, suggesting that parents were not particularly aware of their children's sleep quality. L-theanine at relatively high doses was well tolerated with no significant adverse events.

CONCLUSIONS: This study demonstrates that 400 mg daily of L-theanine is safe and effective in improving some aspects of sleep quality in boys diagnosed with ADHD. Since sleep problems are a common co-morbidity associated with ADHD, and because disturbed sleep may be linked etiologically to this disorder, L-theanine may represent a safe and important adjunctive therapy in childhood ADHD. Larger, long-term studies looking at the wider therapeutic role of this agent in this population are warranted.

Inhibition of glutamate transporter by theanine enhances the therapeutic efficacy of doxorubicin.

Toxicol Lett 2001 Apr 30; 121(2): 89-96.

Sugiyama T, Sadzuka Y, Tanaka K, Sonobe T.

Theanine, a major amino acid existing in green tea, enhanced the antitumor activity of doxorubicin (DOX) due to inhibition of DOX efflux from tumor cells. In order to clarify the mechanism, we have investigated the contribution of glutamate transporters to the action of theanine, because theanine is a glutamate analogue. In M5076 ovarian sarcoma cells, glutamate transport inhibitors reduced the efflux of DOX, as well as theanine. Incidentally, theanine significantly inhibited the glutamate uptake by M5076 cells in a concentration-dependent manner similar to specific inhibitors. These results suggested that the inhibition of DOX efflux was induced by the inhibition of glutamate transport by theanine. In addition, RT-PCR and Western blot analysis revealed the expression of GLAST and GLT-1, astrocytic high-affinity glutamate transporters, in M5076 cells. Thus, theanine was shown to competitively inhibit the glutamate uptake by acting on these glutamate transporters. This action suggested the contribution of glutamate transporters to the inhibition of DOX efflux by theanine. We revealed the novel mechanism of enhancement of the antitumor efficacy of DOX via the inhibition of glutamate transporters by theanine.

Effect of theanine, r-glutamylethylamide, on brain monoamines and striatal dopamine release in conscious rats.

Neurochem Res 1998 May; 23(5): 667-73.

Yokogoshi H, Kobayashi M, Mochizuki M, Terashima T.

Theanine, r-glutamylethylamide, is one of the major components of amino acids in Japanese green tea. Effect of theanine on brain amino acids and monoamines, and the striatal release of dopamine (DA) was investigated. Determination of amino acids in the brain after the intragastric administration of theanine showed that theanine was incorporated into brain through blood-brain barrier via leucine-preferring transport system. The concentrations of norepinephrine, 3,4-dihydroxyphenylacetic acid (DOPAC) and 5-hydroxyindole acetic acid (5HIAA) in the brain regions were unaffected by the theanine administration except in striatum. Theanine administration caused significant increases in serotonin and/or DA concentrations in the brain, especially in striatum, hypothalamus and hippocampus. Direct administration of theanine into brain striatum by microinjection caused a significant increase of DA release in a dose-dependent manner. Microdialysis of brain with calcium-free Ringer buffer attenuated the theanine-induced DA release. Pretreatment with the Ringer buffer containing an antagonist of non-NMDA (N-methyl-D-aspartate) glutamate receptor, MK-801, for 1hr did not change the significant increase of DA release induced by theanine. However, in the case of pretreatment with AP-5, ()-2-amino-5-phosphonopentanoic acid; antagonist of NMDA glutamate receptor, the theanine-induced DA release from striatum was significantly inhibited. These results suggest that theanine might affect the metabolism and/or the release of some neurotransmitters in the brain, such as DA.

Influence of green tea and its three major components upon low-density lipoprotein oxidation.

Exp Toxicol Pathol 1997 Dec; 49(5): 329-35.

Yokozawa T, Dong E.

The abilities of green tea extract and its three major components to inhibit lipid peroxidation in low-density lipoprotein (LDL) catalyzed by copper were tested in vitro using malondialdehyde as a parameter of antioxidant activity. The results demonstrated that green tea extract markedly delays peroxidation with a dose-dependent pattern. Of the three components, polyphenols had the strongest action. Similar action was also shown in the theanine-treated group but was weaker than in the former, whereas caffeine had a very limited effect. Based on these data, it is concluded that green tea extract can effectively inhibit peroxidation and that this activity is due largely to the polyphenols it contains. According to the ultraviolet spectra, copper chelation is suggested to be one of the possible mechanisms of LDL antiperoxidation.