



ALL A B C D E F G I K L M N O P Q R

S T V Z

L-Theanine Clinical Studies

***Nippon Nogei Kagakukaishi.* Kobayashi K, et al. Effects of L-theanine on the release of a-brain waves in human volunteers. 1998;72(2):153-7.**

Topic:

Can L-Theanine help relieve anxiety by affecting brain waves?

Background:

L-Theanine is an amino acid present in green tea that can prevent over-stimulation by caffeine and has been shown to promote relaxation in human subjects. What effect might it have on the alpha-brain waves (those associated with a state of wakeful relaxation) of people suffering from anxiety?

Study Type:

Human clinical intervention trial

Study Design:

Subjects' anxiety levels and alpha-brain waves were measured at baseline (before treatment) and again after taking a single dose of L-Theanine.

Subjects:

8 female university students, 4 who ranked high on an anxiety scale and 4 who ranked low.

3 female university students, 1 who ranked high on an anxiety scale and 1 who ranked low.

Dosage:

A single dose of 200 mg dissolved in 100 ml water

Results:

L-theanine caused an increase of alpha-brain wave generation in the subjects' brains. The emission intensity was significantly greater in the anxious group, indicating that L-theanine has the highest efficacy among those who need it the most.

Conclusion:

These results indicate the possibility for L-theanine to be applied to foods and beverages as a new type of functional food ingredient for its relaxation effect.

Asian Pacific Journal of Clinical Nutrition.

Nobre AC, Rao A, and Owen GN. L-theanine, a natural constituent in tea, and its effect on mental state. 2008;17 Suppl 1:167-8.

Topic:

What effect does L-Theanine, at realistic dietary doses, have on mental alertness and arousal?

Background:

L-Theanine, present in tea, has been shown to increase alpha- waves in the brain. This means it creates a state of relaxation without causing drowsiness. However, this effect has only been proven at high doses. What effect does L-theanine have at a lower dose (equivalent to 2.5 cups of black tea)?

Study Type:

Human clinical intervention trial

Study Design:

Placebo-controlled. Subjects' EEGs were measured at baseline and in fifteen-minute intervals from 45 to 105 minutes after ingesting either L-Theanine or placebo. Subjects were either resting with eyes closed or engaged in a passive activity while the EEGs were taken.

Subjects:

35 healthy young subjects

Dosage:

A single dose of 50 mg

Results:

There was a greater increase in alpha wave activity in the treatment group than in the control group. This was true both for resting subjects and those performing the activity.

Conclusion:

These data indicate that L-theanine, at realistic dietary levels, has a significant effect on the general state of mental alertness or arousal.

Biological Psychology.

Kimura K, et al. L-Theanine reduces psychological and physiological stress responses. 2007 Jan;74(1):39-45.

Topic:

Can L-Theanine reduce psychological and physiological stress?

Background:

L-Theanine is an amino acid present in green tea that has been shown to block L-glutamic acid from binding to glutamate receptors in the brain. This action suggests it may be able to influence psychological and physiological reactions under stress conditions.

Study Type:

Human clinical intervention trial

Study Design:

Double-blind, placebo-controlled. Subjects were given a mental arithmetic task to perform, which acted as a short-term stressor. All subjects at different times took L-Theanine before beginning the task, took L-Theanine during the task, took a placebo and took nothing.

Subjects:

12 Subjects

Results:

When subjects took L-Theanine, their heart rates and salivary immunoglobulin A (s-IgA) responses to the stress task were reduced compared to when they took placebo. Reductions in both heart rate and s-IgA were probably caused by decreased activation of the sympathetic nervous system.

Conclusion:

It was suggested that the oral intake of L-Theanine could cause anti-stress effects via the inhibition of cortical neuron excitation.

Journal of Functional Foods

Higashiyama A, et al. Effects of L-theanine on attention and reaction time response. 2011;3(3):171-8.

Topic:

Can L-theanine help reduce anxiety?

Background:

L-theanine is found in green tea and is known to counter the excitement caused by caffeine. Can it also soothe anxiety?

Study Type:

Human clinical intervention trial

Study Design:

Subjects took a single dose of L-theanine or a placebo and then took a test of attention and reaction time repeatedly between 15 and 60 minutes after administration.

Subjects:

Students with high anxiety and those with minimal anxiety

Dosage:

A single dose of 200 mg

Results:

Students with high levels of anxiety who took L-theanine showed slower heart rates and improved attention and reaction times compared to other highly anxious subjects who took the placebo. Among low-anxiety students, there were no differences between those taking L-theanine and those taking the placebo, indicating that L-theanine does not over-relax: it only works for those who need it. L-theanine did not have the side effects of drowsiness, slowed reflexes or diminished concentration common in anti-anxiety medications.

Nippon Nōgei Kagakukaighi

Kobayashi K, et al. Effects of L-theanine on the release of α -brain waves in human volunteers. 1998:72(2):153-7.

Topic:

What is the effect of L-Theanine on alpha-brain waves?

Background:

Intake of L-Theanine is known to create feelings of relaxation. Could this be due to a relaxing effect on brain waves?

Study Type:

Human clinical intervention trial

Study Design:

After subjects took a single dose of either L-theanine or placebo, their brain waves were measured.

Subjects:

8 female university students, 4 with high anxiety and 4 with low anxiety

Dosage:

A single dose of 200 mg

Results:

After a single dose of L-theanine, alpha-electric waves (a sign of a state of relaxed alertness) were generated in the occipital and parietal lobes of the brain. The intensity of these waves was significantly greater in the anxious group than in the non-anxious group.

Conclusion:

These results indicate the possibility for L-theanine to be applied to food and beverages as a new type of functional food ingredient for its relaxation effect.

L-Theanine Mechanism of Action

Similar in structure to the amino acids glutamine and glutamate, L-theanine is thought to affect both the levels and functions of neurotransmitters in the brain.

For example, L-theanine injection has been shown to raise levels of glycine, an amino acid and inhibitory neurotransmitter. (Inhibitory neurotransmitters are calming, while excitatory neurotransmitters can cause anxiety.) Results of animal neurochemistry studies also indicate that L-theanine raises brain levels of serotonin and GABA, two other inhibitory neurotransmitters. Finally, L-theanine may block L-glutamic acid from binding to the excitatory glutamate receptors in cortical neurons (nerve cells in the cerebral cortex).

