

LE Magazine October 2001

COVER STORY

A New Natural Relaxant

Ever wonder why tea doesn't give you the same buzz as coffee even though it has caffeine? The reason is scientific, dear Watson. Tea contains an amino acid known as theanine. Theanine is tea's version of a relaxant. Think Japanese tea ceremony.

Calming effect

In Japan, stress is legendary— people literally die from overwork. It's so bad that a Japanese doctor invented a name for it. "Karoshi" is death due to overwork. Anything that calms people down is very welcome in Japan. Tea, obviously, has been a part of Japanese culture for thousands of years. But it took a Japanese researcher to point out that caffeine ingested in tea has a different effect than the same amount ingested as pure caffeine. When researchers went to find out why, they discovered that theanine was offsetting caffeine's hyper effect with a calming effect. This led to the manufacture of a new natural antidote to modern stress.

In 1964, Japan approved theanine's use in all food, except baby food. In Japan, you can buy over 50 different food items that contain theanine. Japanese soft drinks are spiked with the relaxant, and it has been put into chewing gum.



The tranquilizing effects of theanine are not imaginary. Theanine readily crosses the blood-brain barrier of humans and exerts subtle changes in biochemistry. An increase in alpha waves has been documented, and the effect has been compared to getting a massage or taking a hot bath. Theanine is different than kava-kava in that it doesn't cause drowsiness. And unlike tranquilizing drugs, it doesn't interfere with the ability to think. Studies on rodents show just the opposite: theanine enhances the ability to learn and remember. By shutting down the "worry" mode, theanine increases concentration and focuses thought. This is the concept behind the Japanese tea ceremony which causes a person to focus on the moment. Consider this: the risk of mortality for Japanese women who practice tea ceremony is half of other Japanese women. The Japanese are already the longest-lived people on earth.

Theanine is a caffeine antagonist. It does the opposite. The effects can readily be seen in EEGs of rodents given caffeine, then theanine. One of the things that theanine changes is GABA, a brain chemical known for its calming effect. Theanine increases GABA, while caffeine decreases it. GABA doesn't just relax, it also creates a sense of well-being. Theanine's ability to increase this brain chemical can put you in a better mood by changing biochemistry. Theanine also increases levels of dopamine, another brain chemical with mood-enhancing effects.

Protect your ability to think

A very interesting feature of theanine, which is just now being investigated, is its ability to protect neurons. Theanine may protect against glutamate, an essential brain chemical that is toxic in high amounts. Although essential to brain chemistry, too much glutamate kills brain cells. The most common cause of glutamate overload is insufficient blood supply. If the brain doesn't get adequate blood flow, glutamate surges, calcium increases, and free radicals damage cells.

"Cerebral vascular dementia" is dementia caused by insufficient blood flow due to bad blood vessels. Glutamate overload is one of the features. Theanine may protect against this type of dementia. In studies on neurons in cell culture, theanine significantly reverses glutamate-induced toxicity. In vivo studies show the same effect in rodents.



Theanine is structurally similar to the amino acid, L-glutamic acid. The similarity enables theanine to physically block glutamate (which is a version of glutamic acid). Although researchers aren't positive how theanine works yet, they theorize that theanine blocks the NMDA receptor which is the doorway that glutamate uses to enter cells. Because of the similar structure, theanine can also fit in this doorway, blocking access to glutamate. But although it can fit in the doorway, theanine does not have the same effect on the cell as glutamate does. Rather than causing damage, theanine acts like a shield against damage.

Lowers blood pressure

High blood pressure is a feature of stress that can be lowered by lowering the stress. The simple act of drinking a cup of tea can lower blood pressure by forcing a person to slow down and relax. But there is evidence that tea exerts far more than just a psychological effect.

Chronically elevated blood pressure has been called America's "silent killer" because many people don't know they have it. Many others simply ignore it. Yet high blood pressure is a very strong indication that a person is destined for a heart attack or stroke.



Remember karoshi? Most readers would assume that death by overwork would be caused by heart attacks. But it's not. In Japan, high levels of stress and hypertension are not risk factors for heart attack and stroke. Salt isn't either, and neither is smoking even though Japanese smoke more cigarettes than Americans. The reason is diet. Studies show that when Japanese adopt a Western diet, their risk of heart attack almost doubles, and Western risk factors then apply to them.

One of the protective factors in the Japanese diet is green tea. According to one study, drinking one or more cups of tea can almost halve the risk of heart attack. Green tea contains a much higher concentration of theanine than other teas. Theanine has been proven to lower blood pressure. It works through its GABA-enhancing effects. GABA lowers blood pressure. Genetically hypertensive rats taking 2000 mg/kg of theanine a day showed significant reductions in blood pressure. Green tea extract contains a phytochemical known as GMA that also lowers blood pressure. Combining them together may have significant effects.

Theanine has multiple beneficial effects. It's like zen in a bottle, and its effects have been compared to tobacco or aromatherapy. Studies show that theanine is a non-toxic, highly desirable mood modulator that can be enjoyed by every adult.

Theanine and PMS

Pre-menstrual syndrome can interfere with a woman's ability to get anything done. All kinds of symptoms are associated with the hormonal roller-coaster that causes PMS. Feelings can range from lethargy to homicide. Some women experience such bad symptoms that they're put on drugs.

Many women (and the people around them) would welcome a non-toxic, safe supplement that would lessen PMS symptoms. Japanese researchers have discovered that theanine works for PMS. Using a distress questionnaire, they tracked the reactions of 20 women taking the new supplement for two months. Theanine caused documented reductions in mental, social and physical symptoms.

References

Abe Y, et al. 1995. Effect of green tea rich in gamma-aminobutyric acid on blood pressure of Dahl salt-sensitive rats. *Am J Hypertens* 8:74-9.

Cardiovascular risk factors among Japanese and American telephone executives. *Int J Epidemiol* 6:7-15, 1977.

Comstock GW, et al. 1985. Cardiovascular risk factors in American and Japanese executives. Telecom Health Research Group. *J R Soc Med* 78:536-45.

Juneja LR, et al. 1999. L-theanine—a unique amino acid of green tea and its relaxation effect in humans. *Trends Food Sci Tech* 10:199-204.

Kakuda T, et al. 2000. Inhibiting effect of theanine on caffeine stimulation evaluated by EEG in the rat. *Biosci Biotech Biochem* 64:287-93.

Kakuda T, et al. 2000. Protective effect of -glutamylethylamide (theanine) on ischemic delayed neuronal death in gerbils. *Neurosci Lett* 289:189-92.

Kobayashi K, et al. 1998. Effects of L-theanine on the release of -brain waves in human volunteers. *Nippon Noegik Kaishi* 72:153-57.

Sadakata S, et al. 1992. Mortality among female practitioners of Chanoyu (Japanese “tea-ceremony”). *Tohoku J Exp Med* 166:475-77.

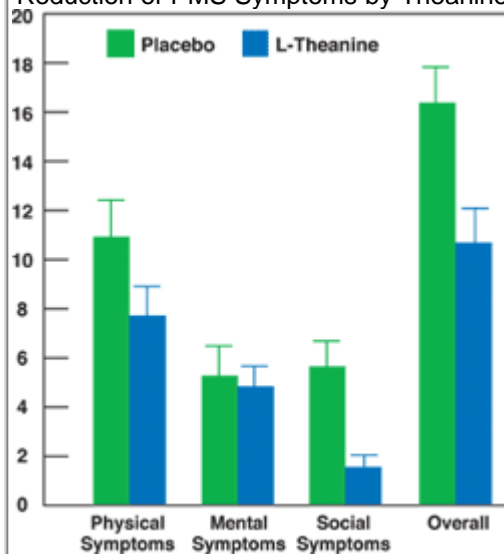
Sesso HD, et al. 1999. Coffee and tea intake and the risk of myocardial infarction. *Am J Epidemiol* 149:162-7. Simons LA, et al. 1992. Health status and lifestyle in elderly Hawaii Japanese and Australian men. Exploring known differences in longevity. *Med J Aust* 157:188-90.

Yokogoshi H, et al. 1998. Hypotensive effect of -glutamylmethylamide in spontaneously hypertensive rats. *Life Sci* 62:1065-68.

Yokogoshi H, et al. 1995. Reduction effect of theanine on blood pressure and brain 5-hydroxyindoles in spontaneously hypertensive rats. *Biosci Biotech Biochem* 59:615-18.

Women who benefitted took 100 mg of theanine twice a day during the questionable days.

Reduction of PMS Symptoms by Theanine



Adapted from the Proceedings of the Nogeï Kagaku Kai, (Biosci Biotech Biochem 75, 166, March 2001, Kyoto) in cooperation with Taiyo Kagaku Co., Ltd., University of Shizuoka and The Family Planning Institute of Japan.

[Back to the Magazine Forum](#)

All Contents Copyright © 1995-2009 Life Extension Foundation All rights reserved.

LifeExtension®

These statements have not been evaluated by the FDA. These products are not intended to diagnose, treat, cure or prevent any disease. The information provided on this site is for informational purposes only and is not intended as a substitute for advice from your physician or other health care professional or any information contained on or in any product label or packaging. You should not use the information on this site for diagnosis or treatment of any health problem or for prescription of any medication or other treatment. You should consult with a healthcare professional before starting any diet, exercise or supplementation program, before taking any medication, or if you have or suspect you might have a health problem. You should not stop taking any medication without first consulting your physician.