

A natural way to attain calm focus

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What is GABA?

GABA (gamma-aminobutyric acid) is a naturally occurring amino acid in the brain and is a major inhibitory neurotransmitter in the central nervous system (CNS). Being an inhibitory neurotransmitter, GABA blocks nerve impulses, slowing down the activity of nerve cells and preventing them from over-firing. Frequent over-firing of brain cells can lead to cell death, meaning that stress can actually kill brain cells. Keeping GABA levels optimal can help prevent this. Thus, GABA serves as a critical calming agent for the body, helping to combat stress and anxiety.

The brain synthesizes GABA from glutamate, an excitatory neurotransmitter. These two neurotransmitters work together in a beautifully orchestrated system of checks and balances. Neurotransmitters are the brain's basic components of communication, and when there is a breakdown in this communication system, brain function becomes affected. In stressful situations, GABA levels in the body can decrease, and this delicate system becomes out of balance. In a study on humans, prefrontal brain GABA levels decreased by 18% after acute psychological stress, specifically threat of shock (Hasler, G, et al, *Am J Psychiatry*, 2010). Thus, supplementation with PharmaGABA™, a natural, bioidentical GABA, may be of benefit in helping to cope with stressful situations, whether they arise from daily or extreme stress.

PharmaGABA™ may be beneficial for:

- Anxiety/Agitation
- Depression
- Cravings and Addictions – helping to decrease addiction-associated anxiety
- Immune Function
- Focus, Mental Clarity, Concentration
- Sports Performance
- Sleep
- Hypertension

PharmaGABA™

This naturally-sourced GABA is made via a process where the amino acid glutamic acid (glutamate) is fermented using *Lactobacillus hilgardii*, the beneficial bacteria also used to ferment many foods including the vegetables in kimchi, the national dish of Korea. PharmaGABA's chewable tablet delivery allows for rapid and efficient absorption and assimilation. As a result, benefits are felt very quickly.

Anxiety

GABA's role as an inhibitory neurotransmitter is paramount. A study of over 1200 students in China looked at the association of problem behavior with neurotransmitter deficiency in adolescents. Upon completion of two analytical questionnaires it was concluded that deficiencies in neurotransmitters such as GABA may cause behavioral and mental issues, including those of anxiety and depression (Song X, *J Huazhong Univ Sci Technolog Med Sci*. 2010).

Brain waves are analyzed in order to learn how the brain reacts to real life situations. Alpha waves are produced during meditation, and anytime the body is relaxed and alert. Beta waves, on the other hand, are seen in situations of high stress and where there is difficulty in focus and concentration. Although some believe that GABA does not get through the blood brain barrier, multiple studies have been performed on the effects of oral administration of GABA with remarkable results in a short period of time. In a study of 13 subjects, alpha and beta brain waves were evaluated after oral intake of GABA through the use of EEGs. Results after one hour showed that GABA increased the production of alpha waves while decreasing beta waves, indicating that GABA may help to induce relaxation and reduce anxiety (Abdou AM, et al, *Biofactors*, 2006). It is believed that GABA supplementation is able to achieve these results by activating the parasympathetic nervous system, a division of the autonomic nervous system responsible for a variety of involuntary bodily processes involved in relaxation.

PharmaGABA™ for Academics & Athletics

Because of GABA's effect on the parasympathetic nervous system, and its ability to help to increase the production of alpha brain waves, supplementation of PharmaGABA™ may be of great benefit in situations where a relaxed state of mind is necessary. If the mind is relaxed, it allows for clear thinking, better focus, and greater concentration. In this respect, GABA has been found to be of benefit in academics, in helping to improve learning capacity.

PharmaGABA™ was given to elementary school students in Japan, to examine GABA's relaxing effect and its potential to improve students' learning efficiency. Results showed that GABA suppressed the secretion of CgA (salivary chromogranin A; secreted in times of psychological stress), demonstrating reduced stress at the time of learning. An increased accuracy rate of testing was also observed, as well as a significant reduction in tension toward learning (as measured by a Manifest Anxiety Scale).

Researchers concluded that PharmaGABA™ was effective in improving students' learning efficiency and in helping to improve students' test results (*Unpublished data provided by Pharma Foods International Co. Ltd.*).

This concept also holds true with respect to athletes and sports performance. Athletes often refer to this state of mind as being "in the zone," where their ability to relax and focus leads to a greater level of concentration on their performance and a reduction in pre-competition nervousness.

Addictions

Although addictions (such as drug and alcohol) are complicated diseases, they are considered to be brain disorders. More specifically, they are chronic, relapsing disorders caused by disturbances in the neurobiological mechanisms of brain function. In fact, alcoholism and stress share some common neural circuits including the GABAergic system, in particular, the GABA(B) receptor. GABA(B) receptors are involved in controlling the release of GABA and therefore affect depressed moods and pain. Using substances such as drugs and alcohol for recreational purposes is based on the fact that they cause rewarding effects through the pleasure center in the brain. Experiments have shown that modulation of the GABA(B) receptor can greatly affect this reward process. It is this ability to affect the reward process which has led to research relating to GABA's potential in the treatment of addiction. Evidence suggests that modulators of the GABA(B) receptor can aid in the initiation and maintenance of abstinence, and in the prevention of relapse in some addictions (*Tyacke RJ, et al, Pharmacol. 2010*).

Help for Smoking Addiction

The anti-anxiety effects of PharmaGABA™ have been shown to be a helpful aid to those trying to quit cigarette smoking. A double-blind study of smokers attempting to stop their use of cigarettes used two different surveys in order to measure the psychological reactions of the participants (Profile of Mood Status and Visual Analogue Scale [intuitive feelings/mood]). Results showed the level of desire to continue smoking was significantly reduced among those taking PharmaGABA™. In addition, lower levels of the salivary protein chromogranin A (CgA) were observed in the PharmaGABA™ group. From this study researchers concluded that the stress derived from quitting or reducing cigarette smoking can be mitigated with the administration of PharmaGABA™ (*Yogohoshi H, et al, unpublished study by The Pharma Foods International Co, 2010*).

Immune Function

Stress and anxiety impact the immune response and are associated with immunosuppression. GABA has been shown to play a role in enhancing immune function in stressful situations. In one particular study, eight acrophobic subjects (those with a fear of height) were asked to cross a suspended bridge, a truly stressful situation for them. Salivary IgA was monitored during the crossing of the bridge. Stress lowers salivary IgA, while relaxation raises this marker. The placebo group showed marked decrease of their IgA levels, while those given GABA showed significantly higher IgA levels (*Adham M, et al, Biofactors, 2006*).

Sleep

Another benefit of GABA's ability to promote relaxation is that it may be helpful in inducing sleep. Certain GABA receptors are highly expressed in the thalamus, the part of the brain that is distinctively important in the control of sleep and wakefulness. GABAergic inhibition in the thalamus is known to play a principal role in the generation of sleep brain waves. Thus, PharmaGABA™ is suitable to take before bedtime to help promote a good night's sleep and may be ideal for stress-induced insomnia.

Normalizing Blood Pressure

Supplementing with GABA has been shown to help reduce blood pressure in adults with mild hypertension. An eight-week trial was conducted on 50 men and women with systolic blood pressure between 130 and 180mmHg. The results of this study showed a significant reduction in blood pressure with daily supplementation of 80 mg of GABA, as compared to the placebo group (*Matsubara F, et al., Japanese Pharmacology & Therapeutics, 2002*).

Who Should Not Take: This product is not recommended for pregnant or lactating women, as well as young children, unless under the guidance of a health care practitioner. Use of PharmaGABA™ may conflict with taking anxiety medications. Most prescription drugs for anxiety work on the GABAergic system since this is known to play an important role in the pathophysiology of anxiety disorders. Do not take PharmaGABA™ with excess alcohol consumption as it may exacerbate the relaxation effect of alcohol drastically.

Supplement Facts

Serving Size 2 tablets

Servings Per Container 30

Amount Per Serving	% Daily Value
gamma-Aminobutyric acid (as PharmaGABA™)	200 mg *

*Daily Value not established.

Other Ingredients: Xylitol, F-MELT®, vegetable stearates, microcrystalline cellulose, citric acid, natural flavors, stevia (leaf) extract, pharmaceutical glaze.



For a list of references cited in this document, please visit:

http://catalog.designsforhealth.com/assets/itemresources/PharmaGABA_References.pdf

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