

# PRO-ENDORPHIN RELEASE

**Ingredients:** Each Two Effervescent Tablets Supplies - Vitamin C 300 mg, Vitamin B-1 7.5 mg, Vitamin B-2 7.5 mg, Vitamin B-6 50 mg, Vitamin B-12 150 mcg, Niacin 25 mg, Biotin 75 mcg, Pantothenic Acid (D-Calcium Pantothenate) 11 mg, Sodium (bicarbonate) 110 mg, Adrenal 80 mg, Inositol 50 mg, DMAE 200 mg, DL-Phenylalanine 75 mg, L-Phenylalanine 75mg, L-Taurine 37.5 mg, Kola Nut (fruit) 62.5 mg, Eleuthero (root) 100 mg, Stevia 50 mg, Honey 50 mg.

**Supportive Function:** Support of the natural systems of the body, including energy systems, the nervous system, mood balance and endorphin-release.

**When is Pro-Endorphin Release helpful?** Depression, lethargy, brainfog, mood swings, muscle fatigue, low sex drive, athletic performance.

**Clinical Applications/Research:** Endorphins are known as the “feel good” molecules made in the body. We know that endorphins are raised after a vigorous workout, and we know that endorphins make us feel good when they kick in. But what are they, and how do they work? Endorphins are proteins containing 30 amino acids (made naturally in the body) that bind to receptors in the brain and elicit feelings of euphoria. There are three major types of endorphins: beta-endorphins, found primarily in the pituitary gland; enkephalins and dynorphin, both distributed throughout the nervous system. **Endorphins can act as neurotransmitters.** Endorphins interact with opiate receptor neurons to **reduce the intensity of pain**; among individuals afflicted with chronic pain disorders, endorphins are often found in high number. Some people even appear to be genetically deficient in endorphins, rendering them more susceptible to intractable pain.<sup>i</sup>

Besides behaving as a **pain regulator**, endorphins are also thought to be involved with **appetite modulation, euphoric feelings, and the release of sex hormones\***.<sup>ii</sup> The places in the brain that produce the most endorphins are the same areas of the brain involved most intimately with learning and memory, and some studies support an effect of endorphins on these brain functions.<sup>iii</sup>

Usually produced in response to stress (exercise is perceived as a stress to the body) “**endorphins naturally block pain signals produced by the nervous system**”, and are believed to produce four key effects on the bodymind: they **enhance the immune system**, they **relieve pain**, they **reduce stress**, and **postpone the aging process**”.<sup>iv</sup> Endorphins have been described to have **mood-improving** and **relaxing benefits, creating a state of exhilaration**; they have also been implicated in **reductions in anxiety, tension, anger, and confusion**. Endorphins are also involved in the **regulation of the female menstrual cycle**, as well as **influencing** the response of numerous other hormones, including **GH, ACTH, prolactin, catecholamines and cortisol**, while modulating the secretion of the hormones **LH and FSH**.<sup>v</sup> Additionally, enkephalins may have **cardioprotective effects**.<sup>vi</sup> Several popular healing modalities have been found

to stimulate the body's production of pain-killing endorphins. They include **nutritional supplementation, chiropractic, acupuncture, massage (including shiatsu), local electrical stimulation (electrotherapy), and hydrotherapy.**

**Phenylalanine:** **DL-phenylalanine** is a mixture of **D-phenylalanine** and **L-phenylalanine**. All these forms have been tested in depression studies with favorable results. L-phenylalanine serves as a building block for the various proteins that are produced in the body. It can be a substrate for tyrosine, which can be used in the production of neurotransmitters such as L-dopa, epinephrine and norepinephrine. L-phenylalanine can also be converted to phenylethylamine, a naturally occurring substance in the brain associated with mood elevation. The D form was found to have potential for support in Parkinson's disease. D-phenylalanine has been associated with brain chemicals relating to pain sensation. It has been said that the **analgesic action of D-phenylalanine** is well known. The mechanism of action may be that D-phenylalanine is an inhibitor of the endorphin degrading enzyme enkephalinase. It has had **favorable results** when it was used in a **study of intractable pain**. In another study, **D-phenylalanine enhanced the "analgesic effect of acupuncture by the endorphin mechanism"**.

**Tyrosine:** Beta-Endorphins are formed mainly by **tyrosine**, an amino acid. Beta-endorphins play a positive **role in immunomodulation**, enhancing production of many immune-fighting cells. In fact, this endorphin - immune response may actually be responsible for an anti-inflammatory effect.

**Eleuthro (Siberian ginseng):** Eleuthro, or Siberian ginseng, has always had a reputation for helping energy levels. Most of the activity of the herb is attributed to the eleuthrosides, which have demonstrated adaptogenic abilities, and have a normalizing action. This **adaptogenic capability** helps to **increase resistance to stress**. Symptoms of imbalance from stress can include fatigue, insomnia, depression, anxiety, irritability, lowered immune resistance, muscle fatigue and aches, depleted energy, lack of sexual drive and reduced mental and physical performance. Research supports that the herb can be helpful for symptoms of imbalance.

**Kola nut:** Kola nut is an herb that contains natural caffeine and has been used traditionally for support of energy levels and exercise performance. A medium dose of the herb Kola nut was found to **significantly increase the locomotor activity** in mice.

**Adrenal support:** Endorphins are made and stored in the hypothalamus and **adrenal glands**, and are "on call" for activation and release into the blood. The adrenal glands are known as "anti-stress" glands and have the highest concentration of **vitamin C** in the body. Vitamin C is known as an "anti-stress" vitamin. The adrenals help us to deal with everyday stresses by balancing the catecholamines (such as adrenaline and noradrenaline) and cortisol that are made in the adrenal glands. DHEA is also produced by the adrenal glands, and DHEA acts as a buffer against stress-related hormones such as cortisol. Adrenal glandular can support the function of the adrenal glands.

**Taurine:** Taurine may possess an ability **to inhibit development of tolerance to endorphins**. Taurine has been known to **stimulate GH (growth hormone)**, and **supplementation of taurine has increased beta-endorphin-like “immunoreactive” material in the brain**. It has been suggested that endorphin activation, which is intimately related to SNS (sympathetic nervous system) suppression, may contribute to the **blood-pressure lowering effect** of taurine.

**DMAE:** Also known as 2-dimethylaminoethanol, DMAE exists naturally in the brain, is present in anchovies and sardines, and is thought to raise levels of acetylcholine. Alzheimer’s patients have reduced ability to release this neurotransmitter, and acetylcholine deficiency is believed to be a possible cause of memory impairment in senile dementia. In a clinical trial, 10 out of 14 patients improved globally, exhibiting reduced depression, irritability and anxiety, and increased motivation-initiative, leading researchers to conclude that **DMAE “may produce positive behavioral changes”** in some patients. DMAE may work, in part, by causing free choline to accumulate in blood, enter the brain, and stimulate cholinergic receptors

In a randomized, group-parallel, double-blind, placebo-controlled study analyzing the brain's electrical reaction, **DMAE** was an important substance noted, “to **induce a psychophysiological state of better feeling of wellbeing on both levels of analysis mood and electrical pattern of brain activity** in subjects suffering from borderline emotional disturbance. In a double blind, crossover study designed to measure the impact of DMAE on vigilance and mood, subjects reported **improved neuromotor control, enhancement of behavioral tasks, increased verbal memory, and better control in anxious and rhythmic reactivity**.

In another study consisting of 25 girls and 83 boys, conducted by Dr. Carl Pfeiffer of the Brain-Bio Center in Princeton, New Jersey, **DMAE enhanced behavior** in 2/3 of the boys and 3/4 of the girls. **Hyperactivity was greatly lessened as attention span lengthened, irritability decreased, scholastic ability improved, and, in some cases, IQ was elevated**. 74 children, including many who were hyperactive were given DMAE in a double-blind fashion for 3 months. Behavior, reaction time, and a series of other parameters were tested before and after supplementation. **DMAE showed significant overall improvement and improved performance** in children with learning/behavior disorders.

*References available on request.*

**Suggested Dosage:** Dissolve 2 tablets in 4-6 oz water 3 x daily. Before exercise, 2 tablets dissolved in 4-6 oz water.

**Size:** 90

**Vegetarian:** No

**Contraindications:** Contains naturally occurring caffeine (kola nut). Clinical trials have used up to 1600 mg of DMAE with no toxic side effects, however DMAE is not recommended in manic depression (a small synergistic amount of 200mg is used in this formula). Do not take this product if you are phenylketonuric (or have tardive dyskinesia), pregnant, nursing, taking MAO inhibitors, or suffer from mania. S

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