

TOTAL BRAIN

Ingredients: Each tablet supplies: Phosphatidylserine 10mg, DMAE 30mg, 5-Hydroxy-Tryptophan 2mg, Vinpocetine 500mcg, Glutamic Acid 10mg, L-Glutamine 10mg, L-Arginine 5mg, RNA 30mg, DNA 10mg, B-6 5mg, L-Ornithine 1mg, L-Methionine 1mg, Vitamin C 5mg, L-Lysine 5mg, Reishi Mushroom 13mg, Gingko Biloba Extract 10mg, Co-Enzyme Q-10 3mg, Inositol 9mg, Niacin 4mg, Folic Acid 100mcg, Vitamin E natural mixed tocopherols 10i.u., Dong Quai 25mg, B-1 5mg, Phosphatidyl Choline 10mg, B-12 50mcg, Glutathione 5mg, Pregnenolone 5mg, Pyridoxal 5 Phosphate 2mg, Rosemary Extract 50mg, Alpha Lipoic Acid 5mg, Huperzine-A 25mcg, Manganese Chelate 500mcg, Magnesium Citrate 12mg, Boron Chelate 500mcg, Potassium Chelate 5mg, Selenium Chelate 50mcg, Zinc Chelate 5mg, Chromium Chelate 50mcg, Calcium Citrate 15mg.

Supportive Function: This formula provides comprehensive nutritional support for brain function.

When is brain support helpful? Depression, ADHD, mental fog, memory impairment, stroke, brain imbalance, tinnitus, etc.

Clinical Applications/Research: Phosphatidylserine helps support healthy mental function. It enhances memory in adults, especially those 50 or older. Phosphatidylserine has also improved mental function in Alzheimer's disease (Crook TH, et al, "Effects of phosphatidylserine in age-associated memory impairment," *Neurology* 1991; 41:644-9; Crook T, et al, "Effects of Phosphatidylserine in Alzheimer's disease," *Psychopharmacol Bull* 1992; 28:61-6).

DMAE (dimethylaminoethanol, deanol) may be helpful for Attention Deficit Disorder, hyperkinesia, and learning disabilities in benefiting learning and memory. It is believed to enhance acetylcholine levels in the brain. Studies with Alzheimer's patients have not yet shown that it improves cognitive function. Dean and Morgenthaler report that DMAE helps in mood elevation, improvement of memory and learning, and increases in intelligence (Re' O, "2-Dimethylaminoethanol (deanol): a brief review of its clinical efficacy and postulated mechanism of action," *Curr Ther Res Clin Exp* 1974;16:1238-42; Knobel M, "Approach to a combined pharmacologic therapy of childhood hyperkinesia," *Behav Neuro-psychiatry* 1974 Apr 1975 Mar;6:87-90;Dean W, Morgenthaler J & SW Fowke, *Smart Drugs and Nutrients*, NY: Smart Publications, 1991).

5-Hydroxy-Tryptophan is produced from the essential amino acid tryptophan by the action of tryptophan hydroxylase and is the immediate precursor to serotonin. Serotonin is responsible for normal, healthy sleep. Tryptophan has been successfully used in the treatment of obesity, sleep disorders, and depression. Taken before bedtime, tryptophan shortens the time it takes to fall asleep and improves the quality of sleep. As more serotonin is released into the brain by taking tryptophan, a more relaxed state is experienced and symptoms of tension, anxiety and depression are relieved (*J of Nutri* 1982; 112:2001; *Reviews of Clin Nutri*; 53(3): 169). Tryptophan intake helps reduce the severity and number of emotional complaints and may help alleviate depression, especially in those who do not respond to tyrosine. It helps stabilize moods, control hyperactivity in children, and alleviate stress. In a Finnish study, tryptophan helped reduce pain levels and increase pain tolerance. Tryptophan is also a precursor to neurotransmitter, carnitine (Chaitow 1988: 66-70;76; 58-9; Balch & Balch 1997:42).

Vinpocetine (Ethyl Apovincaminat) is a brain protective chemical that enhances brain cell metabolism. Vinpocetine, a purified alkaloid from the periwinkle plant, has been shown to enhance oxygen and glucose uptake from blood by brain neurons, to increase neuronal ATP production under low oxygen conditions, and to reduce cell death when a brain is temporarily deprived of oxygen. Vinpocetine helps restore impaired brain carbohydrate energy metabolism in patients with cerebrovascular diseases, improving alertness, concentration and memory (Vamosi B et al, "Comparative study of the effect of Ethyl Apovincaminat and Xanthinol Nicotinat in cerebro-vascular diseases," *Arzneim Forsch (drug research)* 1976; 28:1980-84; Karpaty E & Szporny L, "General and cerebral harmodynamic activity of Ethyl Apovincaminat," *Arzneim Forsch (drug research)* 1976; 28, 1908-12; Branconnier R, "The efficacy of the cerebral metabolic enhancers in the treatment of senile dementia," *Psychopharm* 1983; 19: 212-19; Hoffer A & M Walker, *Smart Nutrients*, Garden City Park, NY: Avery, 1994).

Glutamic Acid is a necessary excitatory neurotransmitter in the brain and spinal cord. Glutamic acid helps transport potassium across the blood-brain barrier and can act as a brain fuel. It is the only means that the brain uses to detoxify itself of ammonia. Glutamic acid has been used to treat personality disorders and childhood behavioral problems. Glutamic acid is the precursor to GABA, which has a tranquilizing effect, and has been used to benefit attention deficit disorder.

L-Glutamine is a brain fuel essential for normal mental ability. It is the precursor of DNA and RNA necessary for the building of all cells. Glutamine helps enhance mental functioning and has been used to benefit people with developmental disabilities, epilepsy, impotence, schizophrenia, and senility. It decreases both sugar and alcohol craving and has been beneficial in treating alcoholism.

L-Arginine helps heal and repair damaged tissue, is involved in many hormones and enzymes, enhances immune function, and aids in liver detoxification. It aids in weight loss by decreasing body fat and increasing muscle mass.

DNA and RNA are the brain's cellular building blocks. DNA-RNA are nucleic acids that directly nourish cells and enhance energy production for memory transfer in the brain. DNA is the template that sends RNA to build new cells for repair and maintenance of the brain and other organs. In aging, DNA-RNA becomes less efficient. Supplements have been shown to help reverse age-related decline in cell efficiency.

B-6 helps maintain mental health and is necessary for normal brain function. B-6 has a calming effect. Deficiency can result in depression, learning difficulties, and weak memory. B-6 helps metabolize most amino acids, alleviate nervousness, and reduces muscle spasms at night. B-6 is necessary for tryptophan metabolism, and together with vitamin C, enhance tryptophan uptake by the brain. B-6 helps enhance the effects of tryptophan in shortening the time it takes for sleep onset, improve the quality of sleep, and induce a more relaxed waking state (Mindell 1985:33-4; Chaitow 1988: 63-70).

L-Ornithine has been shown to benefit those undergoing surgery and confined to the hospital in improving nutritional status, enhancing healing and tissue repair. It may improve immune function, the ability to handle infection, and prompt the release of Growth Hormone. Ornithine enhances liver function, helps regenerate the liver, and helps detoxify ammonia (Varnassi RV, Saltzman JR, "Ornithine oxoglutarate therapy improves nutritional status," *Nutri Rev* 1995; 53(4):96-102; Chaitow 1988:87; Balch & Balch 1997:40-1).

L-Methionine helps protect the brain and other organs by breaking down fats that might obstruct blood flow and by helping detoxify many harmful toxins including heavy metals and the effects of radiation. It is an essential amino acid that helps the synthesis of other amino acids and converts into the brain food choline and carnitine.

B-6, B12, Folic Acid, Choline, and Magnesium work together in the metabolism of methionine.

Vitamin C is necessary for brain chemistry. It can help in dealing with stress, can have a tranquilizing effect, and decrease anxiety. It is necessary for the conversion of most amino acids into active neurotransmitters. A low level of vitamin C can present as carnitine deficiency. Vitamin C as a powerful antioxidant improves circulation to the brain and can help prevent depression (Chaitow 1988; Balch & Balch 1997:225).

L-Lysine deficiency can result in reduced ability to concentrate, fatigue, dizziness, nausea, anemia, and reduced antibody formation. Lysine has anti-viral effects especially in herpes viruses. It readily converts into acetyl-L-carnitine, which enhances brain metabolism, protects the heart, enhances memory, social abilities, and overall function in Alzheimer's patients (Cucinotta D, et al, "Multicenter clinical placebo-controlled study with acetyl-L-carnitine (LAC) in the treatment of mildly demented elderly patients," *Drug Development Res* 1988;14:213-216).

Reishi were rated number one in ancient China as superior medicine believed to give eternal youth and longevity. Today, they are used to improve vitality, treat high blood pressure, fatigue, and to build resistance to disease.

Ginkgo Biloba Extract (GBE) has been shown to be a safe, non-toxic alternative to drugs in helping improve mood, memory, and attention. In the early stages of Alzheimer's, it has been shown to slow progression of the disease, improve memory and quality of life. GBE increases blood flow to the brain and enhances brain function.

Co-Enzyme Q-10 helps improve brain oxygenation, which increases the ability of brain cells to produce energy by aerobic glycolysis. As oxygen levels in the brain decline, brain function declines.

Inositol is known to have a calming effect and helps in depression. It is a precursor to choline, and deficiency can lead to hair loss, irritability, and skin problems. *Caution:* Should not be taken by people subject to manic depression.

Niacin promotes healthy circulation to the brain and assists in brain function. It enhances memory, exerts a calming effect, is helpful in schizophrenia, and other mental illnesses. Deficiency can result in depression, dementia, indigestion, and low blood sugar. Low blood sugar can impair mental function.

Folic Acid is considered a brain food. It is necessary for DNA-RNA synthesis so that cells are built and repaired normally. It helps prevent many birth defects. Supplementation has been reported to elevate mood and aid in depression and anxiety. Possible signs of deficiency include depression, apathy, graying hair, memory problems, paranoia, and fatigue.

Vitamin E has been shown to extend the time Alzheimer's patients are able to perform self-care such as bathing and dressing and may slow the progression of the disease. Vitamin E is a powerful antioxidant that helps protect cell membranes throughout the body, including the arteries that supply the brain, and the brain itself. Vitamin E helps improve blood flow and oxygen supply to the brain.

Dong Quai has effective ginseng properties to relieve stress, purify and strengthen blood, balance female hormones, and improve circulation (Rector-Page 1991:162).

B-1 helps maximize brain function and cognitive activity. B-1 has a calming effect on nerves and helps reduce anxiety. It enhances circulation and is necessary for the carbohydrate fuel the brain runs on. B-1 deficiency was found to contribute to senile dementia in studies conducted at Surrey University and Welsh National School of Medicine. Deficiencies of other B vitamins, C, and D were also associated with mental

decline. All B vitamins are necessary for brain and nerve health. B-1 deficiency is linked to forgetfulness, irritability, nervousness, and general weakness (Balch & Balch 1997:471).

Phosphatidyl Choline is a purified form of lecithin, which converts into choline. Choline facilitates the cellular movement of fats, is needed for membrane integrity, and becomes a component of the neurotransmitter, acetylcholine. Choline concentration in the bloodstream helps enable the brain to produce needed neurotransmitters for healthy functioning. Acetylcholine is supportive of good memory, helps people with Alzheimer's, and individuals subject to manic depression.

B-12 helps prevent nerve damage, is needed to prevent anemia, and may help memory and learning abilities. B-12 is needed for the production of the most important brain neurotransmitter, acetylcholine. Elderly people often develop deficiencies because of age-related decline in the ability to absorb B vitamins. B-12 deficiency can cause depression, irritability, memory loss, moodiness, nervousness, among other symptoms. Vegetarians require B-12 supplementation since it is found almost exclusively in animal sources. B-12 deficiency has been found in Alzheimer's disease.

Glutathione is important in protecting the nervous system and brain, helps detoxify the liver, and helps in carbohydrate metabolism. Deficiency first affects the nervous system, causing coordination problems, tremors, difficulty in maintaining balance, and mental disorders.

Pregnenolone converts readily into DHEA, which may help prevent arterial disease, improve memory, and prevent Alzheimer's disease. One study of middle aged and elderly men found that small doses of DHEA therapy resulted in a 48% reduction in death from heart disease and a 36% reduction in death from all other causes. DHEA helps produce better ability to cope with stress, a greater sense of well-being, increased mobility, decreased pain, and a higher quality of sleep.

Pyridoxal 5 Phosphate, a form of vitamin B-6, is necessary for most amino acid metabolism. It helps alleviate nervousness and reduce muscle spasms at night. B-6 is necessary for tryptophan metabolism, and together with vitamin C, enhances tryptophan uptake by the brain.

Rosemary has been found supportive in mental health to alleviate stress and tension, relieve headaches, counteract depression, and improve memory (Rector-Page 1991: 180; Balch & Balch 1997:380).

Alpha Lipoic Acid enhances glucose conversion for cell protection, maintenance, and rebuilding for the brain and other tissues. Lipoic Acid protects against capillary damage, regenerates and recycles other antioxidants, especially C, E, and glutathione. It helps neutralize toxins and detoxify heavy metals implicated in brain dysfunction. Lipoic Acid protects liver from alcohol damage and protects nerve damage. Supplements have been shown to improve neuropathy and reduce nerve pain.

Huperzine-A has been shown to help improve memory, thinking, and behavioral functions in individuals with Alzheimer's and memory in middle school children. Huperzine-A inhibits the breakdown of acetylcholine, a chemical responsible for normal brain function and good memory (Xu SS et al, "Efficacy of tablet huperzine-A on memory, cognition, and behavior in Alzheimer's disease," *Chung Kuo Yao Li Hsueh Pao* 1995;16:391-5; Zhang RW et al, "Drug evaluation of huperzine A in the treatment of senile memory disorders," *Chung Kuo Yao Li Hsueh Pao* 1991;12:250-2; Sun QQ et al, "Huperzine-A capsules enhance memory and learning performance in 34 pairs of matched adolescent students," *Chung Kuo Yao Li Hsueh Pao* 1999;20:601-3; Ashani Y, Peggins JO III, Doctor BP, "Mechanism of inhibition of cholinesterases by huperzine A," *Biochem Biophys Res Commun* 1992; 184:719-26).

Manganese is needed to help nourish the brain and nerves. Manganese helps utilize choline, the brain's most important fuel in maximizing mental ability when it converts into acetylcholine. It helps prevent arginase deficiency, which can result in high levels of ammonia. Hyper-ammonemia can, in turn, result in headache, motor problems, vomiting, hyperactivity, irritability, tremors, ataxia, liver enlargement, and psychosis (Chaitow 1988: 35).

Magnesium works with calcium and helps to relieve nervousness, tension, anxiety, muscular spasms, and tics. Deficiency can result in confusion, irritability, seizure, tantrums, depression, insomnia, and cardiovascular problems. Alcohol, chocolate, sugar, fluoride, and tea can all increase the body's need for magnesium.

Boron improves brain function. Women with Alzheimer's have been found to have lower levels of estrogen than healthy normal people. Boron helps raise estrogen and testosterone levels. By enhancing the levels of beneficial minerals known to reduce heavy metal poisoning, we believe that boron may play an important regulatory role in helping the body block uptake of heavy metals and help discard them.

Potassium is necessary for a healthy nervous system and healthy brain. Potassium deficiency can present as cognitive impairment, depression, diarrhea, nervousness, glucose intolerance, weakness, and lethargy. Potassium is necessary to transfer nutrients across cell membranes.

Selenium helps decrease anxiety and elevate mood. It is a powerful antioxidant that helps protect brain and other cells. Selenium helps protect against the toxic effects of mercury on the brain (Balch & Balch 1997:226).

Zinc is important for binding with toxic substances and helping remove them from the brain. Heavy metals can lead to impaired mental function, especially aluminum, mercury and lead. Zinc helps stop Alzheimer's amyloid plaque formation induced by zinc deficiency. Zinc also enhances immune function and is deficient in people subject to depression.

Chromium is part of Glucose Tolerance Factor and is necessary to the metabolism of glucose, the basic fuel the brain runs on. Deficiency can result in anxiety symptoms, nervousness, shakiness, glucose intolerance, fatigue, and arteriosclerosis. Chromium helps mobilize fats for energy.

Calcium is a natural tranquilizer. Deficiency can lead to nervousness, cognitive impairment, convulsions, depression, hyperactivity, and delusions. Calcium is necessary to the formation of DNA and RNA and participates in the creation of energy.

Testimonials/Nutrient Tidbits: A doctor reports:... "Send anybody to me for a testimonial; I've been able to get off the drugs I've been on for years by at least 50% (Melody Williams, Ac., Denver, CO.)

Another doctor reports: "I suggested ½ a pill of Total Brain a day to a patient with a 6 year old; the father returned after 3 days and reported that his son had the best day ever in therapy" (Dr. J Leach, D.C., Lafayette, CO).

Another doctor reports: "I gave my son 2 a day in the morning and it's working well to achieve desired results" (Dr. S. P., Glenwood Springs, CO).

Another doctor reports: I had an 11 mo. old baby with a multitude of problems. Dr. Melissa Logue (D.C.) was able to help the baby by utilizing the Total Brain formula. I noticed an instant benefit from taking the Total Brain sample. (Eric Mallory, Ac.)

Another report... “My daughter took a Total Brain sample and noticed an immediate difference” (Dorene Miller, Thornton, CO.)

Suggested Dosage: 1-2 tablets 3 times daily or as directed

Size: 90 tablets

Vegetarian: Yes

Contraindications: None known.