



Brain-Protex (with Huperzine A) Stock #3114-1 (60 capsules)

Brain-Protex is a powerful nutritional supplement formulated to protect brain cells from free radical damage and sharpen mental function. Brain-Protex contains a blend of potent antioxidants that are capable of crossing the blood-brain barrier to protect brain cells. Brain-Protex also features several nutrients proven in scientific studies to enhance impaired cognitive abilities, whether associated with nutritional deficiency, aging or as the result of the onset of Alzheimer's disease.

Huperzine A is a natural substance derived from the club moss *Huperzia serrata*. Clinical studies confirm that huperzine A is a potent memory enhancer. Huperzine A works by protecting the neurotransmitter acetylcholine (ACh) from being broken down by the enzyme acetylcholinesterase (AChE). Acetylcholine is essential for communication between cells in the brain. In fact, it is the most important neurotransmitter for healthy memory function.

Decreases in brain-levels of acetylcholine are known to cause memory loss and cognitive dysfunction; and in some instances, such as in Alzheimer's disease, the lack of acetylcholine is so great that it impairs an individual's ability to function normally. Fortunately, research indicates that huperzine A is an effective acetylcholinesterase (AChE) inhibitor that easily passes through the blood-brain barrier. Huperzine A elevates acetylcholine levels and has been shown to help relieve some of the symptoms of Alzheimer's. Huperzine A also appears to cause fewer side effects than prescription AChE inhibitors; and, there is no significant development of tolerance with continual use. In addition, huperzine A is being studied for its use in the treatment of myasthenia gravis, an autoimmune disorder that affects acetylcholine receptors in the muscles, causing muscle weakness and deterioration.¹⁻⁶

Current research indicates the recommended dosage of huperzine A to be 50mcg twice daily. Beneficial effects of huperzine A are typically seen after a month of continuous use. NSP's Brain-Protex with Huperzine A provides 50mcg of Huperzine A in each 2-capsule serving. Huperzine A should not be taken in conjunction with prescription AChE inhibitors such as tacrine or donepezil. Huperzine A is also not recommended for individuals taking prescription drugs for depression, manic-depression or epilepsy.²

Ginkgo biloba provides significant antioxidant protection against free radical damage to brain and nerve cells. Ginkgo helps prevent metabolic disruptions which can cause a lack of blood supply to the brain, by increasing oxygen utilization, cerebral circulation, and the uptake of glucose by brain cells. The German Commission E Monographs recommend ginkgo for improving memory and learning capacity. Ginkgo also facilitates improved nerve transmission rate, enhanced cognitive activity, increased synthesis of brain neurotransmitters, and normalized acetylcholine receptors in the part of the brain primarily affected by Alzheimer's disease, the hippocampus.^{7,8}

Studies show ginkgo biloba effectively decreases symptoms of impaired mental function associated with insufficient blood flow to the brain, as well as enhances the transmission rate of information on the nerve cell level. Numerous studies also indicate the benefits of ginkgo for delaying the mental degeneration seen in early stages of Alzheimer's disease. Furthermore, the positive effects of ginkgo are not limited to the elderly—a double-blind study of young women showed that ginkgo supplementation significantly increased their reaction times during a memory test.⁷

Soy lecithin complex contains 4 primary phospholipids (phosphorus-containing fats): phosphatidyl-serine (PS), phosphatidyl-choline (PC), phosphatidyl-inositol (PI), and phosphatidyl-ethanolamine (PE). These phospholipids are essential for maintaining healthy cell membranes in the body and activating important metabolic functions.⁹

Phosphatidyl-serine (PS) is most concentrated in the brain where it supports nearly every measurable brain function. PS also appears to enhance brain glucose metabolism and multiply neurotransmitter receptor sites. Research shows that although the brain normally produces sufficient levels of PS, aging and poor nutrition can lead to a PS deficiency. Numerous double-blind clinical trials have substantiated the positive effects of PS on concentration, learning, memory, and vocabulary skills, as well as alertness, mood, and sociability. In fact, PS is more effective than *Ginkgo biloba* in entering brain cells and revitalizing them from the membrane core. Thus far, best results from supplementation have been achieved with individuals already experiencing some memory loss; however, it does not appear to help those with advanced Alzheimer's disease. Studies are currently being conducted to determine the effects of PS on childhood behavioral problems, heavy exercise-induced stress, and mood in the elderly.⁹⁻¹¹

Studies conducted indicate that supplementation with PS obtained from soy lecithin can reverse age-associated memory impairment (AAMI)—the gradual loss of memory associated with the effects of aging. According to an article published in *Pharmacology Research*, PS may prove beneficial in improving memory

loss and cognitive functions associated with early stages of Alzheimer's disease.^{10,12}

A study published in *Neurology* demonstrated positive results with phosphatidyl-serine supplementation (100mg taken 3 times daily) in individuals with age-related cognitive decline. After 12 weeks, individuals receiving the supplements scored 30% higher than the placebo group in learning and recalling names, faces and numbers. Researchers theorized that in this area, the aging process may have been reversed by up to 12 years.^{13,14}

Choline, a component of lecithin, is a precursor for the synthesis of the neurotransmitter acetylcholine, which is believed to facilitate concentration and memory function. Deficient production and release of acetylcholine is regarded as one of the contributing elements of declining cognitive and memory function associated with aging and even Alzheimer's disease. Choline is also crucial for healthy brain and mental development in unborn babies and infants, with serum choline levels being concentrated 100-fold in nursing mothers' milk. Furthermore, phosphatidyl-choline supplementation to raise brain levels of choline has been shown to provide good results for treating bipolar depression.^{7,15}

Studies show that supplementation with phosphatidyl-choline (derived from soy lecithin) increases blood levels of choline, utilized by the brain to synthesize acetylcholine. A minimum of 500-1500mg of choline taken daily can increase acetylcholine synthesis and enhance mental performance.^{9,16-18}

Inositol is considered part of the B-vitamin complex and exists in cell membranes in the form phosphatidyl-inositol (PI). The neurotransmitter acetylcholine, necessary for cognitive and memory function, requires PI for healthy functioning, as does the neurotransmitter serotonin. Furthermore, a decrease in brain levels of inositol may induce depression, as individuals suffering from depression demonstrate low levels of inositol.^{19,20}

Phosphatidyl-ethanolamine, as part of a lecithin complex derived from egg yolks and developed by Israeli researchers, has been shown to enhance memory, mental function, and overall cognitive ability.¹⁸

Lycopene, a carotenoid found in tomatoes, is responsible for providing their red color. Lycopene is also the most abundant carotenoid present in human blood and tissues. A powerful singlet oxygen free radical (one of the most destructive free radicals known) scavenger, lycopene's antioxidant activity is regarded as twice as potent as beta-carotene and 100 times as effective as Vitamin E. Research indicates lycopene protects tissues and genes from toxic free radicals and chemical carcinogens. In fact, lycopene has been shown to be a potent anti-cancer agent, inhibiting the growth of breast, lung and endometrial cancer cells. Lycopene also prevents oxidation of LDL cholesterol, which can lead to atherosclerosis.^{3,20}

Alpha-lipoic acid (ALA) is a potent antioxidant which helps slow the aging process and can enhance brain function and memory in those with AAMI. In fact, ALA is the only antioxidant capable of crossing the blood-brain barrier with ease. Recent research indicates ALA protects the brain against free radical damage resulting from strokes, cerebral hemorrhage, or head injury. This unique antioxidant operates in both the fatty and watery regions of cells. ALA also increases the metabolic life-spans of other important antioxidants such as Vitamins C and E, CoQ10, and glutathione. Furthermore, ALA has been found to facilitate the body's ability to burn glucose, thus helping to regulate blood sugar levels.²¹⁻²⁵

Rhododendron caucasicum root extract has been found to provide 60 times the antioxidant protection of Vitamin E and 20 times that of Vitamin C. *Rhododendron caucasicum* contains a group of active constituents—phenylpropanoids—that have been shown to improve cerebral circulation (blood flow to the brain) and protect the brain against unhealthy biological, chemical and physical imbalances. Research shows this herb strengthens fragile capillaries, facilitates cardiovascular function, enhances the removal of toxins from the body, and exhibits strong antibacterial, anti-viral and anti-arthritis activity.²⁶⁻²⁸

References:

- 1 Bagchi PhD, D. and Barilla, J. *Huperzine A: Boost Your Brain Power*. New Canaan, CT: Keats Publishing, 1998.
- 2 Haneline, P. and Kozikowski PhD, A. *Huperzine A: What You Need To Know*. Garden City Park, NY: Avery Publishing Group, 1999.
- 3 Mindell PhD, E. *Earl Mindell's Supplement Bible*. NY, NY: Fireside, 1998.
- 4 Xu, S.S., et. al. "Efficacy of tablet Huperzine A on memory, cognition and behavior in Alzheimer's disease." *Chung Kuo Yao Li Hsueh Pao*; 1995, 16(5): 391-395.
- 5 Laganieri, S., et. al. "Acute and chronic studies with the acetylcholinesterase Huperzine A: Effect on central nervous system cholinergic parameters." *Neuropharmacology*; 1991, 30(7): 763-768.
- 6 Tang, X.C., et. al. "Effect of Huperzine A, a new cholinesterase inhibitor, on the central cholinergic system of the rat." *Journal of*

- Neuroscience Research*; 1989, 24(2): 276-285.
- 7 Murray ND, M. *The Healing Power of Herbs*. Rocklin, CA: Prima Publishing, 1995.
 - 8 Brown ND, D.J. "Curbing Dementia with Ginkgo." *Health & Nutrition Breakthroughs*; December 1997.
 - 9 Kidd PhD, Parris. "Phospholipids: A new dimension to the health benefits of lecithins." *Health Counselor*; June/July 1997, 57-59.
 - 10 Challem, Jack. "Health Brief: Phosphatidylserine." *Natural Health*; 1997, Vol. 27, No. 4, 136.
 - 11 Marshall. L. "Supplements to Aid Memory & Cognition." *Nutrition Science News*; May 1996.
 - 12 Pepeu, G., et al. "A review of phosphatidylserine pharmacological and clinical effects. Is phosphatidylserine a drug for the ageing brain?" *Pharmacology Research*. 1996, Vol. 33, No. 2, 73-80.
 - 13 Crook, T.H., Tinklenberg, J., et al. "Effects of phosphatidylserine in age-associated memory impairment." *Neurology*; 1991, Vol. 41, No. 5, 644-649.
 - 14 Kidd PhD, P.M. "Nutrition is Key to Successful Aging." *Health News Naturally*; Fall 1995.
 - 15 Shuman RD, J. "Youthful Aging." *Health & Nutrition Breakthroughs*; October 1997.
 - 16 Hackman PhD, R.M. "Finding the Mental Energy to Lose Weight For Good." *Nutrition Science News*; February 1997.
 - 17 Gagnon, D. "Lecithin and Choline Redeemed." *Health & Nutrition Breakthroughs*; December 1997.
 - 18 Potter PhD, B. and Orfali, S. *Brain Boosters*. Berkely, CA: Ronin Publishing Inc, 1993.
 - 19 Badash, M. "Brain Nutrients: Food For Thought." *Nutrition Science News*; January 1998.
 - 20 Murray ND, M. *Encyclopedia of Nutritional Supplements*. Rocklin, CA: Prima Publishing, 1996.
 - 21 Challem, Jack. "The War On Aging." *Natural Health*; 1997, Vol. 27, No. 2, 94.
 - 22 —. "Supplements: What Does Your Body Need?" *Natural Health*; 1997, Vol. 27, No. 4, 120.
 - 23 —. "Is Alpha-Lipoic Acid the 'Ideal' Antioxidant?" *Nutrition Science News*; August 1996.
 - 24 Bushkin, G. and Bushkin, E. "ALA Fights Free Radical Damage." *Nutrition Science News*; November 1997.
 - 25 "Alpha-Lipoic Acid." Press release. University of California-Berkley: April 11, 1996.
 - 26 "Caucasicum+." Quest IV Health Products Inc. Arlington, TX: 1998.
 - 27 Hu, M. and Xiao, P.G. "HPTLC scanning determination of 6 flavonoids in 166 *Rhododendron* species." *Yao Hsueh Hsueh Pao*; 1989, 24(12):923-931.
 - 28 Ramazanov PhD, Z. and del Mar Bernal Suarez PhD, M. *New Secrets of Effective Natural Stress and Weight Management Using *Rhodiola rosea* and *Rhododendron caucasicum**. East Canaan, CT: ATN/Safe Goods Publishing, 1999.