

PRODUCTS FOUND IN XOOMA EDGE:



DMAE:

DMAE, also known as dimethylethanolamine is believed to work primarily by supporting optimal neurotransmitter function, particularly the production and action of acetylcholine, which a crucial neurotransmitter responsible for relaying messages between brain cells. DMAE is naturally found in fishes like sardines and anchovies and boosts levels of choline, an amino acid in the brain, this in turn, increases the brain's production of acetylcholine.

"Since DMAE is normally found within the human brain and is a precursor of the neurotransmitter acetylcholine and the neuronal membrane component phosphatidylcholine, it seems only sensible that DMAE should have diverse and positive effects on brain function. DMAE has been observed to accelerate

the synthesis of phosphatidylcholine, and its incorporation into neuronal cell membranes. Within the brain, DMAE has antioxidant activity: more specifically, it acts as a potent intra-membrane scavenger of hydroxyl free radicals while stimulating oxidative metabolism in the cerebral cortex." ¹ 1: Smith K, Brighter Minds, pp 250. Brighter Mind Media Group, Ltd., Corinth TX. 2007



Acetyl L Carnitine:

Acetyl-L-carnitine (ALCAR) is a form of L-carnitine, an amino acid that is found in nearly all cells of the body. ALCAR protects, maintains and energizes the neurons that are so critical to your memories, learning, mental energy and overall health.

Scientists have confirmed that this form of carnitine is the most bioavailable and energetically useful form for you brain. It supports your brain's optimal synthesis of acetylcholine, the neurotransmitter that is critical for learning and memory and that tends to be depleted in people with Alzheimer's disease. ²

A meta-analysis (a group of studies on the same subject) was conducted to show the results of ALCAR as a treatment for mild Alzheimer's disease and other mild forms of cognitive impairment. The study showed a significant advantage for ALCAR compared to the placebo. An analysis of the psychometric tests showed that ALCAR had the most dramatic effects on the memory and intellectual functions. ³

²: Smith K, Brighter Minds, pp 239. Brighter Mind Media Group, Ltd., Corinth TX. 2007

³: Montgomery SA, Thal LJ Amrein R. Meta-analysis of double-blind randomized controlled clinical trials of acetyl L carnitine versus placebo in the treatment of mild cognitive impairment and mild alzheimer's disease. Int Clin Psychopharmacol 2003;18:61-71.



Rhodiola:

Rhodiola is a plant that has been used medicinally for centuries. Since 1960, more than 180 modern pharmacological, phytochemical and clinical studies have been published.⁴ "Rhodiola has demonstrated a remarkable ability to enhance cellular energy metabolism. The studies published thus far show the herb to be highly beneficial for both physical and mental performance under stress. It provides significant enhancement of mental energy and eliminates fatigue. It stimulates norepinephrine, dopamine and serotonin and has cholinergic effects in the central nervous system. Rhodiola also supports and enhances the effects of these neurotransmitters by increasing the delivery of precursors (building blocks) that can be utilized to produce dopamine and serotonin."⁵

A randomized, double-blind and placebo-controlled trial studied the effect of Rhodiola on young, healthy physicians on night duty. The researchers measured rhodiola's effect on five different measures of mental acuity: associative thinking, short-term memory, calculation, concentration and speed of audiovisual perception. It was concluded that statistically significant improvements in all five of those mental performance parameters in the physicians who took Rhodiola rosea for two weeks.⁶

4: Brown R, Gerbarg P, Ramazanov Z. Rhodiola rosea: A Phytomedicinal Overview View HerbalGram. 2002;56:40-52. American Botanical Council.

5: Smith K, Brighter Minds, pp320. Brighter Mind Media Group, Ltd., Corinth TX. 2007

6: Darbinyan V, Kteyan A, Panossian A, et al. Rhodiola rosea in stress induced fatigue-a double blind cross-over study of a standardized extract SHR-5 with a repeated low-dose regimen on the mental performance of healthy physicians during night duty. Phytomedicine. 2000 Oct;7(5):365-71.



Huperzine A:

Huperzine A is an alkaloid derived from the Chinese club moss *Huperzia serrata*. It promotes memory and cognitive function by supporting healthy acetylcholine levels in the brain, vascular function and neuronal health.

Several randomized, double-blind, placebo-controlled trials indicate that Huperzine A supports memory and cognitive function.

Here are some of the conclusions to those studies:

" A placebo-controlled randomized clinical trial of 34 pairs of adolescents complaining of self-diagnosed "memory inadequacy," four weeks of supplemental Huperzine A resulted in significantly improved performance on tests of memory and learning ability.⁷

" Clinical trials in China have demonstrated that Huperzine A significantly relieves memory deficits in aged subjects, patients with benign senescent forgetfulness, Alzheimer's disease (AD) and vascular dementia (VD), with minimal peripheral cholinergic side effects compared with other AChEIs in use.⁸

" Huperzine A possesses the ability to protect cells against hydrogen peroxide, beta-amyloid protein (a toxic protein seen in Alzheimer's disease), glutamate (a neurotoxin), and ischemia (state of reduced oxygen).⁹

8: Sunn QQ, Xu SS, Pan JL, Guo HM, Cao WQ. Huperzine-A capsules enhance memory and learning performance in 34 pairs of matched adolescent student. *Acta Pharmacol Sin.* 1999;20(70):601-603.

7: Wang R, Tang XC. Neuroprotective effects of Huperzine A. A natural cholinesterase inhibitor for the treatment of Alzheimer's disease. *Neurosignals.* 2005;14(1-2):71-82.

9: Wang R, Yan H, Tang XC. Progress in studies of Huperzine A, a natural cholinesterase inhibitor from Chinese herbal medicine. *Acta Pharmacol Sin.* 2006;27(1):1-26



Green Tea:

Green tea has been used in traditional medicine for centuries. The bulk of the science shows the polyphenols known as catechins and further identified as epigallocatechin gattate (EGCG) give green tea its unique and special power. For years, scientists have recognized that the catechins in green tea, specifically EGCG exhibit a powerful ability to protect brain cells from free radical activity.

EGCG is receiving significant attention as a therapeutic agent for the treatment of neurodegenerative diseases involving brain regression. Researchers at the National Parkinson Foundation Centers of Excellence for Neurodegenerative Diseases Research stated:

"Green tea catechins polyphenols, formally thought to be a simple radical scavenger, are now considered to invoke a spectrum of cellular mechanisms of action related to their neuroprotective activity. These include pharmacological activities like iron chelation, scavenging of radicals, activation of survival genes and cell signaling pathways, and regulation of mitochondrial function and possibly of the ubiquitin-proteasome system. As a consequence these compounds are receiving significant attention as therapeutic cytoprotective agents for the treatment of neurodegenerative and other diseases."¹⁰

Another recent study showed that green tea actually slowed the effects of normal aging and its associated regression in brain function. Using an animal model, the effect of long-term green tea catechin intake was shown to effectively suppress further atrophy and cognitive dysfunction. The results of this study strongly suggest that green tea can halt the negative functional alterations that occur naturally in aging brains.¹¹

10: Mandel S, Youdim MB. Catechin polyphenols: neurodegeneration and neuroprotection in neurodegenerative diseases. *Free Radic Biol Med.* 2004 Aug 1;37 (3):304-17.

11: Unno K, Takabayashi F, Kishido T, Oku N. Suppressive effect of green tea catechins on morphologic and functional regression of the brain in aged mice with accelerated senescence (SAMP 10). *Exp Gerontol.* 2004 Jul;39(7): 1027-34.