



IMAGE AWARENESS WELLNESS INSTITUTE

Improving Brain Function

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BRAIN DISORDERS

Brain disorders are an increasing health problem. The tragedy is that while our society is becoming more complex by the day, the functioning of the brain of the average individual is deteriorating due to poor dietary choices and decline in the quality of the food supply. This newsletter will discuss nutrients which are important for optimal brain function.

LECITHIN

Lecithin was first isolated from egg yolk in the 1850's. The Greek word for egg yolk, lekithos, is the basis for the name lecithin.

Lecithin has a reputation for being "brain food" because of its high concentration of phosphatidyl choline, a nutrient which supports primary brain functions including memory, thought, and muscular control.

Phosphatidyl choline is the biological precursor to acetylcholine, an important neurotransmitter within the brain. Acetylcholine is so critical to healthy brain function that if choline is in short supply the body cannibalizes tissue to extract the choline for the critical functions of the nutrient.

Phosphatidyl inositol, another component of lecithin, is involved in both the structure of nerve cells and also in message transmission.

Lecithin has a unique chemistry

which makes it possible to emulsify or disperse fats and oils in water. Lecithin helps keep fats evenly dispersed in the blood so they do not clump together. Dispersion of the fats makes it easier for the body to use them as a structural material and also to burn them for energy. The unique chemistry of lecithin has given it the reputation of being an "anti-cholesterol" nutrient.

Lecithin also plays a role in the proper functioning of the digestive tract. It enhances the absorption and proper utilization of fat soluble nutrients and fats.

GNLD Lecithin was developed using the same leading-edge lipid technology used to produce GNLD's Formula IV, fish oil supplements, and water-miscible vitamins. The inositol in GNLD lecithin is 100% myo-inositol, the biologically active form

of the nutrient. Added magnesium, wheat germ oil, and natural vitamin E boost potency, improve stability, and prevent oxidation. Each serving contains 1,200 mg of pure soybean phospholipid.

GNLD's pioneering lecithin is a primary component of GNLD's unique "water miscible" vitamin technology. It is also a primary component of all GNLD protein products, contributing to their superior mixability, smooth texture, and nutritional quality.

GNLD's Tre-en-en (see the September 2011 newsletter) adds another dimension to lipid and sterol supplementation and should be considered as an important source of lipids for construction of healthy brain tissue.

TRE

Tre is a powerful blend of polyphenols from superfruits. Drinking one ounce of Tre is equivalent to drinking the polyphenols in 20 ounces of pomegranate juice. Recent research suggests that the polyphenols in pomegranate juice may be highly protective of brain integrity and function.

Researchers Richard Hartman and his associates conducted a six month experiment with a mouse model of Alzheimer's disease. The mice were divided into two groups. The diet of one group was supplemented with water. The second group was supplemented



with pomegranate juice concentrate.

These mice express a protein called beta-amyloid which accumulates in Alzheimer's disease as a result of oxidative stress. Accumulation of beta-amyloid is considered to be a major indicator of Alzheimer's.

Animals supplemented with pomegranate juice accumulated 50% less beta-amyloid than did animals supplemented with water. Hartman wrote, "This study is the first to show beneficial effects (both behavioral and neuropathological) of pomegranate juice in an animal model of (Alzheimer's disease)." The behavioral improvement noted by Hartman was improvement in navigating water mazes and other tests of learning.

Hartman wrote that pomegranate juice is rich in biochemical compounds that may act synergistically to produce Alzheimer's protection. Isolated components of pomegranate juice would not necessarily produce this kind of protection.

Hartman was initially working with pharmaceuticals to combat Alzheimer's in lab rats and was not interested in joining the study of pomegranate juice. After being persuaded to join the study he said, "I was shocked. The juice had just as much effect—if not more—than the medications I was using." Hartman became interested in researching Alzheimer's after his grandfather died from the disease.



Pomegranate juice has also been shown to protect blood flow to the brain. Research in Israel studies the effect of pomegranate juice on the carotid arteries that carry 80% of the blood flow to the brain. The test subjects suffered with atherosclerosis. The inner lining of the blood vessels thickened by 9% during a year among control subjects. By contrast, subjects consuming pomegranate juice daily experienced a 30% reduction in the thickening of the inner lining of the carotid arteries. Total antioxidant activity in the juice consumers was increased by 130 percent after a year and blood pressure dropped by 21 percent.

The antioxidant and anti-inflammatory compounds in pomegranate juice are called punicalagins. They have been shown to prevent the oxidation of nitric oxide which is critically important for heart health. Nitric oxide works to keep blood vessels dilated.

Tre contains many other sources of polyphenols which work synergistically with pomegranate juice. This supplement or nutritional essence is a valuable brain protective nutrient source.

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B COMPLEX

Brain cells require energy to a greater degree than just about any other tissue in the human body. The B complex vitamins, and vitamin B3 or niacinamide in particular, are important for brain energy production. Classic vitamin B3 deficiency is known as pellagra and is characterized by four "D's": dementia, dermatitis, diarrhea, and death. It should not be surprising that this important nutrient is essential for preserving healthy brain function.

William Kaufman, M.D., Ph.D., a psychiatrist and clinical researcher, observed in his 1943 book that niacinamide deficiency could cause memory impairment, distractibility, poor concentration, slowed thought processes, poor comprehension, unwarranted anxiety, and personality changes. Those with Alzheimer's demonstrate similar traits.

In 2008 Dr. Kim Green and colleagues gave mice with Alzheimer's disease and healthy controls the equivalent to 2,000 to 3,000 mg of niacinamide per day for four months. The researchers were astonished at the cognitive improvement in the mice with Alzheimer's. The mice behaved as if they had never had the disease. A tau protein considered a major marker for Alzheimer's decreased by 60%. At high levels tau protein not only impairs nerve function but can actually kill nerve cells. Niacinamide had no effect on beta-amyloid.

Lack of other B complex vitamins has been associated with mental decline. Brain studies have shown abnormal methylation in the brains of those with dementia and Alzheimer's. Nutrients involved with this process include vitamin B6, B12, betaine, and folic acid.

Vitamin B12 has been shown to reduce delirium in dementia patients. Low levels of vitamin B12 are associ-

ated with a more rapid rate of cognitive decline in the elderly.

Faulty methylation is associated with the development of atherosclerosis which can lead to what is known as vascular dementia. Lack of folic acid is most strongly associated with the development of vascular dementia.

Vitamin B1 or thiamine is one of the most essential B vitamins for energy production. Those with senile dementia of the Alzheimer's type have significantly lower blood levels of thiamine than do those without dementia.

The B complex vitamins have to be considered among the most important nutrients for preservation of long term healthy brain function. *GNLD B complex is made with an exclusive biologically-bound yeast technology providing a high potency, whole food source of the vitamins in naturally occurring ratios.*

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SALMON OIL PLUS

Lecithin and omega-3 fatty acids are the two primary building blocks of healthy nerve tissue. It should not

be surprising that both are important for brain structure and integrity. Omega-3 fatty acids have been likened to fertilizer for brain cells.

Supplementation with omega-3 fatty acids has been shown to result in improvement of those with mild to moderate Alzheimer's and those with cognitive impairment. The famed Framingham Heart Study found that those diagnosed with Alzheimer's were twice as likely to have low blood levels of DHA as those without the disease. Those with low blood DHA levels were 67% more likely to develop Alzheimer's during the next 10 years.

Omega-3 fatty acids appear to help everyone think better. Japanese researcher K. Myanaga did significant research in this area. "He studied the impact of fish oil on the speed of a particular brain wave called 'p300,' closely linked to learning and memory. It is known that the faster the transmission rate of this brain wave, the more efficiently the brain learns and remembers information. For example, the rate of 'p300' brain wave declines with age and is much slower in people with dementia."

Dr. Myanaga found that DHA, one of the omega-3 fatty acids, significantly increased the speed of the p300 brain wave within two hours of being administered to twenty-six normal adult volunteers.

Omega-3 fatty acids have also been shown to decrease the tendency to become aggressive when undergoing mental stress.

DHA has been shown to improve concentration and attention in women who have given birth. DHA has been shown to virtually reverse learning deficits in learning-impaired rats. Fish eaters also stay smarter longer. Men consuming an average of 3/4 ounce of fish daily were only 40 percent as likely to show an impairment of cognitive function as non-fish-eaters.



Those who consumed the most omega-6 type vegetable oils were 2 1/2 times more likely to be cognitively impaired. Foods most highly linked to poor brain functioning were margarine, butter, baking fats, fatty sauces, and cheese. Researchers felt that the omega-6 fats contributed to clogged arteries, while fish oil may prevent the development of clogged arteries. Bad fats not only clog the arteries, but they can also become incorporated in brain cells causing them to function poorly and to be less resistant to stress.

Dr. Malcolm Peet, a leading British brain researcher, found that schizophrenics had only half the levels of omega-3 and omega-6 fatty acids as those found in people without schizophrenia. He thinks the abnormal brain cell membranes will not allow neurotransmitters to function normally.

GNLD Salmon Oil Plus is manufactured with molecular differentiation technology which allows for standardization for all 8 of the master molecules of the omega-3 family. The product is also tested for over 200 potential pollutants and has an ultra-high potency concentrate allowing for a small, easy to swallow capsule.

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ANTIOXIDANTS

Lecithin, Tre-en-en, and Salmon Oil Plus contain nutrients involved in the construction of healthy brain tissue. These are what I refer to as structural nutrients. They are building blocks for cells. The B complex vitamins provide energy for brain cells to function normally and to protect themselves.

Antioxidants protect the structural fats in brain and nerve tissue from being damaged by free radicals. Antioxidant nutrients can be found in a wide variety of supplements including Tre, Super C, Carotenoid Complex, Beta-gard, and Vitamin E Complex.

Antioxidants work together so it is important to get a variety of different antioxidants. Because the brain is composed largely of fats, the fat soluble antioxidants Vitamin E and Carotenoid Complex are particularly important for brain protection.

In one study the third of patients with the highest levels of the vitamin E complex were found to have reduced risk of developing Alzheimer's. The authors of this study note,

“The neuroprotective effect of vitamin E seems to be related to the combination of different forms, rather than to alpha-tocopherol alone, whose efficacy in interventions against AD is currently debated.” This is just one more illustration of the fact that those who shop for price where vitamin E is involved are probably making a great mistake. *GNLD feels it is essential to provide the entire vitamin complexes as they are found in foods where ever possible.*

In one study the combined use of vitamins C and E resulted in an 8-fold reduction in the prevalence of dementia and a 5-fold lower incidence of Alzheimer's Disease. The combination of antioxidants was found to be more effective than use of solitary vitamins.

GNLD Super C incorporates Threshold Control technology which provides for sustained release of vitamin C through the normal digestive process. Since vitamin C levels in the blood rapidly lose potency this keeps vitamin C protecting the brain and other tissues longer with each dose.

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