Doctor's BEST® Science-Based Nutrition

Best Phosphatidyl Serine

Best Phosphatidyl Serine

60 Softgels

Ingredients per softgel:

Phospholipid Matrix™	500 mg
providing:	
Phosphatidylserine	100 mg
Phosphatidylcholine	10 mg
Glycolipids	45 mg
Medium Chain triglycerides (MCT)	345 mg

Excipients: Gelatin, glycerin, purified water.

Suggested Adult Use: Take one softgel two to three times daily with meals.

NOT SUITABLE FOR VEGETARIANS

CONTAINS SOY

Ingredients

Phosphatidyl Serine

Best Phosphatidyl Serine provides the essential brain nutrient phosphatidylserine in a matrix of other phospholipids and cofactors. Phosphatidylserine and other phospholipids are structural components of brain neurons that can enhance cell-to-cell communication.* Studies have shown the ability of supplemental phosphatidylserine to support healthy cognitive function.* It may enhance healthy memory and thinking ability by facilitating neuronal communication.* It may also support the body during stressful times.* Best Phosphatidyl serine contains phosphatidylserine and other essential nutritional cofactors in a liquid softgel, providing added stability to these key phospholipid molecules.

Benefits

Provides Building Blocks for Healthy Neurons*

Phospholipid molecules are key components of cellular membranes. The incorporation of these molecules into membranes facilitates healthy cell function, toxin removal and cellular signaling. One of the most important of these compounds for neural cells is phosphatidylserine (PS), which makes up about 10% of the composition of neuronal cell membranes. Phosphatidylserine can be made by the body and is also taken into the body as part of the diet. Some researchers believe that supplemental PS may be highly indicated as we age, since our natural diets may contain suboptimal amounts of phosphatidylserine.[1] It is thought to be especially important in maintaining the general structure and function of the neuron. Supplemental phosphatidylserine may have beneficial effects on memory function by allowing neurons in the neuron networks to effectively communicate with one another.

Studies suggest that phosphatidylserine enhances signal transmission between neural cells. An in vitro study measured the effects of phosphatidylserine on hippocampal (brain) slices taken from male albino rats.[2] In this study, the researchers found that when the brain slices were bathed in PS, they had increased efficiency of nerve transmission and an enhancement of long-term potentiation (which is related to information storage in the brain) compared to control.

Supports Healthy Memory and Thinking Ability*

Animal Studies

Research has shown the ability of phosphatidylserine to enhance mental function. Studies in animals suggest that phosphatidylserine can positively impact learning ability. In one such study, PS derived from soybean lecithin was evaluated in mice for its effect on chemically-induced impaired learning. The phosphatidylserine was given in the amount of 240, 360, or 480 mg/kg, and was able to significantly reverse the learning impairment in mice.[3]

Another study evaluated the effects of bovine, soybean, and egg-derived phosphatidylserine on behavioral tests in middle-aged rats.[4] Rats were treated daily with a dose of 15 mg/kg of phosphatidylserine, or placebo. The results showed that phosphatidylserine from both bovine and soy was able to enhance mental functioning in rats undergoing an active avoidance task (a laboratory measure of learning ability). No effect was seen in the groups given either the egg-derived phosphatidylserine or the control.

Another group of researchers looked at the effectiveness of soy compared to bovine phosphatidylserine in aged rats forced to perform a memory task known as the Morris water-maze test, a standardized lab measure of spatial memory function.[5] The rats were fed soy derived phosphatidylserine at 60 mg/kg for 60 days. This significantly enhanced performance of the task by aged rats compared to control rats, indicating beneficial effects on memory function. The results were similar with PS from bovine cortex.

Scientists have suggested that phosphatidylserine protects brain tissue by a novel mechanism.[6] A controlled study was done on rats where they were given phosphatidylserine injections at three different points in time. They were then injected with placebo or LPS (lipopolysaccharide), a chemical agent known to have a negative effect on nerve transmission in a specific area of rat brains (the hippocampus). Three hours later, rats were assessed for their ability to retain long-term potentiation (the long-term efficiency of nerve-to-nerve transmission, which is thought to be involved in storing information in the brain). At the end of the experiment, the hippocampal area of the rat brains was looked at. Pretreatment with PS helped the animals overcome the effects of LPS and support the health of brain tissue. The rats treated with phosphatidylserine were also found to have higher levels of the protective anti-inflammatory cytokine IL-10 than control animals.

They found that giving IL-10 also overcame the effects of LPS in a manner similar to phosphatidylserine. Thus the group of researchers concluded that one of the mechanisms of brain protection by phosphatidylserine may be its ability to increase IL-10 production.

Human Clinical Trials

A number of human clinical studies have also been conducted using phosphatidylserine to support healthy brain activity. In a review of the effects of phosphatidylserine supplementation, the authors suggest that phosphatidylserine may be effective at enhancing cognitive function and supporting mild memory problems associated with aging based on the results seen in both animal and human studies.[7]

One of the first double-blind controlled studies on PS was published in 1986, and consisted of 35 people with mild memory problems associated with aging taking either 100mg of animal derived PS three times per day or placebo. The subjects were analyzed with tests designed to assess problems found in activities of daily life. They were tested after one week and six weeks of taking the supplement, and then three weeks after discontinuing.

Although statistical significance was reached only in one test (The Peri Scale, a measure of mood, cognitive function, behavior and activities of daily living), the subjects taking the PS showed positive trends towards improvement on all three tests compared to the controls.[8] A double-blind, placebo-controlled study looked at 149 people supplementing with phosphatidylserine over 6 months.

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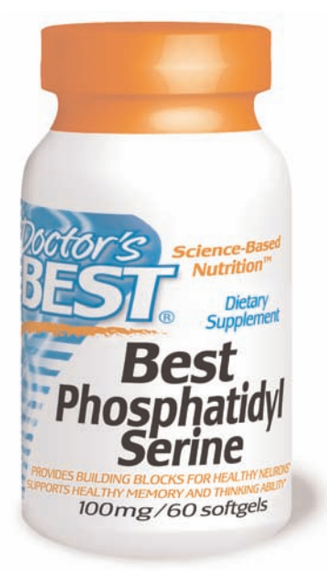

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The subjects were given 200mg of PS or placebo orally for 3 months. Nine standard tests for brain function were used to analyze the subjects before and after the treatment, and then again at 6, 12, 18 and 24 months (after discontinuing the treatment). They found that in the group most impacted by memory problems associated with aging there was a benefit of PS on a number of the cognitive tests performed, even up to 6 months after the discontinuation of the supplement.[9]

In another study, phosphatidylserine was given to 494 elderly patients who had mild memory problems associated with aging. They were given 300 mg per day or placebo for six months. The individuals were examined at the beginning of the study, after three months of supplementation, and at six months.[10] Using a standardized scale to assess changes in behavior and cognitive function, they found statistically significant enhancement of cognitive function in the group who took phosphatidylserine. There didn't appear to be any side effects associated with the use of phosphatidylserine in this study.

A similar, but shorter, placebo-controlled study again looked at the effectiveness of phosphatidylserine in individuals with mild memory problems associated with aging. It involved 163 patients who again took 100 mg phosphatidylserine three times daily. They took the supplement for 12 weeks, and were evaluated every three weeks. The benefits they found included enhancement of memory and name recall, learning, and ability to concentrate compared to the control group. The subjects tolerated the phosphatidylserine well and no side effects were reported.[11]

Yet another trial, this one open-label (both the health provider and subjects were aware of the supplement given), looked at phosphatidylserine derived from plant sources on 15 people with mild memory problems associated with aging. The study lasted for 12 weeks, and the participants were evaluated by standard memory and learning tests 3 times (at baseline, 6 weeks, and 12 weeks). They were all given 100mg of PS, in PS enriched lecithin capsules, three times per day. They found that the subjects performed significantly better on most of the tests after supplementing with PS compared to before supplementation, and 9 subjects reported improvement of their memory in day to day tasks. Although this study was open-label, the results fit in well with previous studies using phosphatidylserine.[12]

Support the Body During Mental and Physical stress*

A number of small studies have emerged that have shown positive effects of PS supplementation on the stress response. The majority of the studies have looked at the effects on stress induced from physical exertion, although one study in 2001 looked at the effects on mental stress in 48 male university students. These students were given either 300mg of PS or placebo for 30 days. Baseline and post-supplementation measurements of mood, neuroticism and extroversion were assessed by questionnaire, and vital signs were taken. After 30 days, the students were given a standard acute stress test involving a difficult time-limited mathematical calculation, and then measurements were taken a third time. The sub-group of students who were rated more "neurotic" experienced significantly less stress and better mood under the pressure by taking PS compared to placebo.[13]

A further crossover study of eight healthy men looked at the effects of an acute dose of PS on hormonal responses after physical stress. The men underwent physical exercise between 8:30 and 9:30am after an overnight fast. They were each tested 3 times in a crossover fashion with a one-week interval between testing. Blood samples were taken before exercise, and were followed by an intravenous injection of either placebo, 50 mg of PS, or 75 mg of PS. Subsequent blood samples were taken during and after exercise. The secretion of both cortisol and ACTH (the pituitary hormone that regulates cortisol) were significantly blunted after exercise by supplementation with phosphatidylserine, as compared to placebo. Other hormones, including norepinephrine, epinephrine, growth hormone, and dopamine were not affected by phosphatidylserine supplementation.[14] The author showed a similar significant response of oral PS on cortisol and ACTH after exercise stress in 9 healthy men. Subjects took 800 mg of phosphatidylserine or placebo orally for ten days in a double-blind, randomized cross-over study.[15]

In another investigation, eleven fit male subjects with at least 4 years of weight training experience were given 800mg of phosphatidylserine or placebo for two weeks in a cross-over study.[16] During this time they were involved in eight intensive weight lifting sessions over the two weeks. Although resting cortisol levels did not differ throughout the training in the phosphatidylserine versus the placebo groups, the post-exercise level of cortisol was significantly lower in the PS group. ACTH was not affected by phosphatidylserine supplementation in this study. The PS significantly enhanced the perception of well-being and lowered ratings of muscle soreness in response to the severe over-training they underwent during the study. The severity of the training was confirmed by increases in creatine kinase (a measure of damage to the muscles) in both groups.

Safety

A group of researchers reported on the excellent safety profile of soy derived PS.[17] In this study, they found no significant differences between treatment and control groups when they looked at a number of blood safety parameters, vital signs, and subjective complaints. Thus they concluded that PS is a safe nutritional supplement for the elderly at least up to 600mg per day in divided doses, and further studies in humans are needed to clarify the exact role phosphatidylserine supplementation may play on cognitive function.

Each softgel of Best Phosphatidyl Serine provides 100 milligrams of brain-protective phosphatidylserine in a matrix of other important phospholipid cofactors to support healthy brain function. Research conducted over the last two decades supports the ability of phosphatidylserine supplementation to provide building blocks for healthy neurons, enhance cognitive function, provide support for mild memy problems associated with aging, and support for both mental and physical derived stress. *

*This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Scientific References

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Doctor's BEST®

Science-Based Nutrition™

Dietary Supplement

Best Phosphatidyl Serine

*PROVIDES BUILDING BLOCKS FOR HEALTHY NEURONS**
*SUPPORTS HEALTHY MEMORY AND THINKING ABILITY**

100mg/60 softgels

Supplement Facts

Serving Size 1 softgel
Servings per container 60

	Amount per serving	% Daily Value**
Phospholipid Matrix™ providing:	500 mg	†
Phosphatidylserine	100 mg	
Phosphatidylcholine	10 mg	
Glycolipids	45 mg	
Medium Chain Triglycerides (MCT)	345 mg	

** % Daily Values are based on a 2,000 calorie diet
† Daily Value not established.

Other ingredients: Gelatin, glycerin, purified water.

Contains Soy

Suggested Adult Use: Take one softgel 3 times daily with meals.

CONTAINS NOTHING OTHER THAN LISTED INGREDIENTS

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