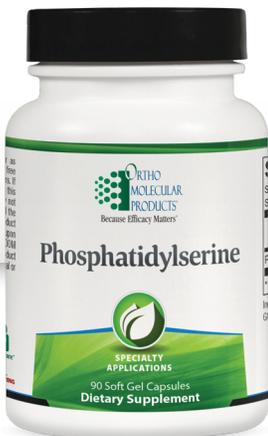


PHOSPHATIDYLSERINE



CLINICAL APPLICATIONS

- *Supports Cognitive Health*
- *Promotes Balanced Endocrine Health*
- *Improves Resilience to Stress*
- *Enhances Memory, Focus and Sense of Calm*

COGNITIVE SUPPORT

What is Phosphatidylserine?

One of the main phospholipids in the brain, phosphatidylserine (PS) is a fat-soluble phospholipid used to support optimal endocrine and cognitive health. Along with other phospholipids, phosphatidylserine is an integral component of the basic structure of the cell membrane. All play a critical role in ensuring the proper function of numerous systems in the body, especially the central nervous system. Studies using varying amounts of phosphatidylserine highlight its benefits for cognitive health. It has also been shown to enhance memory, learning, and concentration, as well as support adrenal health. Each soft gel provides 100 mg of purified, high-concentration phosphatidylserine sourced from sunflower oil, making it easy to achieve therapeutic dosing.

Overview

Found in high concentration in the brain, phosphatidylserine plays a key role in neuronal energy production and communication as a key structural component of the cell membrane. Shown in animal experiments to have a trophic (growth supportive) effect on the brain, PS plays a key role in cell to cell communication in the brain, including the transfer of biochemical messages into the cell, triggering cellular responses. The proper functioning of these processes are especially important to the nervous system and to healthy cognitive function. PS has also been shown to support aspects of cell metabolism, such as glucose utilization and enhanced neurotransmitter formation. Furthermore, it appears to have antioxidant activity, protecting the brain from free radicals.

Since very little PS is found in food, the compound must be synthesized or supplemented to provide what is needed for optimal brain health.

Cognitive Health[†]

Studies of oral supplements of PS have shown it to affect neuronal membranes and cell metabolism, as well as the acetylcholine, norepinephrine, serotonin and dopamine neurotransmitter systems.¹⁻⁴ A body of research has highlighted improvements in cognitive function and memory following supplementation with PS.⁵⁻⁷ In one 12-week study of 30 elderly volunteers, PS supplementation significantly increased cognitive parameters, including memory recognition, memory recall, executive functions and mental flexibility. Total learning and immediate recall also improved significantly. The same study also found PS to support blood pressure already within a normal range.⁸ PS supplementation has also been shown to improve short-term auditory memory, inattention and impulsivity in children.⁹ A 30-week study found a formula of PS with omega-3s may reduce hyperactivity symptoms in children and may be especially effective in a subgroup of hyperactive-impulsive and emotionally and behaviorally challenged children.¹⁰ Clinical trials have also shown PS to significantly benefit memory, learning, vocabulary skills and concentration.¹¹ It also supports a balanced mood among the elderly with a dosage of 300 mg a day, after 30 days.^{12,13}

Endocrine Health and Stress Resilience[†]

PS has also shown promise in modulating stress-related fatigue. Studies from Italy have shown that PS blunts the ACTH and cortisol response to stressors, suggesting those experiencing

† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

eFFICACY
the power of *e*

fatigue due to stress or overstimulation from elevated cortisol may benefit from using oral PS to reduce this response.¹⁴ A second study using the Trier Social Stress Test, (TSST) a laboratory stress test that measures the response of humans to a socially stressful public speaking situation, confirmed this finding. After three weeks of a combined blend of phosphatidic acids (100 mg PS), a statistical reduction in stress induced ACTH production, as well as serum/salivary cortisol production, was seen.¹⁵ Other studies on PS (50-800 mg) given to subjects under stress (physical, emotional, mental, etc.), found it reduced stress-induced excretion of cortisol.^{16,17}

Administration of PS has also been studied in exercising subjects, by giving higher levels of PS (600 mg) to blunt the cortisol elevation resulting from intensive exercise. PS has also been found to reduce the cortisol response to overtraining, resulting in a reduction in muscle soreness and improved athletic performance.¹⁸⁻²⁰

Directions

1 soft gel capsule three times per day or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts ^{V4}		
Serving Size 1 Soft Gel Capsule		
Servings Per Container 90		
1 soft gel capsule contains	Amount Per Serving	% Daily Value
Phosphatidylserine	100 mg	*
* Daily Value not established		

ID# 542090 90 Soft Gel Capsules

† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.



References

1. Crook TH, Tinklenberg J 1., Yesavage J, et al. Effects of phosphatidylserine in age-associated memory impairment. *Neurology* 1991;41:644-649.
2. Amaducci L, Crook TH, Lippi A, et al. Use of phosphatidylserine in Alzheimer's Disease. *Ann N Y Acad Sci* 1991;640:245-249.
3. Cenacchi T, Bertoldin T, Farina C, et al. Cognitive decline in the elderly: a double-blind, placebo-controlled multicenter study on efficacy of phosphatidylserine administration. *Aging (Milano)* 1993;5:123-133.
4. Crook T, Petrie W, Wells C, Massari DC. Effects of phosphatidylserine in Alzheimer's disease. *Psychopharmacol Bull* 1992;28:61-66.
5. Kato-Kataoka A, Sakai M, Ebina R, et al. Soybean-derived phosphatidylserine improves memory function of the elderly Japanese subjects with memory complaints. *J Clin Biochem Nutr.* 2010 Nov;47(3):246-55. [PMID: 21103034].
6. Richter Y, Herzog Y, Cohen T, et al. The effect of phosphatidylserine-containing omega-3 fatty acids on memory abilities in subjects with subjective memory complaints: a pilot study. *Clin Interv Aging.* 2010 Nov 2;5:313-6. [PMID: 21103402].
7. Vakhapova V, Cohen T, Richter Y, et al. Phosphatidylserine containing omega-3 fatty acids may improve memory abilities in non-demented elderly with memory complaints: a double-blind placebo-controlled trial. *Dement Geriatr Cogn Disord.* 2010;29(5):467-74. [PMID: 20523044].
8. Richter Y, Herzog Y, Lifshitz Y, Hayun R, Zchut S. The effect of soybean-derived phosphatidylserine on cognitive performance in elderly with subjective memory complaints: a pilot study. *Clin Interv Aging.* 2013;8:557-63. Epub 2013 May 21.
9. Hirayama S, Terasawa K, Rabeler R, Hirayama T, Inoue T, Tatsumi Y, Purpura M, Jäger R. The effect of phosphatidylserine administration on memory and symptoms of attention-deficit hyperactivity disorder: a randomised, double-blind, placebo-controlled clinical trial. *J Hum Nutr Diet.* 2013 Mar 17.
10. Manor I, Magen A, Keidar D, Rosen S, Tasker H, Cohen T, Richter Y, Zaaroor-Regev D, Manor Y, Weizman A. The effect of phosphatidylserine containing Omega3 fatty-acids on attention-deficit hyperactivity disorder symptoms in children: a double-blind placebo-controlled trial, followed by an open-label extension. *Eur Psychiatry.* 2012 Jul;27(5):335-42. Epub 2011 Jul 31.
11. Kidd PM. Phosphatidylserine; membrane nutrient for memory. A clinical and mechanistic assessment. *Altern Med Rev* 1996;1:70-84.
12. Brambilla F, Maggioni M. Blood levels of cytokines in elderly patients with major depressive disorder. *Acta Psychiatr Scand* 1998;97:309-313.
13. Brambilla F, Maggioni M, Panerai AE, et al. Betaendorphin concentration in peripheral blood mononuclear cells of elderly depressed patients – effects of phosphatidylserine therapy. *Neuropsychobiology* 1996;34:18-21.
14. Monteleone P, Maj M, Beinat L, et al. Blunting by chronic phosphatidylserine administration of the stress-induced activation of the hypothalamic-pituitary-adrenal axis in healthy men. *Eur J Clin Pharmacol* 1992;42:385-388.
15. Hellhammer, J., Fries, E. et al. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. *Stress.* 2004; 7(2):119-126.
16. Benton D, Donohoe RT, et al. The influence of phosphatidylserine supplementation on mood and heart rate when faced with an acute stressor. *Nutr Neurosci* 2001; 4(3):169-178.
17. Monteleone P, Beinat L, et al. Effects of phosphatidylserine on the neuroendocrine response to physical stress in humans. *Neuroendocrinology* 1990; 52(3):243-248.
18. Kingsley M. Effects of phosphatidylserine supplementation on exercising humans. *Sports Med* 2006; 36(8):657-669.
19. Kingsley M, Miller M, et al. Effects of phosphatidylserine on exercise capacity during cycling in active males. *Med Sci Sports Exerc* 2006; 38(1):64-71.