



Phosphatidylserine

Common Indications:

- Cognitive support; Alzheimer's disease
- Memory enhancement
- Antioxidant
- Depression; mood disorders
- Stress; may help improve cortisol levels in chronic stress, including exercise-induced stress and fatigue
- Attention-deficit hyperactivity disorder
- Athletic Performance

General Comments:

Phosphatidylserine is naturally found as part of the cell membrane of cells. Phosphatidylserine is most notably found in the cell membrane of neurons, comprising about 7-10% of its lipid content. The average daily phosphatidylserine intake from the diet in western countries is estimated to be about 130mg a day. The total amount of phosphatidylserine in the body is about 60 grams, 30 grams of which is in the brain.

The phosphatidylserine supplements currently available as dietary supplements are typically derived from soy.

Benefits & Mechanism of Action:

- **Cognitive support:** Animal studies suggest phosphatidylserine has a trophic (growth supportive) effect on the brain. Phosphatidylserine dosing in aged rats increases dopamine release from the striatum and stimulates acetylcholine release from the cerebral cortex, in addition to preventing age-induced loss of dendritic spines in the hippocampal pyramidal neurons and atrophy of cholinergic cells in the basal forebrain⁴. Human studies using PET scanning to investigate brain glucose utilization in Alzheimer's patients noted increases in glucose utilization in phosphatidylserine-supplemented patients, especially in the temporo-parietal areas, which are specifically affected by Alzheimer's disease⁵. Other clinical studies support the use of phosphatidylserine in brain and cognitive related disorders.¹⁰

- **Antioxidant:** Phosphatidylserine may also protect cells from damage produced by free radicals. A significant decrease in damage to cultured human fibroblasts from the enzymatic oxidation of acetaldehyde by xanthine oxidase was noted in cultures pre-treated with phosphatidylserine.⁷
- **Stress:** Phosphatidylserine has been reported to affect the hypothalamic release of corticotropin-releasing factor, an activator of the hypothalamic-pituitary-adrenal axis in response to stress.²
- **Attention-deficit hyperactivity disorder:** In a double-blind, randomized controlled trial, phosphatidylserine was shown to significantly improve ADHD symptoms and short-term auditory memory in children.¹²
- **Athletic Performance:** In a double-blind trial, administration of soybean-derived phosphatidylserine (750 mg/day) increased aerobic capacity in active young men. The 14 active males (average age of 23) were randomly assigned to placebo or treatment groups. At the end of the 10-day treatment, mean time to exhaustion on a bicycle ergometer at 85% of maximal oxygen uptake increased in the treatment group from 7.85 minutes at baseline to 9.85 minutes compared to no improvement in the control group.¹³

Dose:

The most common dose is 100mg, 1-3 times a day.

Cautions & Side Effects:

There is no known toxicity when using phosphatidylserine as a dietary supplement.

References:

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