

# When You Start to Lose Your Mind...

## Phosphatidylserine Can Help Maintain or Improve Memory

### Up to 50% of Your Ability to Think and Reason May Be Lost with Age

As people age, they inevitably lose some sharpness in the higher-level functions of memory. In fact, as much as half of the ability to perform everyday tasks related to memory and cognition (the ability to think and reason) may be lost. This mental decline can become evident as early as age 50, often in people who are otherwise clinically "healthy".<sup>(1)</sup>

This loss is due in part to a decline in nerve cell density as old cells die off more quickly than they can be regenerated. There is also deterioration of the synapses that link nerve cells together. The result is impaired capacity to recall names and numbers, to manipulate words, and to concentrate or maintain focus at work or play. This progressive loss of mental function can effect personal productivity, damage self esteem and bring considerable distress to aging adults.<sup>(1)</sup>

The phospholipids, particularly phosphatidylserine, can help maintain or improve cognitive functions such as memory and learning.<sup>(1-8)</sup>

## Phosphatidylserine Works at the Cellular Level to "Energize" the Brain and Improve Overall Performance

Dr. Robert Atkins calls phosphatidylserine (PS) a "biological detergent for the brain and body".<sup>(2)</sup> Phospholipids promote membrane fluidity which is crucial for cellular responsiveness and for a cell's processing of nutrients and information.<sup>(6)</sup> Besides keeping cell membranes fluid and fatty substances soluble, PS can actually increase the number of neurotransmitter receptor sites, giving the brain more circuits with which to communicate. It also aids in restoring youthful flexibility to brain neurons and enhances the efficiency of glucose metabolism in the brain. As a result, the brain is "energized".<sup>(2)</sup>

While PS works at the cellular level, its effects are seen in the performance of the brain as a whole. PS boosts memory and counteracts the neurological damage of stress. Human trials dating back to the 1970's indicate that supplementary PS improves mental function and memory in groups ranging from "normal, healthy" to Alzheimer's. Its benefits may be seen in patients with age-related decline in memory and concentration, Par-

### PHOSPHATIDYL SERINE

*The Brain Nutrient - Leci-PS®*

Product No. 896

Fill Size: 60 capsules

Each Leci-PS® softgel capsule contains:

#### Phospholipids

Phosphatidylserine (soy phospholipid) ----- 100 mg.  
Phosphatidylcholine (soy phospholipid) ----- 45 mg.  
Phosphatidylethanolamine (soy phospholipid) ---- 10 mg.  
Phosphatidylinositol (soy phospholipid) ----- 10 mg.

#### Fatty Acids

Linoleic acid ----- 113 mg.  
Linolenic acid ----- 11 mg.  
Oleic acid ----- 12 mg.  
Stearic acid ----- 1 mg.  
Palmitic acid ----- 24 mg.  
Capric acid ----- 49 mg.  
Caprylic acid ----- 130 mg.

#### Minerals:

% Daily Value

Phosphorus ----- 8 mg. <1%  
Potassium ----- 3 mg. <1%

Other ingredients: gelatin, glycerine, soybean oil, water.

Leci-PS® is a registered trademark of Lucas Meyer, Inc.

**Recommended Dosage:** 1 capsule 3 times daily with meals.

kinson's disease, Alzheimer's disease, epilepsy and depression (particularly in the elderly).<sup>(1,2,3)</sup>

### PS May Reverse 12 Years of Decline

According to Dr. T.H. Crook, Ph.D., a researcher from the Memory Assessment Clinics of Bethesda, Maryland, "PS may reverse up to 12 years of decline." During his 1991 double-blind, randomized, placebo-controlled investigation of 149 subjects, ages 50 to 75, the greatest improvement was seen in patients given PS who had the worst memory lapses at the beginning of the trial. Benefits continued for up to four weeks after stopping PS supplements. Half the patients were given 300 mg. of PS daily (100 mg. 3 times daily) for 12 weeks. The other half received placebos.<sup>(1,2,4)</sup>

Using 51 subjects in a similar double-blind trial in 1992, Dr. Crook and his colleagues found that the PS-treated patients, but not the placebo group, showed the following improvements:

- Held onto their memory for names of familiar persons;<sup>(1,2,5,6)</sup>

- Knew names of interviewers or clinic staff;<sup>(1,2,5,6)</sup>
- Recalled the location of frequently misplaced objects;<sup>(1,2,5,6)</sup>
- Recalled details of events from the previous day;<sup>(1,2,5,6)</sup>
- Recalled details of events from within the prior week.<sup>(1,2,5,6)</sup>

In 1987, a study of 87 subjects with moderate cognitive deterioration, ages 55 to 80, found improvement on tests measuring attention, concentration and short term memory for subjects taking PS. The study also linked PS to improvements in activities related to daily life such as self-sufficiency, sleep disturbances and unadaptable behavior.<sup>(8)</sup>

In the peer-reviewed literature, there are at least 34 human studies on PS, of which 14 were conducted double-blind. Most were done with subjects who had experienced measurable losses in memory, judgment, abstract thought and other higher mental functions, and sometimes changes in personality and behavior.<sup>(1,3)</sup>

## PS Effect on Membranes

PS is one of a group of phospholipids that has a positive effect membrane on function. Membranes are fatty barriers that surround every cell and many structures within cells. With age, the membranes around cells (including nerve cells) tend to get stiffer and more resistant to the normal movement of molecules. Less movement of molecules (including neurotransmitters) across the membranes means decreased function in brain cells. PS and the other phospholipids literally “un-stiffen” membranes, allowing for more normal function.<sup>(3)</sup>

PS aids in the conduction of nerve impulses and helps to accumulate, store and release nerve transmitter substances by means of:

- Maintaining the cell’s internal environment;
- Regulating energy enzymes (ATPase);
- Transducing signals inside the brain;
- Releasing secretory vesicles containing hormones, nerve transmitters and other materials required for thinking;
- Communicating cell-to-cell;
- Recognizing “old” cells that need to be “recycled”;
- Regulating cellular growth, proliferation and renewal.<sup>(6)</sup>

## PS Reduces Stress-Hormone

In a 1992 double-blind trial, researchers subjected healthy young men to exercise-induced stress and found pretreatment with PS can lower stress-hormone production.<sup>(2,9)</sup>

Excessive stress, whether physical, emotional or metabolic, forces the adrenal glands to pump out more cortisol. While cortisol is essential, too much of it accelerates many aspects of aging, including memory dysfunction. Excess cortisol prevents the brain’s uptake of glucose and inhibits communication among brain cells. It can actually damage brain cells and lead to cellular death. In the brain, and throughout the body, excess cortisol can injure blood vessels and speed up atherosclerosis. It can also break down muscle tissue and inhibit the immune system.<sup>(2)</sup>

## PS Supplementation

When taken as a supplement, PS absorbs rapidly into the blood and crosses the blood-brain barrier readily to reach the brain cells. Because PS is sparse in common foods, it is appropriately taken as a nutritional supplement. Even lecithin which contains other phospholipids (phosphatidylcholine, phosphatidylethanolamine and phosphatidylinositol), has only a trace amount of PS. The body can make PS; however, it is created only through a complex series of reactions with substantial expenditure of energy.<sup>(1,2,6)</sup>

WARNING: This information is provided for health care professionals only. **This publication and the product contained herein have not been approved or evaluated by the Food and Drug Administration. This publication, and the product contained herein are not intended to diagnose, treat, cure or prevent any disease.** The product relates to nutritional support only.

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