



FORMULATED BY DAVID HAASE, MD

### Clinical Applications

- Supports Healthy Cell Membrane Composition and Normal Membrane Repair Mechanisms\*
- Supports Cell Membrane Fluidity\*
- Supports Liver Health and Function\*
- Supports Detoxification Enzymes\*
- Supports Cardiovascular Health\*
- A Source of Choline (~130 mg/softgel)

*PhosphaPure provides 2.7 g of pure polyenylphosphatidylcholine (PPC) per serving plus the highest concentrated source of 1,2 DLPC (dilinoleoylphosphatidylcholine). Unlike most other phosphatidylcholine products on the market, PhosphaPure contains no other phospholipids, aside from PPC and DLPC, that may compete for absorption. Studies suggest that PPC ingestion increases choline levels in the blood and brain and supports acetylcholine synthesis for healthy neuronal and cell function. Daily supplementation of PPC may help maintain healthy brain and liver function, healthy cholesterol levels already within the normal range, and gastric mucosal protection. PPC is widely used to support healthy aging.\**

All Creating Health Formulas Meet or Exceed cGMP Quality Standards

### Discussion

Phospholipids are the basic building blocks of cellular membranes. Every phospholipid contains two fatty acid tails (triglycerides contain three) linked to a group of molecules containing phosphorus. The phosphorus-containing “head” of a phospholipid is hydrophilic; the “tails” are hydrophobic and love oil. When phospholipids come in contact with water, the hydrophobic tails line up soldier-fashion next to each other with the hydrophilic head groups on either side forming a very thin, flexible (or “fluid”), and partially permeable bilayer structure—the cell membrane.\*

The cell membrane is where virtually all the important metabolic reactions occur. But lowered phospholipid availability may sometimes limit these essential functions. While the body can biosynthesize phospholipids from other substances, the process requires many enzymes and a great deal of energy. Exogenous sources of phospholipids can supplement biosynthesis. Research suggests that supporting phospholipid availability is important in cellular protection and repair and in membrane fluidity.<sup>[1,2]</sup> Furthermore, scientific understanding of the importance of phospholipids in organ and system health continues to grow. As explained by Krosnjar et al, “A healthy cell membrane leads to healthy cells and then healthy tissue and then to healthy organs or body systems and finally, healthy bodies and minds.”<sup>[3]</sup>

Phosphatidylcholine is a class of phospholipids that, while similar in many respects to other types of phospholipids, has some important health-promoting differences. The most distinguishable physical characteristics between simple phospholipids and phosphatidylcholine are the choline head and the unsaturated fatty acid chains that comprise the tail. Phosphatidylcholine is perhaps the most important molecule among tens of thousands of molecules that comprise a cell, accounting for nearly 50% of the cell membrane.\*

Not only does phosphatidylcholine support healthy cell membrane composition and function, it also supports healthy choline levels and brain acetylcholine formation.<sup>[4]</sup> Furthermore, areas of research suggesting the health benefits that may be gained from phosphatidylcholine supplementation include liver function,<sup>[2,5]</sup> detoxification,<sup>[2,5]</sup> lipid metabolism and lipoprotein biosynthesis,<sup>[6,7]</sup> cytoprotection (gastric, beta cells),<sup>[8,9]</sup> and cytokine formation.\*<sup>[10,11]</sup>

**Polyenylphosphatidylcholine (PPC)** is a polyunsaturated phosphatidylcholine extracted from soybeans. As an excellent source of phosphatidylcholine, PPC supplementation has been widely studied.<sup>[2,4,7-9,12]</sup> PhosphaPure provides a patented and purified source of 100% pure PPC. PPC is thought to be functionally superior to other forms of phosphatidylcholine because of its content of 1,2-dilinoleoylphosphatidylcholine (DLPC) and linoleic acid, which binds at the c1 and c2 positions of the DLPC molecule.\*<sup>[2,3,11,12]</sup>

**1,2 dilinoleoylphosphatidylcholine (DLPC)** The quantitatively and qualitatively dominating molecule in PPC is DLPC, and PhosphaPure provides up to 52% DLPC. The presence of DLPC in PPC is the most important difference between PPC and typical phospholipids, such as triple lecithin and raw lecithin, and this difference is thought to be the main reason for the advantages PPC has over other phospholipids.<sup>[11,12]</sup> Increasing the DLPC content of cell membranes increases membrane fluidity and therefore positively influences membrane-dependent functions.<sup>[2]</sup> For instance, in vitro research suggests that DLPC can modulate the inflammatory response through nuclear erythroid 2-related factor 2 (Nrf2).<sup>[11]</sup> Other in vitro work revealed that PPC has strong antioxidant activity and that DLPC is mainly responsible for its protective effect.\*<sup>[12]</sup>

**Fatty Acids** As stated earlier, the fatty acid tails of soy-derived PPC provide polyunsaturated fatty acids. Each of our cells can produce many of the lipid tails, such as saturated (palmitic and stearic) fatty acids and monounsaturated (oleic and nervonic) fatty acids, but not essential polyunsaturated fatty acids.\*

**\*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.**



# PhosphaPure 100c

## Supplement Facts

Serving Size: 3 Softgels  
Servings Per Container: About 33

Amount Per Serving %Daily Value		
Calories	30	
Total Fat	3 g	4%†
Polyenylphosphatidylcholine (PPC) (from soybean lecithin)	2.7 g	**

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

**Other Ingredients:** Softgel (porcine gelatin, vegetable glycerin, water), glycerides and fatty acids (from safflower oil and sunflower seed oil glyceride), medium-chain triglyceride oil, and ethanol.

**Contains:** Soy.

## Directions

Take two to three softgels daily, or as directed by your healthcare practitioner.

Consult your healthcare practitioner prior to use. Individuals taking medication should discuss potential interactions with their healthcare practitioner. Do not use if tamper seal is damaged.

## Does Not Contain

Wheat, gluten, yeast, dairy products, fish, shellfish, peanuts, tree nuts, egg, artificial colors, artificial sweeteners, or artificial preservatives.

## References

1. Cui Z, Houweling M. Phosphatidylcholine and cell death. *Biochim Biophys Acta*. 2002 Dec 30;1585(2-3):87-96. Review. [PMID: 12531541]
2. Gundermann KJ, Kuenker A, Kuntz E, et al. Activity of essential phospholipids (EPL) from soybean in liver diseases. *Pharmacol Rep*. 2011;63(3):643-59. [PMID: 21857075]
3. Krosnjar S, Todić M, Bakić S, et al. Oral acute toxicity of polyenylphosphatidylcholine (PPC) in rats. *Bosn J Basic Med Sci*. 2005 Aug;5(3):63-68. [PMID: 16351585]
4. Magil SG, Zeisel SH, Wurtman RJ. Effects of ingesting soy or egg lecithins on serum choline, brain choline and brain acetylcholine. *J Nutr*. 1981 Jan;111(1):166-70. [PMID: 7192727]
5. Lieber CS. New concepts of the pathogenesis of alcoholic liver disease lead to novel treatments. *Curr Gastroenterol Rep*. 2004 Feb;6(1):60-65. [PMID: 14720455]
6. Cohn JS, Kamili A, Wat E, et al. Dietary phospholipids and intestinal cholesterol absorption. *Nutrients*. 2010 Feb;2(2):116-27. [PMID: 22254012]
7. Kirsten R, Heintz B, Nelson K, et al. Polyenylphosphatidylcholine improves the lipoprotein profile in diabetic patients. *Int J Clin Pharmacol Ther*. 1994 Feb;32(2):53-56. [PMID: 8004358]
8. Lee SH, Han YM, Min BH, et al. Cytoprotective effects of polyenylphosphatidylcholine (PPC) on beta-cells during diabetic induction by streptozotocin. *J Histochem Cytochem*. 2003 Aug;51(8):1005-15. [PMID: 12871982]
9. Demirbilek S, Ersoy MO, Demirbilek S, et al. Effects of polyenylphosphatidylcholine on cytokines, nitrite/nitrate levels, antioxidant activity and lipid peroxidation in rats with sepsis. *Intensive Care Med*. 2004 Oct;30(10):1974-78. [PMID: 15045164]
10. Kovács T, Varga G, Erces D, et al. Dietary phosphatidylcholine supplementation attenuates inflammatory mucosal damage in a rat model of experimental colitis. *Shock*. 2012 Aug;38(2):177-85. [PMID: 22576006]
11. Son Y, Lee JH, Kim NH, et al. Dilinoleoylphosphatidylcholine induces the expression of the anti-inflammatory heme oxygenase-1 in RAW264.7 macrophages. *Biofactors*. 2010 May-Jun;36(3):210-15. [PMID: 20336709]
12. Aleynik SI, Leo MA, Takeshige U, et al. Dilinoleoylphosphatidylcholine is the active antioxidant of polyenylphosphatidylcholine. *J Investig Med*. 1999 Nov;47(9):507-12. [PMID: 10572382]

**\*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.**

Manufactured For Creating Health  
556 Fire Station Rd, Suite B  
Clarksville, TN 37043  
www.creatinghealth.com

DRS-166  
REV. 09/25/18