

Phosphatidylcholine is a glycerophospholipid that is involved in the metabolism of several lipid compounds. Phosphatidylcholine is widely found in the cell membranes of plants and animals and as an ingredient of fat dispersions (milk). When medical researchers use the term “lecithin,” they are referring to a purified substance called phosphatidyl choline (PC).

PC acts as a supplier of choline, which is needed for cell membrane integrity and to facilitate the movement of fats in and out of cells. It is also a component of the neurotransmitter acetylcholine and is needed for normal brain functioning, particularly in infants. Although the human body can synthesize choline, additional amounts from the diet are considered essential under certain circumstances. For this reason, PC has been used in a number of preliminary studies for a wide variety of neurological and psychiatric disorders, though not every study suggests that supplemental choline is capable of reaching the brain. Choline participates in many functions involving cellular components called phospholipids.

PHARMACOKINETICS

Phosphatidylcholine is absorbed into the mucosal cells of the small intestine, mainly in the duodenum and upper jejunum, following some digestion by the pancreatic enzyme phospholipase, producing lysophosphatidylcholine (lysolecithin). Reacylation of lysolecithin takes place in the intestinal mucosal cells, reforming phosphatidylcholine, which is then transported by the lymphatics in the form of chylomicrons to the blood. Phosphatidylcholine is transported in the blood in various lipoprotein particles, including very-low-density lipoproteins (VLDL), low-density lipoproteins (LDL) and high-density lipoproteins (HDL); it is then distributed to the various tissues of the body. Some phosphatidylcholine is incorporated into cell membranes.

Phosphatidylcholine is also metabolized to choline, fatty acids and glycerol. The fatty acids and glycerol either get oxidized to produce energy or become involved in lipogenesis. Choline is a precursor of acetylcholine. Serum choline levels peak between 2 to 6 hours after oral intake.

ACTIONS

Phosphatidylcholine may have hepatoprotective activity.

Phosphatidylcholine is important for normal cellular membrane composition and repair.

Phosphatidylcholine is also the major delivery form of the essential nutrient choline.

Choline itself is a precursor in the synthesis of the neurotransmitter acetylcholine, the methyl donor betaine and phospholipids, including phosphatidylcholine and sphingomyelin among others. (See the Choline monograph for further discussion.)

Phosphatidylcholine is involved in the hepatic export of very-low-density lipoproteins.

MECHANISM OF ACTION

Phosphatidylcholine's role in the maintenance of cell-membrane integrity is vital to all of the basic biological processes. These are: information flow that occurs within cells from DNA to RNA to proteins; the formation of cellular energy and intracellular communication or signal transduction. Phosphatidylcholine, particularly phosphatidylcholine rich in polyunsaturated fatty acids, has a marked fluidizing effect on

cellular membranes. Decreased cell-membrane fluidization and breakdown of cell-membrane integrity, as well as impairment of cell-membrane repair mechanisms, are associated with a number of disorders, including liver disease, neurological diseases, various cancers and cell death.

CONTRAINDICATIONS

There are no reported or known contraindications of phosphatidylcholine supplementation.

PRECAUTIONS

Those with malabsorption problems may develop diarrhea or steatorrhea when using phosphatidylcholine supplements. Those with the antiphospholipid-antibody syndrome should exercise caution in the use of phosphatidylcholine supplements.

ADVERSE REACTIONS

No major side effects have been reported. Mild side effects have been noted occasionally such as nausea, diarrhea and increased salivation in some. This holds for all forms of phosphatidylcholine.

INTERACTIONS

There are no known interactions.

USES

Phosphatidylcholine is an excellent fat burner. Many Mesotherapy practitioners use phosphatidylcholine by itself for weight loss.

PACKAGING

250mg/5ml. Box of 5 Vials.