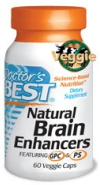
Natural Brain Enhancers featuring GPC & PS 60VC



Fact Sheet | More Info | Product Media

Code: DRB-00214
Size: 60 VC
MSRP: $ 34.99

What is it? | Ingredients | Benefits | Safety | Scientific References

Printable Version

Natural Brain Enhancers featuring GPC & PS 60VC

Suitable for Vegetarians

- Science-based nutrition
- Dietary supplement
- Supports attention, learning, memory, and other cognitive functions*
- Assists the brain and body in coping with stress*
- Facilitates growth factor action for brain circuit renewal*

GPC (GlyceroPhosphoCholine) and PS (PhosphatidylSerine) are phospholipid nutrients intensively researched for their benefits to diverse human brain functions.* These nutrients naturally complement each other: GPC reaches very high concentrations inside cells; PS is a building block for cell membranes that generate the brain's energy and electricity.* Numerous double-blind trials catalog the benefits of GPC and PS for people of all ages.*

Suggested Adult Use: Take 1 capsule twice per day between meals, not later than 4 pm. Intakes up to 6 capsules per day may be beneficial, as recommended by a nutritionally informed physician.

Supplement Facts
Serving Size 2 capsule
Servings Per Container 30 Servings

Amount Per Serving		**%DV**
GlyceroPhosphoCholine (GPC)	300 mg	†
PhosphatidylSerine (PS)	100 mg	†

† Daily Value not established.

Other ingredients: Modified cellulose (vegetarian capsule), dicalcium phosphate, magnesium stearate (vegetable source), magnesium silicate, silicon dioxide, soy lecithin. **Contains soy**

60VC

Printable Version

Natural Brain Enhancers is a combination of two nutrients that occur naturally in the human brain and complement each other to support virtually all the brain's functions. GPC (GlyceroPhosphoCholine) and PS (PhosphatidylSerine) are vital lipid nutrients (phospholipids, specifically), documented for their benefits and safety of use through more than 30 double-blind trials and hundreds of other human and animal studies.[1,2]

GPC is especially well documented for its support of attention, memory, and the other higher brain functions (collectively termed "cognition").[1] PS is best documented for its support of memory, mood, and stress management.[2] In animal experiments, both GPC and PS protect the brain against toxic or traumatic damage, and support brain circuit maintenance and renewal through their multiple overlapping molecular actions.[3,4]

These vital lipid nutrients have differing action mechanisms that naturally complement each other. GPC operates in the cell water phase to support a diverse array of important life functions. PS works within the cell membranes to facilitate key catalytic proteins that manage energy generation and utilization to support life. Both of these nutrients are essential for healthy structure and function in all the cells of the body. GPC and PS are indeed fundamental to the brain and the body.[5]

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Suitable for Vegetarians

CONTAINS NOTHING OTHER THAN LISTED INGREDIENTS

GPC, Vital Lipid for Mind and Body

Also called alpha-GPC and choline alfoscerate (or alphoscerate), GPC has been an important brain nutrient for decades in Italy, Russia, and other European countries. GPC's great importance for total human health is indicated by its significant concentration in human mother's milk.[4] In addition to being the most readily available dietary source of the essential nutrient choline, GPC provides unique protective functions for the brain and all the other organs.[5]

GPC's Many Brain Benefits

Double blind and other randomized, controlled trials along with other human studies[1,5-24] document GPC's many important benefits as a dietary supplement:

- Supports healthy cognitive function across the entire age span
- Sharpens attention and word recall, including in young healthy people
- Supports healthy brain metabolism in middle-aged subjects
- Supports memory, learning, mood, and sociability in older subjects
- Improves learning and behavior in children
- Highly bioavailable source of choline, a vitamin-like nutrient
- Unique antitoxin and overall protectant for the brain, kidney, and other organs

Supports Attention, Memory, Other Mental Performance

In two DB trials conducted with healthy subjects,[9,10] GPC protected and even boosted crucial cognitive functions. University students were subjected to experimental amnesia, from exposure to the chemical scopolamine that causes a cognitive paralysis for at least 6 hours. After being pretreated with GPC or a placebo for 7 or 10 days, each volunteer was injected with scopolamine. During the subsequent 6-hour period their cognitive sharpness was periodically evaluated using written tests.

In the first of these trials,[9] 32 healthy men and women aged 19–38 years consumed either GPC or a placebo by mouth, for 10 days. On the eleventh day they were injected with either scopolamine or a placebo, then were tested for attention (finding targets in a written matrix) and learning (ability to recall a list of words).

On the test of attention, GPC held off the scopolamine amnesia for at least the first 3 hours. On the word learning test, GPC significantly protected against scopolamine amnesia through the entire 6-hour period. But even more, GPC boosted these healthy subjects' normal or "baseline" word recall prior to the scopolamine treatment. Improving normal performance in a healthy and relatively youthful subject is a rare accomplishment for any nutrient.

The second trial involved 48 men and women aged 22–33 years.[10] This trial resembled the first, except that the subjects received GPC for just 7 days before the scopolamine treatment, and more elaborate cognitive tests were employed. At the 60-minute time point when the scopolamine effect was its worst, the subjects on GPC performed significantly better on total word recall. Also, GPC successfully protected "working memory," a form of abstract reasoning carried out with the presence of a distraction.

These double-blind trial results with GPC are important indicators of its star quality as a brain nutrient. They confirm GPC not only protects cognitive capacities in young, healthy people but can boost them as well.

Boosts Brain Vitality in Over-50s and the Elderly

GPC has been extensively researched in a number of clinical trials with over-50 subjects.[11-22] In 2001, a "meta-analysis" (involving pooling of all the clinical data) concluded that GPC was helpful for attention and memory in this population.[23] A 2007 re-analysis confirmed those findings.[24] From data on well over 1000 individuals assessed in several psychometric test systems, this expert team concluded that GPC can improve mood and fatigue along with attention, memory and other cognitive functions at middle age and in later life.

GPC also may help revitalize fading mental capacities in the elderly. In a large DB trial involving 261 subjects aged 60-80 years,[12] GPC improved cognition, behavior and ADL (activities of daily living). There were no dropouts due to side effects.

The findings from other human studies and numerous animal experiments altogether confirm GPC is a potent protective nutrient for the brain. In rats GPC facilitates circuit rebuilding following experimental brain damage from traumatic injury[25] or toxic chemical exposure.[26] Healthy rats given GPC show significantly less nerve cell dropout as they transition from middle age to old age.[27] More specifically, in these aging rats GPC partially protected against the usual decline of key nerve cells and their synaptic connections in the hippocampus, the brain zone that initiates new memories.[27]

Diverse Actions Help Integrate Brain with Body

GPC has several action mechanisms that help account for its impressive clinical benefits. First, GPC is an osmotic buffer—each cell varies its GPC concentration to help neutralize water buildup that otherwise could destroy the cell. Related to this action is GPC's unique antitoxic function—its chemical neutralization of urea, a potentially toxic metabolic waste product.[1,5] To maintain these universal protective functions GPC's normal, healthy levels in the human kidney exceed glutathione or other protective nutrients.[5]

Then, GPC is a key metabolic reservoir for other nutrients vital to the body's growth, development, and overall wellbeing.[1] Cells use GPC as needed, to derive three different related nutrients—choline, acetylcholine, and phosphatidylcholine (PC).[1] These are in great demand all through life, initially for the developing eyes and brain prior to birth, then subsequently for the ongoing gene regulation, chemical messenger and cell membrane maintenance functions that support life. The amounts of life energy (ATP, adenosine triphosphate) required to make these from GPC is more economical than using other sources.[1]

Choline was recently recognized by the U.S. Food and Drug Administration (FDA) as a vitamin, with special importance as a source of methyl groups essential to the lifelong regulation of genes (epigenetics).[6] Choline is also readily convertible to betaine, which is another methyl nutrient and complements GPC as an osmotic buffer.[1,5] Taking GPC as a dietary supplement helps ensure choline and betaine can be made available for these crucial life functions.

GPC is the most efficient dietary choline source for humans. Unlike other choline compounds that often become degraded in the intestine before they can be absorbed, GPC taken by mouth steadily raises blood choline and keeps it elevated for up to 10 hours.[1,7]

Choline is in turn a key building block for acetylcholine (ACh), a universal chemical messenger. As GPC is consumed, blood choline rises and this later causes brain choline also to rise. Adequate brain choline is essential to the brain's natural production of ACh for coordinating cell activation both outside and inside the brain. Besides being absolutely required for learning and memory, ACh is involved in virtually all the other known brain functions.[1]

The actions of ACh outside the brain are just as crucial to health. It is ACh that allows nerves to trigger our voluntary muscle contractions. At the involuntary level, ACh helps regulate the heartbeat and digestive rhythms and generally unites the brain with all the other organs into the autonomic nervous system, our "automatic pilot".[1,5]

PC or phosphatidylcholine is the major phospholipid building block for cell membranes.[7] Membranes are thin, ribbon-like sheets of molecular assemblies that house the catalytic proteins on which all cells rely for their functions. The cell membrane system both encloses the cell contents AND subdivides the cell interior into functionally specialized compartments.[5] GPC is a partly formed PC molecule that requires a simple "splicing on" of fatty acids to become the fully functional cell membrane building block.

Cells are continually varying the molecular structure of their PC, making new PC from moment to moment to fine-tune the fluidity of their cell membrane network. Using GPC to make PC ensures "just-in-time", on demand production of the PC needed to make new and functionally appropriate membrane mass.[1]

Considering the all-encompassing roles of choline, acetylcholine, PC, and of the whole GPC molecule in maintaining healthy life functions, adequate supply of GPC is indispensable factor to the mutual coordination of brain/mind with body.

Potent Mind-Body Nutrient for Active Living and Healthy Aging

GPC's primary actions support a great cascade of downstream actions. For example, GPC's support for acetylcholine production in the brain helps sustain the cyclic secretion of growth hormone, a pivotal regulator of human physiology.[28] GPC's unique capacity as an osmotic buffer is important for the integrity of the brain, the kidneys and all the other organs.[5] Additionally, GPC supports the actions of nerve growth factor (NGF), the closest to a universal growth factor for all the tissues.[3,29]

Growth factors are protein messengers that work through membrane receptors to facilitate cell and tissue growth, maintenance and repair. NGF was the first discovered, and is arguably the most versatile of these factors, even influencing stem cells to mature and replace damaged cells.[29] In rat experiments, GPC was found to markedly slow the age-related loss of NGF receptors in the brain, and this undoubtedly helps prolong NGF's benefits into old age.[3]

GPC is a valuable and vital lipid nutrient for people at all stages of life. Its unique protective actions; its metabolic importance as a reservoir for choline, acetylcholine, and PC; its support of growth hormone and growth factor action; all help account for GPC's remarkable proven contributions to active living and healthy aging.

PS, Vital Lipid for Memory, Mood and Stress

PS has been recognized as a foremost human brain nutrient for more than twenty years. It was initially produced by laborious extraction from cow brains (as BC-PS: bovine cortex-phosphatidylserine) but

was switched to a soy-derived form in the early 1990s after "mad cow" disease contaminated cattle herds worldwide. Soy PS has since been shown effective in many clinical trials.

The Many Benefits of PS

PS has been subjected to more than 25 DB trials and numerous other human and animal studies. In 2003 the U.S. Food and Drug Administration (FDA) acknowledged the overall validity of this research by granting to PS two qualified health claims related to the support of memory in the elderly.30 Since 2003 at least seven more double-blind trials were published.[31-37] These trials reinforce the earlier clinical findings that PS is an effective, safe and very well-tolerated brain nutrient. These more recent trials were all conducted with soy-derived PS, the form used in this supplement.

A list of specific brain benefits from PS includes:
• Improves memory, learning and other cognitive functions in people who are substantially impaired compared to others in their age group.
• Improves sociability and other quality of life in people with severe cognitive challenges.
• Improves negative mood and eases anxiety both in the young and the elderly.
• Helps manage stress, whether emotional or physical in origin.
• Supports normal development of attention and behavior in childhood.
• Facilitates energy generation in the brain.

Supports Memory, Learning, Other Cognitive Functions

A number of DB trials have probed the benefits of PS for memory, learning, comprehension, and other cognitive brain functions.[38-52] The early trials were done with subjects over the age of 50, and their findings were consistent: PS slowed memory and other cognitive decline in the over-50 population.

The DB trial outcomes with PS varied somewhat, depending on the age range of the subjects and their relative degrees of cognitive difficulties. For middle-aged people (ages 50–65), PS registered statistically significant benefits versus placebo, for memory, learning, and concentration. People aged over 65 showed improved mental performance and (in some cases) measurable improvement in brain energy utilization.

Two of the DB trials with PS for memory and other cognitive support were particularly well designed and had particularly positive outcomes. Both were conducted by international teams led by memory expert Dr. Thomas Crook.[46,47] The first of these studied over-50 people classified as healthy but with memory abnormally poor for their age (termed age-associated memory impairment, or AAMI).[46] Precise testing documented that PS could restore up to 12 years' worth of memory and other cognitive functions. That is, a subject testing at a "cognitive age" equivalent to a normal 64-year-old could test at a cognitive age of 52 after 3 months on PS. The researchers concluded that PS may have "turned back the clock" on brain aging in this trial, with the most impaired subjects showing the greatest benefits.

The Crook team's second DB trial was done on people with memory problems so severe their productivity was impaired.[47] PS also improved memory in this population. A subgroup that was less severely impaired seemed to benefit more from PS. The overall conclusion from these well-designed trials was that PS likely offers the most benefit for memory and other cognitive functions to people with problems that are clinically evident but not sufficiently severe to cripple their daily existence.

Benefits Mood and Stress Management

Beyond its cognitive benefits, PS also can benefit mood and stress management. In two early DB trials on people aged over 60, PS improved mood, including "the winter blues," as well as anxiety, irritability and sociability.[51,52] Subsequent trials focused on PS for mood and anxiety in younger people, including students and children.

In a 2001 double blind trial,53 university students in their early 20s received PS or a placebo for 10 days, then had to perform complicated arithmetic in their heads without the aid of calculators. Those students who had reported a tendency to become anxious (and who also scored high on a neuroticism scale) reported improved mood and self-confidence from taking PS. A 2008 double blind trial also subjected young subjects to cognitive stressors, and found that PS improved their relaxation state during the period of stress.[37]

In another double blind trial with university students, the researchers tested PS against a physical stressor—intense physical exercise.[33] After 30 days of taking PS or a placebo daily, the students were wired for heart rate monitoring then vigorously pedaled an ergonomic bicycle for 20 minutes. Those who took PS reported better mood after the workout, and had faster heart rate recovery than those on placebo. In a subsequent DB trial, the same researchers found PS increased endurance time during a long bicycle ride.[32]

Other double blind trials evaluated PS against physical stress measured by other means. In two trials, the stress hormone cortisol was significantly lower in the blood of cyclists who took PS for 10 days prior to a stressful workout.[32,33] In yet another, young golfers after taking PS for six weeks showed significantly improved accuracy on their drives.[35]

"Overtraining" is a known hazard in competitive sports—too much training and not enough rest can impair performance, increase vulnerability to injury, lower immunity, and cause psychological depression. Professional weightlifters who took PS or a placebo for two weeks reported less muscle soreness and markedly better wellbeing from taking PS, compared to taking placebo.[55]

Boosts Energy and Other Life Processes by Building Cell Membranes

PS is a critical building block for all cell membranes. Having its own unique molecular layout, PS is a distinctly different membrane builder from PC and cannot be substituted by other phospholipid types. PS seems especially necessary for membrane to make energy and to generate electrical signals.

More than 90 percent of all the energy needed to sustain life is made on membranes, specifically the membrane complex of the mitochondria inside our cells.[5,56] These energy generator compartments for the cell have a double membrane system that requires a lot of PS. The importance of PS for making energy was shown in a brain imaging study that employed PET (Positron Emission Tomography) to study subjects with severe memory problems.[57] The PET imaging located impaired energy utilization that was partly correctable by dietary supplementation with PS.

The brain is more enriched in PS than is any other organ. Besides its crucial importance to the mitochondria, PS facilitates the generation and transmission of the electrical stimuli in the nerve cell membranes.[2,5] By supporting the key membrane signaling complex called protein kinase C, PS enables brain cells to be sensitized to activation from incoming signals.[58] PS supports a variety of membrane receptors for ACh and multiple other nerve transmitters, and (similarly to GPC), supports NGF action by partially reversing the age-related loss of the NGF cell membrane receptors.[4]

GPC Plus PS: Potent Combination of Vital Lipids

GPC and PS support the development and maintenance of attention, learning, memory, behavior and sociability from childhood through old age.[59,60] Being orthomolecules (orthodox molecules for the body, as defined by Nobel Professor Linus Pauling,61 they are very well tolerated and safe to take long-term. Natural Brain Enhancers is a potent combination of these nutrients, formulated to help the working human brain attain optimal adaptability to manage life's challenges.

Prepared for Doctor's Best by Parris M. Kidd, PhD.

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