BRAIN VITALE™

SUPPORT FOR OPTIMAL BRAIN HEALTH AND COGNITIVE FUNCTION

60 VEGETARIAN CAPSULES | NPN80049153 | BVCN60-CN

Brain Vitale™ contains a comprehensive array of brain-supportive nutrients formulated to optimize cognitive brain function and may help stimulate new brain cell formation. It provides building blocks for the regeneration of brain phospholipids, crucial structural components of neuronal synapses. Brain Vitale™ also provides precursors to the brain neurotransmitter acetylcholine (ACh), and improves production and receptor function for various other neurotransmitters. It is formulated to help boost brain cell energy production, reduce age-related mitochondrial decline, and provide antioxidant protection.

BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF)

BDNF is a protein that stimulates the development, differentiation, and protection of neuronal survival in the central and peripheral nervous systems and is strongly linked to cognitive and mental health.[118] BDNF influences mood, memory and may affect sleep.

Blood BDNF levels decline during aging; decreased levels may be associated with depression and brain cell loss. Animal studies demonstrate that BDNF has antidepressant effects; in humans suffering from depression, blood levels of BDNF are lower than in healthy controls. Additionally, alterations in BDNF have been identified in various chronic neurodegenerative diseases.[118]

The total number of brain cells typically declines with aging. It was previously thought that there were no nutritional interventions capable of stimulating BDNF production enough to support the addition of new brain cells. Evidence now exists for ALCAR and coffee fruit concentrate (NeuroFactor™) as effective in boosting BDNF, thus potentially supporting brain regeneration.[119]

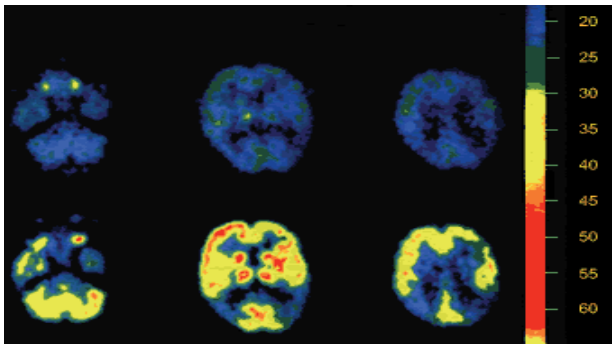
THE INGREDIENTS IN BRAIN VITALE™ MAY PROVIDE BENEFITS THROUGH COMPLEMENTARY AND SYNERGISTIC MECHANISMS OF ACTION:

Citicoline or CDP-choline is a substance found in every cell of the body and is especially vital to brain health. Studied as Cognizin®, citicoline has been shown to support healthy brain activity.[63] Citicoline is broken down during intestinal absorption into two compounds: 1) Choline, which crosses the blood-brain barrier (BBB) and may be used for ACh production or formation of phosphatidylcholine, as part of brain cell phospholipids,[57,60,63] and 2) Cytidine, which boosts synthesis of cytidine triphosphate (CTP), a cofactor for the reaction incorporating choline into phosphatidylcholine. Thus, citicoline supplies precursors for the synthesis of phospholipids, major constituents of brain tissue that support neuronal communication.[57,59,61,65] This mechanism of action represents a unique property of citicoline compared to glycerophosphocholine GPC, which may help benefit brain tissue maintenance, especially after long term supplementation.

Coffee Fruit Concentrate (as NeuroFactor™) is an extract from the whole coffee cherry, including the flesh of the berry that surrounds the coffee bean, and contains several distinctive compounds not found in coffee beans themselves. In clinical studies, NeuroFactor™ has been shown to substantially stimulate production of brain-derived neurotrophic factor (BDNF), raising its plasma levels by 37%-54%.[118,119] One study showed a 206% increase in BDNF contained in structures called exosomes, which cross the BBB.[118] This increase was not observed in subjects taking brewed coffee, green coffee bean extract, natural coffee caffeine, grape seed extract, or chlorogenic acid, which attests to the unique ingredients found in the coffee berry. This coffee fruit concentrate contains less caffeine than a cup of decaf coffee.

Glycerophosphocholine (GPC) is a naturally occurring source of choline contained in small amounts in various foods and in all human cells. GPC is a water-soluble molecule and has been proven to be a more clinically effective source of choline than choline or phosphatidylcholine (PC) from diet or supplements. Following GPC ingestion, the plasma level of choline rises rapidly and remains elevated for up to ten hours. A high plasma concentration gradient of choline stimulates its transport through the BBB with high efficiency. This increases choline reserves inside neurons, where it is used for synthesis of PC and ACh.

Acetyl-L-Carnitine (ALCAR) is a derivative synthesized in humans from L-carnitine, which itself is synthesized from the amino acids lysine and methionine or derived in small amounts from foods (especially meat and dairy products). ALCAR is actively transported across the BBB and is thought to influence the cholinergic system as a cholinergic



One study evaluated brain activity in patients with probable Alzheimer's disease, assessed by glucose consumption on PET scan, before (upper images) and after (lower images) supplementing with 500 mg/day of PS for three weeks. Results show a significant increase in glucose consumption after PS supplementation.[113]

receptor agonist and to promote synthesis of ACh by providing the acetyl ligand.[95] Thus, it complements compounds that provide the choline component of ACh, such as GPC or citicoline. ALCAR supports cellular energy production by facilitating fatty acid transport into mitochondria and was shown to stabilize cell membrane fluidity and reverse age-related decline in mitochondrial function.[93,120,121]

Phosphatidylserine (PS) is a crucial component of cell and mitochondrial membranes, making it essential for optimal brain function. PS has a unique role in supporting neurotransmitter release and receptor function, as well as intracellular signaling, all of which enhance communication between brain cells. PS is also regarded for helping to modulate elevated cortisol, which may have detrimental effects on brain health over the long term.
Ginkgo biloba has been used in Chinese medicine therapeutically for over 5000 years. More than 500 scientific studies with standardized ginkgo biloba extracts have shown this compounds to improve microcirculation to brain cells, thus it may help to improve cerebral insufficiency syndrome;[123,130-132] enhance memory in young and older individuals;[130-132] alleviate symptoms of Alzheimer's and dementia;[124,127,129] balance catecholamine, serotonin and cortisol levels;[125] and protect the brain from stress-induced neuronal death.[130-132]

WHEN STUDIED INDIVIDUALLY, THE INGREDIENTS IN BRAIN VITALE™ HAVE BEEN SHOWN TO POTENTIALLY:

- Support brain function and healthy cognition:
  - Help increase brain energy consumption by supporting mitochondrial function[61,63,65,71] Increased brain energy consumption may slow the progression of Alzheimer's disease or dementia, and/or reduce some of its symptoms, including brain volume shrinkage[48,79-84,96,100-107,113]
  - Improve cognition and social behavior in patients with Alzheimer's,[4,9,16,17] vascular/age-related dementia,[10-12] and Parkinson's disease[22-25]
  - Improve memory and general mental function, especially in the elderly and those with cognitive impairment associated with excessive alcohol intake[72,75,112]

- Support focus and attention;[60,66,67,69] help reduce errors while on task[67,69]
  - Improve memory/mental focus,[1,2,3,15] and reaction time[51,52] in the young and elderly
  - Improve sleep patterns in patients with Parkinson's disease[85]
  - Counteract age-dependent reduction in number of brain cells[49] and ACh receptors[50]
  - Improve EEG patterns in healthy subjects; lessen slow wave ("delta") activity that becomes more prevalent with aging or pathologic brain decline[20]

- Support brain and neuronal repair and recovery:
  - Support brain DNA synthesis and repair[57,60,63]
  - Improve brain recovery from stroke,[5-7] cranial injury[56] and anesthesia[39]
  - Increase speed of recovery from stroke[78]
  - Repair blood brain barrier tissue damaged by hypertension[33]
  - May be beneficial for conditions necessitating myelin repair[1]
  - Protect neural structures from free radical damage[63]
  - Improve neuronal cell survival and proliferation[112]
  - Increase speed of nerve healing and prevent nerve function loss in animal models of sciatic nerve injury[86]

- Modulate acetylcholine and other neurotransmitters, and enhance mood:
  - Boost ACh production and release from neurons and likely other types of cells[22,23]
  - May compensate for ACh decline[1,54] due to aging or estrogen deficiency[41] (as in natural/surgical menopause, oral contraceptive use)
  - Increase production of dopamine, norepinephrine, serotonin and GABA[18,30,60,61,63,70,71]
  - Relieve depression, likely through increased brain energy[76,77,108]
  - Improve symptoms of ADHD[114] and seasonal affective disorder[112]

- Improve muscle function, growth hormone and testosterone production, and modulate cortisol:
  - Boost growth hormone production in the young and elderly[8,27,28,55]
  - Increase fat oxidation[55] and muscle strength,[26,28] improve reaction time,[51,52] and possibly as a result, improve balance, especially in the elderly
  - Help normalize elevated cortisol induced by exercise[109,110] or mental stress[115,117] Optimize testosterone levels in men who exercise[111] (possibly explained by elevated cortisol suppressing testosterone)

- Support immune function by reducing the influence of cortisol on depressing the immune response[111]

BRAIN VITALE MAY HELP:
- enhance cognitive function in adults
- enhance memory in adults
- support peripheral circulation

Medicinal Ingredients (per capsule):

Acetyl-L-Carnitine	250 mg
Citicoline	125 mg
Glycerophosphocholine GPC (from soy lecithin)	100 mg
Coffee Fruit Concentrate (Coffee arabica)	50 mg
Phosphatidylserine (from sunflower lecithin)	50 mg
Ginkgo biloba (Leaf) (24.0% Flavonoid glycosides 6.0% Terpene lactones)	50 mg

Non-Medicinal Ingredients: Hypromellose, silicon dioxide, dicalcium phosphate, magnesium stearate (vegetable source). **Recommended Dose:** Adults: Take 2 capsules per day with meals, or as directed by your health care practitioner. For use beyond 4 weeks, consult a health care practitioner.

Adequate intake of DHA is critical in achieving the goals of Brain Vitale™ for brain function and regeneration since DHA is an essential component of neuronal membranes. Consider combining with OmegAvail™ Ultra DHA, OmegAvail™ Hi-Po, and/or additional GPC, based on individual clinical considerations.

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REFERENCES: For a list of references cited in this document, please visit: http://catalog.designsforhealth.com/assets/itemresources/Brain_Vitale_References.pdf

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Brain Vitale™ is a comprehensive formula that contains a variety of natural compounds vital to maintaining brain health and cognitive function. Your brain is made up of an estimated 100 billion cells called neurons, with trillions of connections—called synapses—between these cells. As we age, the structure and function of these neurons may naturally become compromised, which can affect memory, learning, concentration and the ability to focus. Factors such as stress, suboptimal blood sugar regulation, excessive alcohol consumption, and certain nutrient deficiencies can affect brain cells and cognitive ability.

HIGHLIGHTS

Acetyl L-Carnitine: a form of the amino acid derivative L-carnitine, which plays an important role in the transport of fatty acids into neuronal mitochondria. Mitochondria are the "power plants" of most cells—the actual site of cellular energy generation. The brain uses as much as 25% of the entire body's energy supply, so supporting mitochondrial energy production is crucial for memory, sharp thinking and overall cognition.

Phosphatidylserine (PS): a vital component of all cell membranes, the protective layer that surrounds cells, including neurons. PS helps support overall brain wellness and helps maintain healthy levels of cortisol, a hormone released in response to stress. Chronic stress may be a factor in declining memory and cognition, so it's important to support the body and brain during times of stress.

Glycerophosphocholine (GPC): a naturally occurring compound in all cells and also in breastmilk. GPC is a supportive nutrient for the brain and a building block for phospholipids, the main structural components of cell membranes—similar to the load-bearing walls of a house. Adequate availability of GPC and synthesis of brain phospholipids may help support healthy memory. (A baby's growing brain and its constant assimilation of information and sensory input explains why GPC is a critical component in breastmilk.)

Citicoline: a substance found in every cell of the body and vital to brain health. It supplies precursors for the synthesis of phospholipids, major constituents of brain tissue. Upon digestion, citicoline is broken down into two compounds:

1. Choline, which crosses the blood-brain barrier and may be used for the production of acetylcholine (a neurotransmitter crucial for memory processing and learning) or the formation of phosphatidylcholine, a structural component of brain cells

2. Cytidine, which boosts the synthesis of cytidine triphosphate, a cofactor for the production of phosphatidylcholine

Ginkgo biloba: an herbal extract used in Chinese medicine for over 5000 years. Ginkgo provides critical antioxidant protection and enhances "brain microcirculation," which is the flow of blood through the body's smallest vessels. Ginkgo may help to support healthy mood and mental focus.

Coffee fruit concentrate: an extract from the whole coffee cherry (including the flesh of the berry that surrounds the coffee bean), which contains several distinctive compounds not found in coffee beans themselves. Coffee fruit concentrate may help support healthy levels of brain-derived neurotrophic factor (BDNF), which has been called "fertilizer for your neurons." This property is unique to the concentrate and is not observed with brewed coffee, green coffee bean extract, caffeine, or chlorogenic acid, which are other coffee compounds and derivatives. Contains less caffeine per serving than a typical cup of decaf coffee.

Recommended Dose: Adults: Take 2 capsules per day with meals, or as directed by your health care practitioner. For use beyond 4 weeks, consult a health care practitioner. Consult with your healthcare practitioner about your specific circumstances and any questions you may have.

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