

NeuroTone®

Broad Spectrum neurological support formula

DESCRIPTION

NeuroTone® is a unique, comprehensive combination of eleven nutrients known to help maintain and support the brain's neurological functions.†

FUNCTIONS

The nutrients in NeuroTone® work together in four different capacities to support and protect mental and nervous system function: neurotransmitter synthesis support, enhancement of microcirculation to the brain, nerve cell membrane stabilization and repair, and attenuation of the stress response. †

NeuroTone® provides several important nutrients which contribute to the metabolism of key neurotransmitters as precursors, substrate, or stimulators of neurotransmitter production and subsequent release. Optimal neurotransmitter generation and release is essential for proper communication between nervous system cells, and thus for healthy nervous system function. †

Acetyl-L-Carnitine is an acetylated high energy ester of the amino acid L-carnitine contributes its acetyl groups to the production and release of acetylcholine, the primary neurotransmitter for memory and thought. The carnitine component plays a key role in the transport of fatty acids into the nerve mitochondria where they serve as fuel for cellular energy production. **L- Glutamine**, a non-essential amino acid, easily crosses the blood-brain barrier where it can be converted into two important neurotransmitters, the excitatory L-glutamic acid and the major inhibitory neurotransmitter gamma amino butyric acid. **Choline**, related to the B vitamins, is the other critical precursor of acetylcholine. Choline is water soluble and is therefore quickly available to participate in acetylcholine synthesis. **Phosphatidylcholine**, which can be a source of choline, is fat-soluble; as such, phosphatidylcholine has a longer-lasting, sustained effect on acetylcholine production. **DMAE** (dimethylaminoethanol) is a precursor of choline in the brain, also supports acetylcholine synthesis through its ability to cross the blood-brain barrier. Research indicates that DMAE supplementation appears to enhance short-term memory and learning speed. † **L-Pyroglutamic acid** compound stimulates synthesis and release of acetylcholine by boosting the metabolism of specific nerve cells responsible for the release of this important neurotransmitter. **L-tyrosine**, a conditionally-essential amino acid is a direct precursor of norepinephrine and dopamine, two important catecholamines. Norepinephrine is involved in long-term memory and has an energizing, mood-elevating action. Dopamine is the principal neurotransmitter involved in central nervous system control of muscle movement.

The brain depends on the circulatory system to provide a constant supply of oxygen and glucose to support the function of this extremely metabolically active organ. Any deficit in cranial blood flow deprives the brain of essential oxygen and glucose. As a result, the brain's significant metabolic demands will not be met and mental function can be moderately to severely impaired. A key component of NeuroTone® actively supports blood flow to the brain. **Ginkgo Biloba**, flavonoid compounds and terpene lactones in the ginkgo leaf help regulate the tone and elasticity of both arteries and capillaries. † Increasing circulation to the brain and other parts of the body allows for better oxygen and glucose uptake, with subsequent enhancement of memory and mental functions. †

Cell membranes act in part as gatekeepers, regulating the transport of nutrients into and waste products out of a cell. The fluidity and integrity of these cell membranes are essential for proper regulation of transport mechanisms and subsequently of the cell environment. Specific nutrients which stabilize and restore cell membrane health and integrity are included in NeuroTone®. **Phosphatidylserine**, this phospholipid, found in high concentrations in the nervous system, helps maintain fluidity of nerve cell membranes, thus providing for optimal transport of nutrients and other compounds across the cell membrane. † **DHA (docosahexanoic acid)** a fatty acid prominent in brain and nerve cells, is essential for optimal neural and retinal development and maintenance. †

The body has intricate mechanisms by which it balances hormonal responses during and following periods of

NeuroTone®**Broad Spectrum neurological support formula**

stress. When these mechanisms are disrupted, the ensuing imbalance can precipitate damage to brain and nervous system functions. NeuroTone® contains several nutrients which assist in supporting these balancing mechanisms. †

INDICATIONS

NeuroTone® tablets may be taken as a nutrition supplement for those wishing to increase their intake of these key neuro nutrients.

FORMULA (#NRT)

Serving size 4 tablets:

Acetyl-L-Carnitine HCL	500 mg
Phosphatidylserine (from soy lecithin)	50 mg
Ginkgo Biloba, dried extract (min. 24% ginkgo flavone glycosides min.6% terpene lactones).....	80 mg
DMAE (dimethylaminoethanol)	100 mg
Choline (bitartrate).....	150 mg
L-Glutamine	500 mg
L-Pyroglutamic acid.....	250 mg
L-Tyrosine	250 mg
Eleutherococcus senticosus.....	150 mg
Ashwagandha, dried extract (min. 7% withanolides, min. 1% alkaloids)	150 mg
Neuromins™ DHA Powder (microalgae) Supplying:	
Docosahexanoic acid	42 mg

Other ingredients: Cellulose, dicalcium phosphate, lecithin (from soy), silica, modified cellulose gum, stearic acid and ethylcellulose

*Neuromins is a trademark of Martek. Biosciences Corporation; US Patent Nos.5,407,957 and 5,492,938.

SUGGESTED USE

Adults take 4 tablets daily or as directed by a healthcare professional.

SIDE EFFECTS

No adverse side effects have been reported.

STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

REFERENCES

Panda S, Kar A. J Pharm Pharmacol. 1998 Sep;50(9):1065-8. [Ashwagandha].

MacDonald MJ, et al. J Biol Chem. 2015 Apr 24;290(17):11075-92. doi: 10.1074/jbc.M114.628420. [Phospholipids].

Tayebati SK, Amenta F. Clin Chem Lab Med. 2013 Mar 1;51(3):513-21. doi: 10.1515/cclm-2012-0559.

NeuroTone®**Broad Spectrum neurological support formula**

[Choline].

Pettegrew J, Levine J, McClure R. *Molecular Psychiatry* [serial online]. November 2000;5(6):616-632. [Acetyl-L-carnitine].

Nilsson A, Radeborg K, Salo I, Björck I. *Nutr J*. 2012 Nov 22;11:99. doi: 10.1186/1475-2891-11-99. [Omega-3].

Ryan AS, et al. *Prostaglandins Leukot Essent Fatty Acids* 2010, 82(4–6):305–314. [Omega-3].

Zuena A, Giuli C, Casolini P, et al. *Plos One* [serial online]. 2013;8(2):e55753. [L-acetylcarnitine].

Napryeyenko O, Borzenko I. *Arzneimittel-Forschung* [serial online]. 2007;57(1):4-11. [Ginkgo biloba].

Mashayekh A, et al. *Neuroradiology* [serial online]. March 2011;53(3):185-191. [Ginkgo biloba].

Hurt E, Arnold L, Lofthouse N. *Current Psychiatry Reports* [serial online]. October 2011;13(5):323-332. [DMAE].

Lewis JA, Young R. *Int J Clin Pharmacol Ther*. 1975;17:534–40. [DMAE].

Spignoli G, et al. *Pharmacological Research Communications* [serial online]. December 1987;19(12):901-912. [Pyroglutamic acid].

Chung S, Moriyama T, Yamamoto S, et al. *The Journal Of Nutrition* [serial online]. June 1995;125(6):1484-1489. [Phosphatidylcholine].

Le Bars P, Kieser M, Itil K. *Dementia And Geriatric Cognitive Disorders* [serial online]. July 2000;11(4):230-237. [Ginkgo biloba].

Bonavita E: *Int J Clin Pharmacol Ther Toxicol* 1986;24:511-516. [L-acetylcarnitine].

Crook T, Petrie W, Wells C, Massari DC. *Psychopharmacol Bull* 1992;28:61-66. [Phosphatidylserine].

Crook TH, et al. *Neurology* 1991;41:644-649. [Phosphatidylserine].

Engel RR, Satzger W, Gunther W, et al. *Eur Neuropsychopharmacol* 1992;2:149-155. [Phosphatidylserine].

Klein, J et al. *Brain Res* 1997 May 2;755(2):347-350. [Ginkgo Biloba].

McAnena OJ, et al. *Br J Surg* 1991;78:480-482. [Glutamine].

Monteleone P, et al. *Neuroendocrinology* 1990;52:243-248. [Phosphatidylserine].

Nurjhan N, Bucci A, Perriello G, et al. *J Clin Invest* 1995;95:272-277. [Glutamine].

Neuringer M, Anderson GJ, Conner WE. *Ann Rev Nutr* 1988;8:517-541. [Omega-3].

Palmieri G, Palmieri R, Inzoli MR, et al. *Clin Trials J* 1987;24:73-83. [Phosphatidylserine].

Shurtleff D, et al. *Pharmacol Biochem Behav* 1994;47:935-941. [Tyrosine].

NeuroTone®

Broad Spectrum neurological support formula

For more information on NeuroTone® visit douglaslabs.com

† 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 by
Douglas Laboratories
600 Boyce Road
Pittsburgh, PA 15205
800-245-4440
douglaslabs.com



**You trust Douglas Laboratories.
Your patients trust you.**

© 2014 Douglas Laboratories. All Rights Reserved