Acetyl L-Carnitine

Anti-Aging Brain Nutrient

Acetyl-L-carnitine is truly a mind-body nutrient. It helps synthesize acetylcholine, the brain's principal neurotransmitter responsible for learning and memory. It is a form of L-carnitine which some scientists believe is more bioavailable. This amino acid derivative performs the vital function of transporting long-chain fatty acids into the cellular mitochondria where they are oxidized to generate metabolic energy.

Supplemental acetyl-L-carnitine supports the activity of brain cells that depend on acetylcholine. It can also reduce the metabolic waste products that damage cells over time. As one of the most important nutrients to help slow the aging process, acetyl-L-carnitine is at the heart of Source Naturals' commitment to empower people to take charge of their own health.

Acetylcholine is the brain's principal neurochemical of thought. Neurons need it to communicate with each other, especially to create and recall memories. Acetylcholine is also involved in muscular coordination. At neuromuscular junctions throughout the body, it tells muscles when to contract. But the efficiency of cells that use acetylcholine naturally declines with age, partly because of decreased activity of the enzyme that synthesizes this neurotransmitter.

Neurotransmitter Production

Acetylcholine is created when the enzyme choline acetyl transferase (CAT) attaches an acetyl group to a choline molecule. CAT activity is heightened by acetyl-L-carnitine, which donates its acetyl group. Acetyl-L-carnitine is made in small amounts naturally in the body, but its production begins to decline in midlife. In well-controlled human studies, supplemental acetyl-L-carnitine slowed the progress of mental decline by notably improving attention and memory.

When supplemental acetyl-L-carnitine was combined with lipoic acid (a powerful natural antioxidant), significant improvement in memory was seen in animals. Researchers said that together the two chemicals "tune up" the mitochondria, the energy-producing organelles that power all cells. Mitochondrial decay is believed to be the primary reason for age-related deterioration of cognitive function and energy levels.

Cellular Energy and Protection

As the active form of L-carnitine, acetyl L-carnitine efficiently transports long-chain fatty acids into the mitochondria where they are converted into ATP (adenosine triphosphate), the energy molecule. Animal studies suggest that supplemental acetyl L-carnitine has a positive effect on energy generation as well as on the structural integrity of aging mitochondria.

By supporting fatty acid metabolism, acetyl L-carnitine also helps reduce lipofuscin, a metabolic waste product composed of damaged proteins and rancid fats. The brown "liver spots" on some elderly hands are composed of this aging pigment that gradually builds up in cells of the heart, liver, brain, and lens of the eye.

A Key Neuroceutical®

Source Naturals' Acetyl L-Carnitine is available in 250 mg and 500 mg tablets and is also a key nutrient in Source Naturals' legendary neuroceutical formulas Mega Mind™ and Higher Mind™. And because acetyl L-carnitine also generates the basic energy that affects all biological and mental processes, this mind-body nutrient is one of the few nutritional compounds with such a broad range of action in maintaining youthful functioning. Source Naturals Acetyl L-Carnitine is therefore an essential part of a smart strategy to live well, age well.

References

Carta A. and M. Calvani. Acetyl-L-carnitine: a drug able to slow the progress of Alzheimer's disease? *Ann NY Acad Sci* 1991; 640: 228-232.

Hagen T.M. et al. August 4, 1998. Acetyl-L-carnitine fed to old rats partially restores mitochondrial function and ambulatory activity. *Proc Natl Acad Sci USA 95*(16):9562-6.

Liu J. et al. February 19, 2002. Age-associated mitochondrial oxidative decay: Improvement of carnitine acetyltransferase substrate-binding affinity and activity in brain by feeding old rats acetyl-L-carnitine and/or R-alpha-lipoic acid. *PNAS 99*(4):1876-81.

Spagnoli A.U. et al. 1991. Long-term acetyl-L-carnitine treatment in Alzheimer's disease. *Neurology.* 41(11):1726-1732.

SOURCE NATURALS®

Strategies for Wellness℠

www.sourcenaturals.com

0 21078 93280 2

REVB0312 **LC3280**