

Defending Against Cognitive Decline with a Uniquely Bioavailable Brain Supplement

Chris D. Meletis, N.D.

The human brain consists of only 2% of our body weight yet uses about 20% of our energy.¹ Some areas of the brain that perform more complex functions need more energy than others, such as those regions involved in memory and reasoning. Scientists believe that the reason why the brain demands so much energy is because of its size.

Every task we perform in life is dependent upon the brain, which also governs our emotions and mental health. As Thomas A. Edison once said, "The chief function of the body is to carry the brain around." Without a healthy brain, our cognitive function declines, and we lose our independence as we age.

In this article, I will discuss the ways we can support short-term and long-term brain function by reducing neuroinflammation and oxidative stress and providing raw ingredients for the brain to build acetylcholine, an important neurotransmitter involved in memory. I'll also address the importance of supporting healthy levels of brain-derived neurotrophic factor (BDNF). A highly bioavailable cognitive supplement called TruAcuity offers promise for conquering each of these aspects of brain function.

What Causes Cognitive Decline?

The many enemies to an optimally functioning mind include:

- Aging
- Neuroinflammation
- Tiredness
- Stress
- Lack of sleep
- Depression
- Nutritional insufficiency

Many of these factors are epigenetic in nature. For example, nutritional imbalances can influence DNA methylation patterns, which can affect mood and occasional absentmindedness during aging.² Stress also can result in epigenetic alterations in genes overseeing the stress response, leading to occasional anxiousness and a depressed mood.²

The 8 Most Effective Cognitive-Enhancing Nutrients

TruAcuity from TruGen3 bundles together eight of the most effective brain health ingredients available in a formula with unmatched bioavailability due to a state-of-the-art delivery system. Here is a glimpse into the brain-boosting abilities of the eight cognitive-enhancing ingredients:

DHA

Docosahexaenoic Acid (DHA) is especially critical for brain health, with research pointing to a role for this omega-3 fatty acid in cognitive function and behavior in adults. DHA supplementation enhanced memory and reaction time in healthy young adults eating a low-DHA diet.³ A systematic review and meta-analysis found that DHA, alone or together with EPA, supported healthy memory function in older adults with mild, age-related memory problems.⁴ In another study of 485 healthy subjects age 55 and older, 900 mg/day of DHA supported learning and memory function during aging.⁵

Phosphatidylserine

During aging, the human brain undergoes biochemical and structural changes that interfere with neurotransmission. Phosphatidylserine (PS) is a phospholipid that can support brain health during aging. It plays a critical role in the health of nerve cell membranes and myelin.⁶ Supplementation with PS slows down, stops, or reverses age-related changes in nerve cells.⁶ PS is involved in cognitive function in humans, including:⁶

- The formation of short-term memory
- The consolidation of long-term memory
- Creating new memories
- Retrieving memories
- Learning and recalling information
- Attention, focus, and concentration
- Reasoning and solving problems
- Language skills and communication

Phosphatidylcholine

Another important nutrient for cognitive function is phosphatidylcholine (PC), a phospholipid attached to a choline particle. The brain uses PC to make acetylcholine,⁷ a neurotransmitter critical for normal parasympathetic function. A 2014 study found that levels of PC in humans are related to cognitive health during aging.⁸

Curcumin

This component of turmeric increases levels of brain-derived neurotrophic factor (BDNF), a brain hormone that plays a critical role in neuronal health and plasticity and promotes learning and memory.⁹ Curcumin supports a healthy inflammatory response, is an antioxidant, and has neuroprotective properties.^{10,11} Bioavailable curcumin given to mentally healthy seniors maintains age-related memory and attention and decreases the buildup of amyloid and tau in

brain areas regulating mood and memory.¹⁰ This study noted a 28% improvement in memory tests in participants taking the curcumin.¹⁰

Coenzyme Q10

Mitochondrial health is closely tied to neurological health during aging. Because coenzyme Q10 (CoQ10) is critical for normal mitochondrial function and energy production, it is an important but often overlooked nutrient in brain health¹² and is neuroprotective.¹³ CoQ10 has been detected in all areas of the brain, and both neurons and glia contain CoQ10.¹² Supplemental CoQ10 has replenished low levels in cultured human neuronal cells.¹² TruAcuity uses the VESIsorb® delivery system to enhance the bioavailability of CoQ10 (more on this later).

Quercetin

Quercetin is a flavonoid known to support a healthy inflammatory response and, therefore is useful as a neuroprotective agent.¹⁴ Neuroinflammation promotes premature neuronal aging and reducing inflammation in the brain contributes to neuronal health. Quercetin's beneficial actions are due in part to its acting on microglial cells of the central nervous system.¹⁴ It easily crosses the blood-brain barrier¹⁵ and protects neurons from oxidative stress, indicating it may support cognitive performance.¹⁶ Furthermore, quercetin inhibits histamine, lessening histamine-related ravages on neuro-clarity.¹⁷

Gamma Tocopherols

A component of vitamin E, gamma-tocopherols inhibits reactive nitrogen oxides, ameliorating the loss of vitamin C that occurs in the plasma due to inflammation.¹⁸

Palm Tocotrienols

Another component of the vitamin E family, tocotrienols are neuroprotective. Research indicates that palm tocotrienols protect against white matter lesions in the brain.¹⁹

Patented Formulation Delivers Superior Bioavailability

Many of the cognitive-supporting nutrients mentioned earlier are not well-absorbed by the body. To have optimized support on brain function and the brain's natural inflammatory responses, their bioavailability must be enhanced. Consequently, many cognitive-fortifying nutrients in TruAcuity are powered by the VESIsorb® delivery system to ensure optimal bioavailability of key brain health nutrients.

VESIsorb® delivery system is safe and highly effective at enhancing the bioavailability of nutrients. This delivery system delivers significantly higher blood plasma levels using a reduced dose. For example, a study of 20 healthy male and female participants compared a CoQ10

formulation using VESIsorb® with three other commercial preparations.²⁰ The study found that the CoQ10 powered by VESIsorb® resulted in significantly enhanced enteral absorption and bioavailability.²⁰ This delivery system accelerates CoQ10's absorption without having to worry about its fat-soluble properties and having to consume it with food.

Conclusion

Taking a proactive approach is ideal rather than waiting for the onset of cognitive decline to trigger treatment. Preventive wellness protocols are commonplace in pursuit of cardiovascular health; likewise, being proactive with brain health can yield the best results. Being proactive includes protecting against neuroinflammation and defending against epigenetic assaults and oxidative damage. Ingredients in TruAcuity address these factors and support other aspects of brain health using an enhanced delivery system that ensures the brain health nutrients are absorbed well and ready to promote cognitive health.

References:

1. Dolan E. The human brain's energy puzzle: Unveiling the high costs of thinking. <https://www.psypost.org/2023/12/the-human-brains-energy-puzzle-unveiling-the-high-costs-of-thinking-214966>. Published 2023. Accessed January 26, 2024.
2. Grezenko H, Ekhatov C, Nwabugwu NU, et al. Epigenetics in Neurological and Psychiatric Disorders: A Comprehensive Review of Current Understanding and Future Perspectives. *Cureus*. 2023;15(8):e43960.
3. Stonehouse W, Conlon CA, Podd J, et al. DHA supplementation improved both memory and reaction time in healthy young adults: a randomized controlled trial. *Am J Clin Nutr*. 2013;97(5):1134-1143.
4. Yurko-Mauro K, Alexander DD, Van Elswyk ME. Docosahexaenoic acid and adult memory: a systematic review and meta-analysis. *PLoS One*. 2015;10(3):e0120391.
5. Yurko-Mauro K, McCarthy D, Rom D, et al. Beneficial effects of docosahexaenoic acid on cognition in age-related cognitive decline. *Alzheimers Dement*. 2010;6(6):456-464.
6. Glade MJ, Smith K. Phosphatidylserine and the human brain. *Nutrition*. 2015;31(6):781-786.
7. Chung SY, Moriyama T, Uezu E, et al. Administration of phosphatidylcholine increases brain acetylcholine concentration and improves memory in mice with dementia. *J Nutr*. 1995;125(6):1484-1489.
8. Whiley L, Sen A, Heaton J, et al. Evidence of altered phosphatidylcholine metabolism in Alzheimer's disease. *Neurobiol Aging*. 2014;35(2):271-278.
9. Bathina S, Das UN. Brain-derived neurotrophic factor and its clinical implications. *Arch Med Sci*. 2015;11(6):1164-1178.
10. Small GW, Siddarth P, Li Z, et al. Memory and Brain Amyloid and Tau Effects of a Bioavailable Form of Curcumin in Non-Demented Adults: A Double-Blind, Placebo-Controlled 18-Month Trial. *Am J Geriatr Psychiatry*. 2018;26(3):266-277.
11. Cole GM, Teter B, Frautschy SA. Neuroprotective effects of curcumin. *Adv Exp Med Biol*. 2007;595:197-212.

12. Mantle D, Heaton RA, Hargreaves IP. Coenzyme Q10, Ageing and the Nervous System: An Overview. *Antioxidants (Basel)*. 2021;11(1).
13. Bagheri S, Haddadi R, Saki S, et al. Neuroprotective effects of coenzyme Q10 on neurological diseases: a review article. *Front Neurosci*. 2023;17:1188839.
14. Benameur T, Soleti R, Porro C. The Potential Neuroprotective Role of Free and Encapsulated Quercetin Mediated by miRNA against Neurological Diseases. *Nutrients*. 2021;13(4).
15. Deepika, Maurya PK. Health Benefits of Quercetin in Age-Related Diseases. *Molecules*. 2022;27(8).
16. Khan H, Ullah H, Aschner M, Cheang WS, Akkol EK. Neuroprotective Effects of Quercetin in Alzheimer's Disease. *Biomolecules*. 2019;10(1).
17. Mlcek J, Jurikova T, Skrovankova S, Sochor J. Quercetin and Its Anti-Allergic Immune Response. *Molecules*. 2016;21(5).
18. Jiang Q, Lykkesfeldt J, Shigenaga MK, Shigeno ET, Christen S, Ames BN. Gamma-tocopherol supplementation inhibits protein nitration and ascorbate oxidation in rats with inflammation. *Free Radic Biol Med*. 2002;33(11):1534-1542.
19. Gopalan Y, Shuaib IL, Magosso E, et al. Clinical investigation of the protective effects of palm vitamin E tocotrienols on brain white matter. *Stroke*. 2014;45(5):1422-1428.
20. Liu ZX, Artmann C. Relative bioavailability comparison of different coenzyme Q10 formulations with a novel delivery system. *Altern Ther Health Med*. 2009;15(2):42-46.