

Breaking News on Supplements & Nutrition - North America

Special edition: Brain health

Science: Backing the claims of brain foods

By Stephen Daniells, 24-Sep-2009

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In this fifth part of our series on brain health, we look at which ingredients have the science to back up their hype as edible brain enhancers.

Omega-3s, green tea, phosphatidylserine (PS), St John's wort, soy, ginseng, B vitamins, and superfruits such as pomegranate are just some examples of ingredients out there claiming to assist the brain's optimal function.

Here we review some of the most recent science making the headlines in the area of brain health.

Development in the early stages of life

Giving children the best possible start in life has seen a lot of attention diverted to their diet in their formative years. A recent study with DHA-enriched infant formula found an enhancement of cognitive skills, compared to babies fed non-enriched formula.

A dose of 0.36 per cent DHA (docosahexaenoic acid) and 0.72 per cent ARA (arachidonic acid) was necessary to produce superior problem solving performance, according to findings published in *Child Development*.

Intriguing results from Denmark published in the *American Journal of Clinical Nutrition* suggests that vitamin C may play a more important role in brain development than previously thought. A study with guinea pigs found that vitamin C deficiency in the first weeks and months of life may impair the development of neurones in the brain, and decrease spatial memory

"We may thus be witnessing that children get learning disabilities because they have not gotten enough vitamin C in their early life. This is unbearable when it would be so easy to prevent this deficiency by giving a vitamin supplement to high-risk pregnant women and new mothers" says Jens Lykkesfeldt, professor of pharmacology and toxicology at the University of Copenhagen

A joint British and Australian study published in the British Journal of Nutrition found 12 weeks of supplementation with vitamins and minerals was found to boost the attention scores of children.

The authors claimed it to be the “*first observation of acute behavioral effects of vitamins/minerals in human subjects*”.

Age-related decline and dementia

Cognitive decline occurs naturally as we age, and precedes diseases such as Alzheimer's. However, cognitive function may decline with the build-up of plaque from beta-amyloid deposits and this increases the risk of Alzheimer's, the most common form of dementia.

Great hope has centered on omega-3 fatty acids, particularly DHA. The most recent data on this subject, presented recently at the Alzheimer's Association 2009 International Conference on Alzheimer's Disease (ICAD 2009) in Vienna found that daily DHA supplements could improve both memory function and heart health in healthy older adults, but only in people with a decline in cognitive function that occurs naturally with age.

However, DHA had no general impact on the cognitive health of people with mild to moderate Alzheimer's.

On the topic of phosphatidylserine, the US Food and Drug Administration (FDA) allows a ‘qualified health claim’ status, stating that “*Consumption of phosphatidylserine may reduce the risk of cognitive dysfunction in the elderly*” and “*Consumption of phosphatidylserine may reduce the risk of dementia in the elderly*”.

Size does matter

B vitamins, most notably folate and B12, have long been linked to dementia, based on their ability to lower levels of the amino acid homocysteine. Epidemiological studies have reported that high levels of homocysteine are associated with suspected or confirmed dementia. Indeed, the Framingham study reported that people with homocysteine levels above 14 micromoles per liter of serum had twice the risk of dementia.

Higher blood levels of B12 have also been linked to brain size. University of Oxford scientists reported in 2008 that B12 may protect against brain volume loss in older people, and ultimately reduce the risk of developing dementia (*Neurology*, Vol. 71, pp. 826-832).

B6, B12, and folic acid were also said to help against migraines (*Pharmacogenetics and Genomics*).

Vitamin D is gaining increasing attention for a wide range of health conditions, including cognitive function.

Boston-based researchers reported in mid-2008 that flavanol-rich chocolate may boost blood flow in the brain and reduce the risk of dementia and stroke. The research was supported by confectionary giant

Mars and said to be the first study to directly investigate the effect of flavanol-rich cocoa consumption on blood flow in the brain (*Neuropsychiatric Disease and Treatment*, Vol. 4, pp. 433-440).

The jury is still out on some of the better known herbals, however. A study in with 3,000 elderly people published in the *Journal of the American Medical Association* found no differences in the rate of total dementia and the rate of Alzheimer's disease were observed between groups receiving ginkgo biloba or placebo for 6.1 years.

The study was dismissed as "irrelevant", however, by Daniel Fabricant, PhD, acting CEO of the Natural Products Association (NPA).

"This study is also in direct contrast to other research," said Fabricant. *"Unfortunately, there is still no proven treatment to prevent Alzheimer's, but reputable research has shown that Ginkgo biloba can play a constructive role in improving the symptoms related to this debilitating disease and possibly delaying its onset."*

Looking to the future, eyes turned recently to stevia, already making waves in a sea of sweeteners. DSM recently applied for a patent for as a natural ingredient for cognitive health.