Evidence Review: Brain Health Formula Supplements

Please find below an evidence-based audit of each ingredient within the Brain Health Formula, mapping published literature to the specified dose parameters. Each entry includes (1) relevance to brain health and dementia, and (2) validation of the indicated dose where data are available.

1. Thiamine (Vitamin B1) – 50 mg

Research has established that thiamine deficiency phenocopies key features of Alzheimer's disease, including cognitive decline and decreased cerebral glucose metabolism. Although most interventional trials employ "high-dose" regimens (100–300 mg/day), a 50 mg daily supplement represents an intermediate therapeutic range shown to replete brain reserves and support neuronal energy metabolism in early-stage cognitive impairment

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC4846521/ [The publisher's version of this article is available at https://nyaspubs.onlinelibrary.wiley.com/doi/10.1111/nyas.13031]

Additional: https://pubmed.ncbi.nlm.nih.gov/34337137/

2. Benfotiamine – 250 mg

In a randomized, open-label pilot study among individuals with mild cognitive impairment and early Alzheimer's, oral benfotiamine (up to 300 mg/day) was well tolerated and demonstrated trends toward improved memory scores and reduced biomarkers of oxidative stress. The 250 mg dose falls squarely within the efficacious range evaluated in mild AD patients.

Source: https://pubmed.ncbi.nlm.nih.gov/33074237/

Additional: https://pubmed.ncbi.nlm.nih.gov/20385653/

3. Riboflavin (Vitamin B2) – 1.5 mg

Analysis of NHANES data has identified a positive association between dietary riboflavin intake and cognitive performance in adults over 60. Given that the RDA for riboflavin is 1.3 mg for men

and 1.1 mg for women, a 1.5 mg supplemental dose aligns with—and modestly exceeds—nutritional requirements Sourceed to optimal cognitive function.

Source: https://pubmed.ncbi.nlm.nih.gov/31555120/

Additional: https://pubmed.ncbi.nlm.nih.gov/39304710/

4. **Niacinamide (Vitamin B3) – 15 mg**

A prospective cohort study found that higher dietary niacin intake (averaging ~16 mg/day) was associated with a significant reduction in Alzheimer's incidence over 10 years. The 15 mg supplemental dose approximates the protective threshold observed in epidemiological data.

Source: https://pubmed.ncbi.nlm.nih.gov/23273573/

5. **Folic acid (as 5-methyltetrahydrofolate) – 200 µg**

Folate deficiency correlates with accelerated cognitive decline and increased dementia risk. While clinical trials often use 400–800 µg/day, a 200 µg dose provides half the typical supplemental level and may support homocysteine metabolism and mood regulation in older adults, particularly when combined with other B-vitamins.

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC4095663/

6. **Pantothenic acid (Vitamin B5) – 5 mg**

Post-mortem analyses reveal cerebral pantothenic acid depletion in Alzheimer's patients, implicating B5 deficiency in neurodegeneration. Although interventional dose-finding studies are scarce, 5 mg corresponds to the adult RDA and is considered the minimum effective dose to prevent cerebral depletion.

Source: https://pubmed.ncbi.nlm.nih.gov/32416962/

7. **Vitamin B6 (Pyridoxal-5'-phosphate) – 25 mg**

A systematic review reported no short-term cognitive benefits of B6 in isolation; however, the 25 mg dose—substantially higher than the 1.3–2 mg RDA—is typically employed in multi-B-vitamin trials to modulate homocysteine and support neurotransmitter synthesis. Long-term effects on dementia risk remain under investigation.

Source: https://pubmed.ncbi.nlm.nih.gov/14584010/

8. Vitamin B12 (Methylcobalamin) – 1,000 µg

Trials of B12 supplementation alone have not consistently improved cognition in normocobalaminemic individuals, although doses of 500–1,000 µg/day are routinely used to correct subclinical deficiency. Evidence for cognitive efficacy is strongest when co-administered with folate and B6 to reduce homocysteine.

Source: https://pubmed.ncbi.nlm.nih.gov/33809274/

Additional: https://pubmed.ncbi.nlm.nih.gov/37334792/

9. Choline – 250 mg

A 2024 cohort study demonstrated that moderate dietary choline intake (333–354 mg/day) was associated with lower odds of dementia and better cognitive performance. A 250 mg supplemental dose approaches this protective range and can help ensure adequate plasma levels.

Source: https://pubmed.ncbi.nlm.nih.gov/39521435/

Additional: https://pubmed.ncbi.nlm.nih.gov/31360988/

10. Vitamin C – 250 mg

Meta-analyses indicate that maintaining plasma ascorbate in the upper normal range confers neuroprotective effects against age-related cognitive decline. Although no RCT has tested exactly 250 mg/day, this dose surpasses the RDA (75–90 mg) and supports antioxidant defenses in the CNS.

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC3727637/

Additional: https://pmc.ncbi.nlm.nih.gov/articles/PMC4011065/

11. Vitamin D_3 – 5,000 IU

Preclinical and observational studies Source vitamin D deficiency to impaired cognition. While human trials frequently administer 2,000–4,000 IU/day, a 5,000 IU dose is within the established safe upper limit and is projected to normalize 25(OH)D levels in older adults at risk for cognitive decline.

Source: https://pubmed.ncbi.nlm.nih.gov/34853363/

Additional: https://pubmed.ncbi.nlm.nih.gov/33164936/

12. Magnesium Glycinate – 250 mg

Systematic reviews of magnesium supplementation report associations between higher Mg intake and improved cognitive outcomes. Doses in RCTs vary widely; 250 mg aligns with the lower end of supplement regimens shown to support synaptic plasticity and neuroprotection.

Source: https://pubmed.ncbi.nlm.nih.gov/39009081/

Additional: https://www.ncbi.nlm.nih.gov/books/NBK507270/

13. Zinc Picolinate – 10 mg

Early-phase AD trials have evaluated zinc therapy at 10–50 mg/day, demonstrating safety and potential to modulate amyloid aggregation. A 10 mg dose aligns with the adult RDA and is sufficient to maintain zinc-dependent enzymatic processes in the brain

Source: https://pubmed.ncbi.nlm.nih.gov/17010236/

Additional: https://pmc.ncbi.nlm.nih.gov/articles/PMC9312494/

14. Potassium Gluconate – 500 mg

Epidemiological data Source higher serum potassium to reduced risk of mild cognitive impairment, though interventional studies are lacking. A 500 mg dose contributes modestly to dietary intake (RDA ~4,700 mg) and may have adjunctive benefits for neuronal membrane potential regulation.

Source: https://pubmed.ncbi.nlm.nih.gov/29393090/

Additional 1: https://pmc.ncbi.nlm.nih.gov/articles/PMC5968281/

Additional 2: https://pubmed.ncbi.nlm.nih.gov/1108622/

15. Vitamin K_2 (MK-7) – 50 µg

Preclinical and emerging clinical data indicate that MK-7 exerts antioxidant, anti-inflammatory, and anti-apoptotic effects in AD models. Doses of 45–90 µg/day have been used in cognition-focused studies; 50 µg falls squarely within this efficacious window.

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC8308377/

Additional 1: https://pmc.ncbi.nlm.nih.gov/articles/PMC11775153/

Additional 2: https://pubmed.ncbi.nlm.nih.gov/37257737/

16. Allulose Crystals

No peer-reviewed studies to date have evaluated allulose's impact on brain health or dementia at specific doses. Its inclusion is primarily for glycemic control and palatability, rather than direct neurocognitive benefit.