

# **Cognitive Health Optimization Guide**

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## **Daily Lifestyle Foundations**

### **Healthy Eating & Timing**

- 12–14 hour overnight fast (from last meal to breakfast)
- Avoid eating within 3 hours of bedtime
- Emphasize Paleo/Mediterranean-style, minimally processed foods
- Include healthy fats: avocado, olives, nuts, seeds

### **Gut Health**

- Support with prebiotics and probiotics
- Include fermented foods when possible

### **Sleep**

- Prioritize highquality sleep
- Essential for memory consolidation and cognitive resilience

## **Oral & Hormonal Health**

### **Oral Care**

- Electric toothbrush
- Daily flossing
- Oral inflammation is linked to cognitive decline

### **Hormone Balance**

- Thyroid
- Cortisol
- Estrogen
- Testosterone

Balanced hormones support mood, energy, and cognitive clarity.

## **Stress & Mental Engagement**

### **Stress Reduction**

- Regular exercise
- Meditation or breathing practices
- Nature exposure

### **Mental Exercise**

- Reading
- Learning new skills
- Puzzles, games, or memory challenges

## **Core Supplements & Vitamin D**

### **Key Supplements for Cognitive Support**

- Vitamin D + K
- Omega3 fatty acids (DHA/EPA)
- Selenium
- Lowdose lithium (5–15 mg/day)
- Bcomplex vitamins
- Vitamin C
- PQQ + CoQ10 (mitochondrial support)
- Vitamin E
- MCT oil
- Curcumin (Terry Natural CuraMed Curcumin- most clinically studied- found at Nutrition World)
- Ashwagandha
- NAC (Nacetylcysteine)
- Alphalipoic acid
- Lion's Mane mushroom
- Probiotic (multistrain)

## **Vitamin D and Brain Health**

### **Neuroprotective Actions**

- Reduces neuroinflammation and oxidative stress
- Supports neuronal survival
- Regulates calcium signaling
- Enhances mitochondrial function

### **Cognitive Benefits**

- Higher vitamin D levels → 25–33% lower odds of dementia and MCI
- May improve memory and slow cognitive decline
- Deficiency linked to increased Alzheimer's risk

### **Mood Support**

- Low levels associated with depression
- May influence serotonin pathways
- Supplementation may improve mood in some individuals

### **Mechanisms**

- Binds to vitamin D receptors in neurons and glial cells
- Regulates genes involved in neurotransmitters and neuronal structure
- Modulates neurotrophic factors and cytokines
- Enhances antioxidant defenses

**General recommendation:** 4,000–5,000 IU/day or more (individualized to blood levels)

**Sources:** supplements, fortified foods, sunlight

## **Selenium and Cognitive Health**

### **Brain & Cellular Benefits**

- Essential for antioxidant and antiinflammatory pathways
- Supports selenoproteins that protect brain tissue
- May reduce oxidative stress in MCI and Alzheimer's
- Supports neurogenesis (animal studies)

### **Longevity & Systemic Support**

- Common nutrient among longliving populations
- Promotes heart and brain health
- Supports healthy cell division
- Helps regulate thyroid and immune function

### **Omega3 Fatty Acids (DHA/EPA)**

**Brain Structure & Function:** Higher omega3 levels correlate with:

- Larger hippocampal volume
- Better reasoning and processing speed
- Increased gray matter volume

### **Cognitive Benefits**

- Improved learning and memory
- Enhanced cognitive wellbeing
- Increased cerebral blood flow
- Slowed cognitive aging (≈2.5 years in CAD patients)

### **Prevention of Cognitive Decline**

- Lower risk of MCI and Alzheimer's
- DHA supplementation beneficial in mild cognitive impairment
- Higher omega3 levels improve cognitive resilience

### **Mechanisms**

- Protects neurons from degeneration
- Improves membrane fluidity → better neurotransmission
- Reduces oxidative stress and apoptosis

- Involves neuroprotectin D1 (DHA metabolite)

## **NAcetylcysteine (NAC)**

### **Antioxidant Support**

- Precursor to glutathione
- Reduces oxidative stress in brain tissue

### **Glutamate Regulation**

- Helps balance glutamate (excess is neurotoxic)
- Supports cognitive clarity and reduces excitotoxicity

### **Neurodegenerative Support**

- Alzheimer's: slows decline in animal models
- Parkinson's: improves dopamine function and reduces symptoms

### **Brain Metabolism**

- MS studies show improved frontal and temporal lobe metabolism

### **Mental Health Applications**

- May reduce symptoms of OCD, bipolar disorder, and depression
- Potential benefit in schizophrenia via antioxidant and glutamate pathways

## **Probiotics and Brain Function: Key Strains with Evidence**

- **Bifidobacterium bifidum BGN4 + B. longum BORI**
  - Improved mental flexibility, reduced stress, increased BDNF
- **Multistrain Lactobacillus + Bifidobacterium blends**
  - Improved memory, executive function, verbal fluency
- **Lactobacillus rhamnosus GG** (with L. casei, L. acidophilus, B. bifidus)
  - Reduced impulsivity in fibromyalgia patients

### **Mechanisms**

- Normalizes emotional processing neural networks
- Reduces systemic and brain inflammation
- Enhances hippocampal and amygdala plasticity
- Modulates gut-brain neurotransmitter signaling
- Improves microbiome composition

### **Notes**

- Effects vary by individual microbiome
- More large-scale human trials needed
- Include probiotic-rich foods: yogurt, kefir, fermented vegetables

## **Methylene Blue & LMTM**

### **Cognitive & Mood Benefits**

- Low doses (15–50 mg) show benefit in treatment-resistant depression and psychosis
- Enhances mitochondrial energy production
- Reduces oxidative stress
- Synergistic with niacinamide (B3)

### **Alzheimer's Disease Research**

- Modified methylene blue (LMTM) patented for Alzheimer's
- Clinical trials report up to **80% symptom reversal** (per Dinkov)
- Slows cognitive decline and brain atrophy

### **LMTM (Hydromethylthionine)**

- Stabilized form with improved brain uptake
- Phase III trials (1,162 patients) show dose-dependent benefits
- Optimal dose ≈ **16 mg/day**
- Higher doses (150–250 mg) show no added benefit

### **Use Alone or With Other Therapies**

- Effective as monotherapy or add-on
- Higher plasma levels correlate with slower progression