# Cognitive Performance Protocol‡

DEVELOPED IN COLLABORATION WITH OUR SCIENTIFIC AND MEDICAL ADVISORS

This protocol was designed with our clinician partners to help you deliver the most effective care and support for your patients. Included are recommendations to support foundational health and focused interventions to address common clinical objectives related to cognitive performance.‡

Optimizing cognitive performance is essential for maintaining mental clarity, focus, memory, and overall brain health—whether in the classroom, workplace, or daily life. This protocol provides evidence-based recommendations to support cognitive performance using essential nutrients, targeted supplements, and lifestyle interventions. By addressing the unique biological and environmental factors influencing each patient, practitioners can support sharper thinking, sustained attention, and improved mental performance across all stages of life.

## FOUNDATIONAL SUPPORT

In addition to a healthy diet and lifestyle, consider the following foundational supplements to support overall health and well-being:‡

- PureGenomics® Multivitamin (PGM26)
- O.N.E.™ Omega (ONO6 / ONO3) or
- Pro-Resolve Omega (PRVO6)
- Magnesium (glycinate) (MG1 / MG3 / MG9)
- PureGG 25B (PGG6)

## TARGETED NUTRIENTS

Standalone nutrients should be considered in addition to foundational support based upon lab results and/or symptoms. Retesting is recommended with extended use.

- Vitamin $D_3$ 25 mcg (1,000 IU) (VD11 / VD12 / VD16)
  Assessment: 25-hydroxyvitamin D
- Zinc 30 (Z31/Z36)
  Assessment: Zinc RBC
- OptiFerin-C (OF26)
  Assessments: Serum iron, serum ferritin, Transferrin saturation, TIBC, UIBC
- B-Complex Plus (BCP1 / BCP6)
  Assessments: MTHFR genotype, serum or urine methylmalonic acid, organic acids
- PureMelt $B_{12}$ Folate (PMLB9)
  Assessments: Urinary methylmalonic acid and Formiminoglutamic acid

## FOCUSED SUPPORT

The products in this category support common clinical objectives related to cognitive performance.‡
Choose from the options listed below:

| CLINICAL OBJECTIVE‡ | ASSESSMENT* | PRODUCT RECOMMENDATIONS | SUGGESTED USE |
|---|---|---|---|
| **Fast-acting support for alertness and working memory** | Self-reported need for support for working memory and mental alertness | **Rapid Mental Energy**<br>(Order Code: RME3)<br>Rapid-acting working memory support (in as little as 1 hour)‡ | 1 capsule as needed, with or between meals |
| **Support dopamine production and signaling for mental sharpness** | COMT Val 158 Met Genotype** (val/val requires dopamine support) | **DopaPlus**<br>(Order Code: DOP1)<br>Promotes the production of dopamine to support daily cognitive function and performance on mental tasks‡ | 3 capsules, 1-2 times daily, with low protein foods |
| **Support healthy synaptic density and plasticity** | Assessment not necessary | **CurcumaSorb Mind**<br>(Order Code: MCUM6)<br>Curcumin and polyphenol blend to support mood, memory and mental sharpness‡ | 2 capsules, 1-2 times daily, with meals |
| **Support cognitive function and mood** | Occasional stress, self reported lack of mental sharpness | **CogniPhos**<br>(Order Code: CGP1)<br>Promotes daily cognitive performance and optimal neuronal function‡ | 2 capsules, 1-2 times daily, with meals |

## NUTRITIONAL SUPPORT FOR COGNITIVE PERFORMANCE

### DIETARY PATTERNS

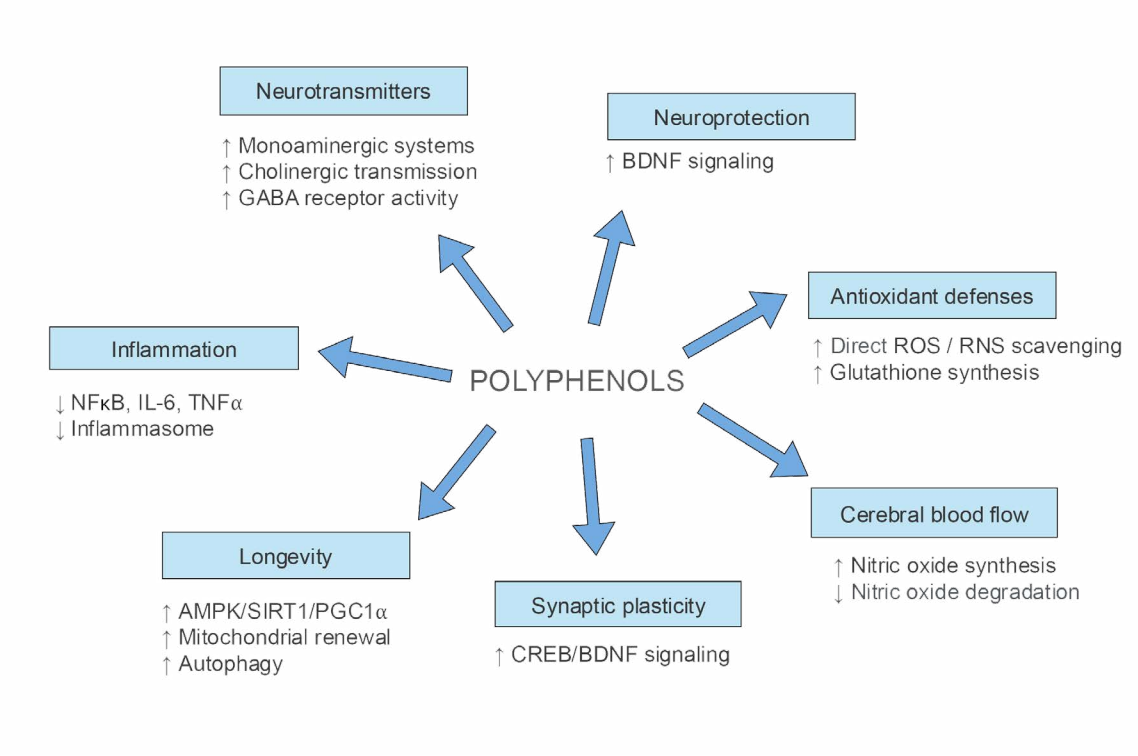
Dietary patterns are a significant lifestyle factor for overall cognitive health. Food and its components influence not only brain structures and functions but also the regulation of gastrointestinal hormones, neurotransmitters and other cellular signals, along with the gut microbiota.

The Mediterranean diet, rich in healthy fats and polyphenols, has been studied extensively for its role in brain health. Meta-analysis has shown that high adherence to this dietary pattern is associated with better global cognition and memory.[1]

Mediterranean dietary pattern:

- Fruits and vegetables
- Whole grain cereals
- Legumes, nuts and seeds
- Olive oil
- Adequate protein intake of 0.8 g – 1.0 g per 2.2 lbs. of body weight
- High intake of omega 3 PUFAs
- Adequate intake of vitamin D, $B_6$, folate, zinc and magnesium
- Avoidance of processed foods, alcohol, refined carbohydrates and sweets

Dietary polyphenols have numerous functions related to supporting brain health and cognitive function.




**Oligomeric Proanthocyanidins (OPCs)**, a group of polyphenols found in fruits, vegetables, spices and nuts are powerful antioxidants that can help protect cells from damage. OPCs found in cacao, green tea/green tea extract (EGCG), pine bark extract, blueberries/blueberry extract, curcumin, grapes and grapeseed extract have demonstrated an ability to improve memory, alertness and cognitive performance.

## NEUROTRANSMITTER SUPPORT

Several neurotransmitters are involved in mental alertness and cognitive performance. The biosynthesis and metabolism of these neurotransmitters can be positively influenced by dietary components and various nutrients.

The following table depicts the major neurotransmitters, their functions as they relate to cognitive performance and supportive foods and nutrients.[2]

| NEUROTRANSMITTER | FUNCTION | SUPPORTIVE FOOD/NUTRIENTS | |
|---|---|---|---|
| **Acetylcholine** | Attention & concentration<br>Stimulus discrimination<br>Learning<br>Memory<br>Arousal | Egg yolks<br>Turkey<br>Green split peas<br>Liver<br>Salmon | Soybeans<br>Mung beans<br>Lentils<br>PUFAs<br>$B_{12}$ |
| **Dopamine** | Motivation<br>Memory<br>Attention & cognition<br>Pleasure and reward<br>Mood | Animal products<br>Seafood<br>Bananas<br>Dairy<br>Legumes | Whole grains<br>Chocolate<br>l-Carnitine<br>Ginsenosides |
| **Norepinephrine** | Attention<br>Wakefulness<br>Mental clarity<br>Alertness/Readiness<br>Memory | Animal products<br>Dairy<br>Legumes<br>Whole grains<br>Bananas, plantains<br>Avocado | Nuts<br>Soy<br>Watermelon<br>Zinc<br>Folate<br>Vitamin D |
| **Glutamate** | Synaptic plasticity<br>Storage of learned information | Naturally found in foods high in protein | Fish sauce<br>Soy sauce |
| **GABA** | Sleep<br>Relaxation<br>Reduced mental stress | Magnesium-rich foods<br>Green and black tea<br>Fermented foods | Fruits & vegetables<br>l-Theanine<br>$B_6$ |
| **Serotonin** | Mood<br>Sleep/wakefulness<br>Learning<br>Memory | Amino acids (especially l-Tryptophan)<br>Eggs<br>Walnuts<br>Turkey<br>Salmon | Soy<br>Nuts<br>Bananas<br>Spinach<br>Dark chocolate |

## LIFESTYLE FACTORS TO SUPPORT COGNITIVE PERFORMANCE

Prolonged episodes of cognitive exertion can lead to mental fatigue and impact components of cognitive performance, including decreased accuracy and delayed reaction time when performing cognitive tasks. Mental fatigue also affects physical performance by reducing endurance capacity, increasing perceived exertion and impacting psychomotor performance, like hand-eye coordination.[3]

A variety of activities can prevent or promote recovery from mental fatigue and improve working memory, including:[3,4]

- Walking in nature
- Aerobic activity
- Taking a short, 20-minute nap
- Listening to music
- Meditation & mindfulness

A systematic review and meta-analysis of 42 randomized controlled trials, including 2,881 healthy middle-aged and older adults, demonstrated that aerobic exercise has a statistically significant positive effect on key areas of cognitive performance. Specifically, aerobic training improved cognitive flexibility, working memory and inhibitory control. Dose-response analyses revealed that optimal cognitive outcomes varied by domain and training parameters:[5]

- Cognitive flexibility demonstrated the greatest improvement with mind-body aerobic exercise, performed for 46–60 minutes per session, 5–7 days per week, over 13–24 weeks at a progressively increasing intensity.
- Working memory benefits were most pronounced following general aerobic exercise (e.g., walking, cycling), at moderate to vigorous intensity, for 20–45 minutes per session, 5–7 days per week, also over a 13–24 week duration.
- Inhibitory control was most responsive to low-intensity aerobic exercise, performed 3–4 times per week, for 20–45 minutes per session over the same time frame.

## ADDITIONAL SUPPORT

The products in this category offer alternative or added support. Choose from the options listed below:‡

| CLINICAL OBJECTIVE‡ | ASSESSMENT* | PRODUCT RECOMMENDATIONS | SUGGESTED USE |
|---|---|---|---|
| **Gut Microbiome Diversity** | Stool Microbiome | **Poly-Prebiotic Powder**<br>(Order Code: PPRP1)<br>A unique powdered blend of prebiotic fibers and polyphenols to support gastrointestinal, cellular, and immune function‡ | 1 serving, 1–2 times daily, mixed with a beverage or into food |
| **Healthy Digestion** | Malabsorption or low stomach acid | **Digestive Enzymes *Ultra***<br>(Order Codes: DEU1 / DEU9)<br>Supports protein, carbohydrate, fat, fiber and dairy digestion and promotes enhanced nutrient bioavailability and absorption‡<br>or<br>**Digestive Enzymes *Ultra* w/ Betaine HCl**<br>(Order Codes: DEUB1 / DEUB9) | Take 2 capsules with each meal |
| **Sleep** | Self-reported poor sleep | **Best-Rest Formula**<br>(Order Codes: BRF1 / BRF6)<br>Restful sleep and relaxation support‡ | 2 capsules, 30–60 minutes before bedtime |
| **Stress Management** | Self-reported need for stress support | **Daily Calm**<br>(Order Code: DCM6)<br>Helps relieve occasional stress and anxiety‡ | 1 capsule, two times daily between meals |
| **Mental Acuity** | Self-reported need for support with healthy memory and behavior related to daily tasks | **PS 100 (phosphatidylserine)**<br>(Order Codes: PS1 / PS6)<br>Promotes daily cognitive performance and mental sharpness‡ | 1 capsule, 3 times daily with meals |

## THE MICROBIOTA-GUT-BRAIN AXIS

Gut microbes can influence brain function through neurotransmitter production, immune modulation and neuroendocrine signaling.[6] The gut microbiota produce neurotransmitters like serotonin, dopamine and gammaminobutyric acid (GABA) that help regulate mood.

Microbial imbalance is associated with increased intestinal permeability, allowing cytokines to enter circulation, affecting the integrity of the blood brain barrier and impacting cognition. Short-chain fatty acids (SCFA) produced by gut bacteria communicate to the brain both systemically and through vagal pathways and have potential neuroprotective effects by promoting serotonin biosynthesis, modulating levels of neurotrophic factors, increasing neurogenesis and reducing neuroimmune response. The interaction of SCFAs and the microbiota-gut-brain axis can positively affect emotion and cognitive performance.[7]

Dietary changes like increased dietary fiber along with stress management and probiotic support can positively influence the microbiota-gut-brain axis and support cognitive function.[6,8,9]

In addition, the bidirectional connection and communication between the brain and immune system influences mood regulation.[10, 11, 12] Immune cells, including microglia, astrocytes and cytokines, interact directly with neurons, contributing to the modulation of mood and cognitive function.[13, 14]

Studies suggest that systemic immune activation can affect the nervous system via production of cytokines, including interleukin-1 beta (IL-1b), interleukin-6 (IL-6), interleukin-8 (IL-8) and tumor necrosis factor-alpha (**TNF-α**), which can cross the blood-brain barrier.[15] Alteration of the immune/brain interaction can affect neurotransmitter balance, affecting the production of serotonin, GABA, dopamine and norepinephrine, which are critical for mood stabilization, attention and mental alertness.[13]

For targeted support for the Microbiota-Gut-Brain Axis, refer to the:

**Microbiota-Gut-Brain Axis Protocol‡**

## SLEEP

Poor sleep quality or insufficient sleep is a major contributor to mental fatigue and changes in cognitive performance. Sleep issues can negatively affect alertness, learning and memory, decision making and creativity.[16] Supporting a patient's sleep is a critical component of care and can positively improve outcomes, not just in mental alertness and cognitive performance, but also in their mood, cardiovascular, hormone, metabolic and immune health.[17]

For targeted support for sleep, refer to the:

**Sleep Protocol‡**

## STRESS

Stress can impact mental alertness and cognitive performance. Individuals exposed to multiple stressors can experience negative effects not just on their physical health, but also on their ability to learn, sustain attention and other factors related to cognitive function.[18]

For targeted support for stress management, refer to the:

**Stress Management and Relaxation Protocol**‡

Download all our protocols at **PureEncapsulationsPro.com/Protocols**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*All assessments may not be necessary. Testing should be performed at the discretion of the healthcare provider.
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