Standard Process
WHOLE FOOD NUTRIENT SOLUTIONS

Nutritional Support Protocol

Support for Healthy Neuroinflammatory Processes

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

Physiology of Neuroinflammation

Acute, low-level inflammation in the central nervous system (CNS) is a normal, protective response initiated by exposure to damaged cells, toxins, pathogens, and other compounds. The inflammatory process is essential for tissue healing in the CNS.

Microglial cells are the resident macrophages in the CNS; they play a key role in immune surveillance and the inflammatory response. When exposed to inflammatory stimuli like bacteria, viruses, damaged tissue, or toxins, microglia become activated and induce the expression of pro-inflammatory mediators. These include cytokines, chemokines, and reactive oxygen species to help clean up damaged tissue and kill pathogens.

In chronic neuroinflammation, inflammatory mediators facilitate the infiltration of activated immune cells into the brain by disrupting the blood-brain barrier. Commonly targeted CNS components include myelin, white matter, neurons, axons, and blood vessels. Neuroinflammation reduces the expression of neurotrophins — like nerve growth factor (NGF) and brain-derived neurotrophic factor (BDNF) — which are proteins that regulate neurogenesis and neuronal remodeling. Chronic neuroinflammation can lead to symptoms like brain fog, fatigue, mood changes, and cognitive challenges. It also plays an important role in the pathophysiology of neurodegenerative conditions like Parkinson's disease, multiple sclerosis, and Alzheimer's disease.

Nutrition and lifestyle interventions can support healthy inflammatory processes in the CNS through the modulation of immune cell activation and inflammatory signaling compounds and via healthy levels of neurotrophins and pro-resolving mediators.

Supportive Lifestyle Practices

- Counsel patients on the importance of regular exercise, which has been shown to suppress inflammation and promote the growth of neurons and glial cells in the hippocampus — the part of the brain responsible for learning and memory.[1] Exercise can also increase BDNF levels and reverse age-related volume loss of the brain.[2]
- Support quality sleep and a healthy circadian rhythm in your patients. Sleep disturbances and short sleep duration have been associated with elevated inflammatory markers, microglial activation, and a compromised blood-brain barrier which can lead to the invasion of peripheral immune cells and cytokines into the CNS.[3]

Whole Foods Nutritional Recommendations

- Encourage the consumption of cold-water fish rich in omega-3 fatty acids such as salmon, mackerel, anchovies, and sardines. The Omega-3 fatty acids DHA and EPA are precursors of specialized pro-resolving lipid mediators, which are bioactive lipids that modulate neuroinflammatory processes.[4] Reduced production of these mediators can lead to a prolonged inflammatory response.
- Recommend the addition of the culinary spice turmeric root while cooking. Turmeric root contains bioactive compounds that support a healthy inflammatory response, balance microglial activation, and facilitate neurogenesis in the hippocampus.[5]
- Encourage consumption of foods rich in flavonoids, which are plant compounds widely found in fruits, vegetables, and beverages like tea and wine. Flavonoids inhibit the production of pro-inflammatory mediators, support the production of anti-inflammatory factors, and modulate the polarization of microglia.[6]

Dietary Supplement Regimen

NeuroRegenex

Suggested Use: **2 tablets 3 times daily**

MediHerb NeuroRegenex offers a specialized extract of curcumin with FenuMAT™ technology for enhanced bioavailability; along with Boswellia with FenuMAT™, Bupleurum, and Gotu Kola, which is standardized for key constituents. The herbs in NeuroRegenex work to:

- To provide antioxidant activity*
- To support a healthy inflammatory response*
- To tonify the brain and support healthy mental clarity, cognition and memory function, as used traditionally in Ayurveda*
- Rejuvenate and support the body's natural ability to adapt to temporary stress, as used traditionally in Ayurveda*

Neuroplex®

Suggested Use: **2 capsules per day**

Neuroplex® combines synergistic ingredients to support the nervous and endocrine systems.*

- Supports the nervous system*
- Vitamin B_6 is involved in neurotransmitter formation, important for cognitive functioning*
- Contains vitamins and minerals that support endocrine function and includes complementary tissues*
- Excellent source of thiamin, riboflavin, niacin, vitamin B_6, iron, zinc, and copper

OPC Synergy®

Suggested Use: **1 capsule per day**

OPC Synergy® provides a synergistic blend that:

- Provides ingredients with antioxidant activity*
- Supports and maintains normal cell function*
- Helps maintain normal cognitive function*
- Supports the complex processes associated with aging*

Olprima™ EPA|DHA

Suggested Use: **2 softgels per day**

Through a 55:45 ratio of omega-3s EPA and DHA, Olprima™ EPA|DHA:

- Supports healthy inflammatory processes*
- Supports general brain health and cognition*
- Provides general mood support*

Assessment of the Neuroinflammatory Response

In Office/Physical Exam

- Key labs: C-reactive protein, comprehensive hormone panel, autoimmunity markers
- Medical Hx: trauma, surgery, metabolic health, sleep quality, mood and cognitive issues
- Complete neurologic examination
- Imaging as indicated
- Omega-3 Plus Index Test

REFERENCES

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4. Zahoor, I., & Giri, S. (2021). Clinical reviews in allergy & immunology, 60(2), 147–163.
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6. Chen, Y., et al. (2022). Frontiers in immunology, 13, 1006434.

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*These statements have not been evaluated by the Food and Drug Administration These products are not intended to diagnose, treat, cure, or prevent any disease.

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