

Pro EssentialsTM

Comprehensive Gut, Mood, &
Brain Support



ProEssentials™ harnesses the gut-brain axis to promote cognitive function, concentration, and mental ease. This formulation contains strictly clinically tested ingredients, including spore-forming probiotics, along with Zembrin and Saffron extract.

ProEssentials™ contains a blend of *Bacillus* probiotic strains that support the gut mucosal barrier and promote cytokine balance. We've also added Zembrin®, which is clinically shown to enhance cognitive flexibility, executive function, emotional balance, and resilience to stress. Additionally, a clinically-tested saffron extract ingredient supports neurotransmitter production and promotes relaxation.

Each ingredient in ProEssentials targets a unique mechanism involved in brain function and emotional wellbeing to provide comprehensive support.

Benefits*

- Comprehensive mood and brain support product
- Supports the gut-brain axis
- Supports neuronal function
- Supports cytokine balance
- Supports the body's natural stress response and HPA axis function
- Helps people maintain a calm, balanced state of mind
- Supports a unique mechanism involved in general brain and emotional health to provide comprehensive support

The Gut-Brain Connection and Its Impact on Mental Health and the Frontal Lobe

The gut-brain axis is a complex communication network linking the gut and the brain, playing a critical role in mental health and cognitive functions, including those managed by the frontal lobe, such as focus, planning, and emotional regulation. Research has shown that gut health can significantly influence brain function through various mechanisms, including immune regulation, neurotransmitter production, and the modulation of inflammation, all of which are crucial for maintaining mental clarity and emotional balance.

Studies have demonstrated that the gut microbiome—the community of bacteria and other microorganisms residing in the gut—has a direct impact on brain health. For instance, a study published in *Nature Microbiology* highlighted that the gut microbiome produces metabolites that interact with the brain, influencing cognitive processes such as memory and attention that are largely controlled by the frontal lobe. These metabolites include short-chain fatty acids (SCFAs) like butyrate, which have been shown to promote neuroplasticity and support cognitive function.

Furthermore, inflammation originating in the gut can directly impact the brain, especially the frontal lobe, which is highly sensitive to inflammatory markers. Cytokines, which are signaling proteins produced by the immune system, can cross the blood-brain barrier, potentially disrupting neurotransmitter function in regions of the brain associated with mood, focus, and executive functioning. A study in *Pharmacology & Therapeutics* found that elevated levels of cytokines are associated with impaired executive function and increased stress reactivity, underscoring the role of gut health in maintaining frontal lobe function.

The gut microbiome also influences the production of neurotransmitters like serotonin and dopamine, which are integral to mood and motivation. Approximately 90% of the body's serotonin is produced in the gut, highlighting the gut's role as a key player in emotional regulation. This connection is supported by research in *Psychological Medicine*, which found that changes in gut microbiota composition were correlated with mood disorders and cognitive performance, suggesting that a balanced gut microbiome can help sustain a calm and focused state of mind.

This evidence supports the idea that a healthy gut can positively impact brain function, particularly in the frontal lobe, by reducing inflammation, balancing neurotransmitters, and improving overall cognitive resilience. These findings lay the groundwork for the inclusion of specific probiotics in our formulation, aimed at supporting gut health to indirectly benefit mental clarity, emotional stability, and cognitive function.

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Bacillus spore-forming probiotic strains

ProEssentials™ is a blend of three *Bacillus* spore-forming strains: *B. coagulans* SC208 (SNZ 1969), *B. subtilis* (SNZ 1972), and *B. clausii* (SNZ 1971). This unique blend, known as SNZ TriBac, is designed to enhance gut health by improving gut barrier integrity, reducing permeability, and promoting microbial diversity. These spore-forming probiotics are highly resilient, surviving harsh digestive conditions to effectively colonize the gut and deliver their benefits.

Research shows that *Bacillus subtilis* SNZ 1972 strengthens the intestinal barrier by enhancing tight junction integrity and reducing the translocation of endotoxins, a key driver of cytokine release. Studies published in *Frontiers in Immunology* demonstrated that *Bacillus subtilis* significantly decreased inflammatory markers like IL-6 and TNF- α and inhibited NF- κ B activation, a pathway central to cytokine production. These actions help limit the cascade of inflammation while supporting immune resilience.

Bacillus coagulans further supports gut health by modulating inflammatory responses and promoting a balanced immune tone. Additionally, *Bacillus clausii* has been shown to enhance microbial diversity, a critical factor in maintaining a healthy gut environment.

As spore-forming probiotics, these strains are uniquely capable of surviving the acidic conditions of the stomach, ensuring they reach the intestines where they exert their beneficial effects. Together, these features make SNZ TriBac a powerful solution for enhancing gut health and overall resilience.

Zembrin®

Zembrin® is a standardized extract of *Sceletium tortuosum*, clinically shown to support key measures of cognitive flexibility, executive function, emotional balance, and resilience to stress. Zembrin works through mechanisms such as the inhibition of phosphodiesterase-4 (PDE4) and the modulation of serotonin pathways, both critical in maintaining a balanced mood and focused state of mind.

Cognitive flexibility is the mental ability that allows us to adapt flexibly to our constantly changing environment. It lets us shift attention between two or more tasks or concepts, intelligently incorporate and utilize new information, develop new ways of thinking, and make novel connections between ideas. Cognitive flexibility is deeply involved in the kind of flexible thinking that allows us to innovate and be creative. Zembrin significantly improved performance in key cognitive domains, including cognitive flexibility.

Zembrin® continued....

Executive Function refers to a set of higher level cognitive processes that engage and coordinate other cognitive abilities. In short, executive function is the conductor that helps you get things done. It is critical for organization, attention, planning, working memory, and abstract thinking. Executive function is also essential for optimal self-regulation and impacts behaviors like exercising initiative, decision making, self-control, discipline, goal-directed behavior, and the ability to spontaneously take action. Zembrin® significantly improved performance in key cognitive domains, including executive function, across multiple studies.

Studies show that Zembrin®:

- Supports cognitive function (10,11)
- Supports measures of executive function (10,11)
- Supports calm focus (10,11,12)
- Supports reductions in occasional stress and mild anxiety (12)
- May help in the management of acute stress and nervousness (12,13)
- May support improvements in mood/disposition (12)

Saffron Extract

Saffron extract is a calming botanical ingredient that supports central nervous system function, cytokine balance, mood, and more. Saffron is believed to exert its effects through increasing the reuptake inhibition of dopamine and norepinephrine, acting as N-methyl D-aspartic acid (NMDA) receptor antagonists and GABA-a agonists, and exerting anti-inflammatory, antioxidant effects .

In a 6-week randomized double-blind study, researchers tested the effects of saffron extract on 54 patients (age 6-17 years) with ADHD. Approximately half of the participants received Saffron extract, while the other half received methylphenidate (MPH), a common pharmaceutical medication. Researchers tracked ADHD symptoms using clinically relevant assessment tools, such as the Teacher and Parent Attention-Deficit/Hyperactivity Disorder Rating Scale-IV (ADHD-RS-IV). Assessments were completed at baseline and weeks 3 and 6. Results indicated that saffron showed equal efficacy as methylphenidate in treating ADHD symptoms.

ProEssentials™ is a comprehensive mood and brain support product, formulated with clinically tested ingredients that work through the gut-brain axis. Its unique blend of spore-forming probiotics has been scientifically shown to reduce cytokine production, balance cortisol levels, and promote cognitive function. The formulation is further enhanced by Zembrin® (*Sceletium tortuosum*), which has been clinically proven to support cognitive flexibility, executive function, and emotional balance, as well as saffron extract, an herb known for its calming and soothing properties. Together, these ingredients help promote a calm, balanced state of mind, supporting both cognitive function and emotional well-being.

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