Semax Nasal Spray

Focus • Memory • Mental Clarity • Stress Resilience

Semax is a synthetic neuropeptide derived from ACTH (adrenocorticotropic hormone) — specifically the fragment responsible for its cognitive and neuroprotective effects, without the hormonal actions of the full molecule. Originally developed in Russia for stroke recovery and mild cognitive impairment, Semax has been used clinically for decades and is now available through compounding pharmacies as a nasal spray. Intranasal delivery allows rapid absorption through the nasal mucosa with potential direct access to the brain via the olfactory pathway, bypassing the blood-brain barrier and producing effects within minutes of administration.

How Semax Works in the Brain

1 Increases BDNF (Brain-Derived Neurotrophic Factor) — *BDNF is the brain's primary growth and repair protein — often called "Miracle-Gro for the brain." Semax significantly upregulates BDNF expression, which supports neuroplasticity, memory formation, neuron survival, and long-term cognitive resilience. Low BDNF is associated with depression, cognitive decline, and poor stress recovery.*

2 Modulates Dopamine & Norepinephrine — *Semax enhances dopaminergic and noradrenergic transmission in the prefrontal cortex — the region governing focus, working memory, and executive function. Unlike stimulants, this modulation is regulatory rather than forced, producing improved focus and motivation without jitteriness, crashes, or dependency.*

3 Neuroprotective & Anti-Inflammatory — *Semax reduces oxidative stress in neural tissue, modulates inflammatory cytokine signaling in the brain, and has demonstrated protective effects in models of stroke, hypoxia, and traumatic brain injury. It supports recovery of cognitive function after neurological insult and helps maintain brain health under chronic stress.*

4 Stress Axis Regulation — *Derived from ACTH, Semax interacts with melanocortin receptors to help regulate the HPA axis (hypothalamic-pituitary-adrenal) stress response. This translates to improved emotional resilience, reduced mental fatigue under pressure, and clearer thinking during high-demand periods — without sedation or blunted affect.*

Safety & Monitoring

Semax is generally well tolerated with a favorable safety profile established through decades of clinical use in Russia and Eastern Europe. As with any neuroactive compound, individual response varies and monitoring is important.

What Patients Report

- Noticeably improved concentration and sustained focus
- Better working memory — holding and using information more easily
- Faster information processing and mental recall
- Clearer thinking and significant reduction in brain fog
- Enhanced productivity during cognitively demanding tasks
- Smoother, more sustained mental energy without crashes
- Improved mood stability and reduced irritability
- Greater emotional resilience under stress

Who May Benefit Most

→ **Brain Fog Sufferers** *Those experiencing persistent cognitive cloudiness — from hormonal shifts, chronic illness, post-viral fatigue, or stress overload.*

→ **High-Demand Professionals** *Executives, clinicians, attorneys, and others requiring sustained cognitive performance under pressure, extended focus, and rapid information processing.*

→ **Perimenopausal & Menopausal Women** *Estrogen decline directly impacts BDNF, dopamine signaling, and prefrontal cortex function. Semax addresses the neurological dimension of hormonal cognitive changes.*

→ **Burnout & Post-Illness Recovery** *Those recovering from prolonged stress, adrenal fatigue, long COVID, or illness-related cognitive decline. Semax supports neural repair and energy restoration.*

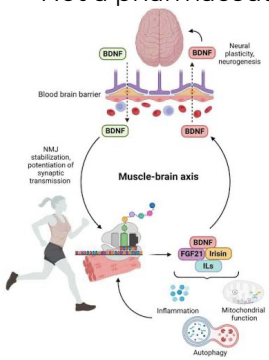
→ **Stress-Related Cognitive Fatigue** *Adults whose mental sharpness, motivation, and clarity have eroded under sustained psychological or physiological stress.*

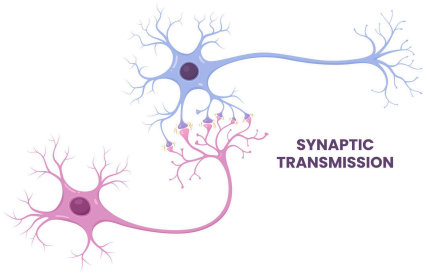
Dosing & Cost

Parameter	Details
Cost	$240 for 5mL vial
Supply	Approximately 2-month supply at standard dosing
Route	Intranasal spray — nasal mucosa absorption
Onset	Effects often felt within minutes; cognitive benefits build over days to weeks
Typical dose	1–2 sprays (100–200 mcg) per nostril, once or twice daily
Timing	Morning preferred; avoid late-day dosing if sleep-sensitive
Cycling	Often used in cycles — 4–8 weeks on, 2–4 weeks off

What Semax Is NOT

- Not a stimulant — no caffeine-like mechanism, no adrenal stress
- Not habit-forming or addictive — no withdrawal on discontinuation
- Not a sedative — does not impair alertness or reaction time
- Not a replacement for sleep, nutrition, or exercise
- Not a pharmaceutical antidepressant or anxiolytic





Possible Mild Effects

- Nasal irritation or mild dryness at the spray site
- Headache — typically transient and dose-dependent
- Temporary overstimulation or vivid dreams (rare, usually resolves with dose reduction)
- Mild mood elevation that may feel activating in sensitive individuals

Use With Caution In

- Uncontrolled anxiety disorders — may amplify hyperarousal in some patients
- Bipolar disorder — stimulating neuropeptides require careful monitoring
- Severe psychiatric instability — consult provider before initiating
- Concurrent use of MAOIs or psychiatric medications — discuss with provider

How Semax Fits Into a Brain Optimization Plan

Semax produces its strongest results when paired with foundational brain health practices. Think of Semax as amplifying the benefits of the habits already supporting your brain — not replacing them.

- Resistance training — among the most powerful BDNF stimulators; synergizes with Semax
- Adequate sleep (7–9 hrs) — memory consolidation and neural repair occur during sleep
- Adequate protein intake — provides amino acids for neurotransmitter synthesis
- Omega-3 fatty acids (DHA/EPA) — essential for neuronal membrane integrity
- Blood sugar regulation — glucose dysregulation impairs BDNF and cognitive function
- Stress management — chronic cortisol suppresses BDNF; Semax helps buffer this

At Larrea Naturopathic Medicine, we prescribe peptides exclusively through CLIA-certified, FDA-registered 503A compounding pharmacies. Every batch undergoes independent third-party testing for purity, potency, and safety. Our pharmacies are LegitScript-certified and held to rigorous regulatory standards.