



Vagus Nerve Stimulation (VNS) for Insomnia: A Natural Approach to Better Sleep

The **vagus nerve** plays a crucial role in regulating the **autonomic nervous system (ANS)**, specifically by activating the **parasympathetic (rest-and-digest) response**. Dysfunction or underactivity of the vagus nerve is often linked to **poor sleep, heightened stress, and autonomic imbalance**, making **vagus nerve stimulation (VNS)** a promising approach for **insomnia**.

How Vagus Nerve Stimulation May Help Insomnia

1. Reduces Sympathetic Overactivity

- Chronic insomnia is often associated with an overactive **sympathetic nervous system (fight-or-flight)**, leading to **high cortisol, increased heart rate, and nighttime alertness**.
- VNS promotes **parasympathetic dominance**, helping the body relax before sleep.

2. Increases Heart Rate Variability (HRV)

- Higher **HRV** is linked to **better stress resilience and improved sleep quality**.
- VNS enhances HRV, making it easier for the body to transition into restful sleep.

3. Regulates Neurotransmitters

- Stimulating the vagus nerve **increases GABA and serotonin**, both of which are crucial for **reducing anxiety and improving sleep onset**.
- It may also lower excess **glutamate**, which can contribute to hyperarousal and insomnia.

4. Reduces Inflammation

- Chronic inflammation has been implicated in sleep disorders.
- VNS has **anti-inflammatory effects** via the **cholinergic anti-inflammatory pathway**, which may contribute to deeper, more restorative sleep.

Methods of Vagus Nerve Stimulation for Insomnia

1. Non-Invasive Techniques

Rebecca Roentsch Montrone, BS | Wondrous Roots, Inc. | 103 Roxbury Street STE 300 | Keene, NH 03431
shopwondrousroots.com | wondrousroots.org | 603.439.2603

✓ Deep Breathing (Diaphragmatic Breathing)

- **How:** Inhale slowly for 4-6 seconds, hold briefly, exhale longer (6-8 seconds).
- **Why:** Activates the vagus nerve, slows heart rate, and signals relaxation.

✓ Gargling or Humming

- **How:** Gargling water vigorously or humming at a deep tone for 1-2 minutes.
- **Why:** Stimulates the vagus nerve via the throat and vocal cords.

✓ Cold Exposure

- **How:** Splash cold water on the face or use a cold pack on the back of the neck.
- **Why:** Triggers the vagus nerve to shift into parasympathetic mode.

✓ Acupressure & Ear Stimulation

- **How:** Gently massage the tragus (small cartilage near the ear opening) or use an **ear vagus nerve stimulation device**.
- **Why:** The auricular branch of the vagus nerve is easily accessible.

✓ Yoga and Meditation

- **How:** Slow, mindful movements (e.g., yin yoga) and **meditation** before bed.
- **Why:** Lowers stress hormones and engages the vagus nerve.

✓ Omega-3 Fatty Acids

- **How:** **DHA-rich** sources like fish oil or algae-based omega-3s.
- **Why:** Omega-3s improve vagal tone and reduce inflammation.

2. Electrical Vagus Nerve Stimulation (tVNS)

- **Transcutaneous Vagus Nerve Stimulation (tVNS):**
 - Uses a small **electrode clip on the ear** (auricular vagus nerve branch).
 - Some studies suggest this improves **HRV and sleep quality**.
 - Devices like **Parasym, gammaCore, and taVNS** are available for home use, as well as an [Relaxus Acu-Massage Pen](#) following this technique: [Resetting the Vagus Nerve](#)
- **Implantable Vagus Nerve Stimulation (iVNS):**
 - Medically implanted for epilepsy and depression but has been found to **improve sleep regulation** as a secondary benefit.

Scientific Evidence Supporting VNS for Sleep

- A **2019 study** found that **auricular VNS improved sleep efficiency and reduced wake time after sleep onset**.
- Another **2021 study** linked **high vagal tone with increased deep sleep and reduced nighttime awakenings**.

- VNS is being explored as a treatment for **PTSD-related insomnia**, with promising results.

Conclusion

Vagus nerve stimulation is a **natural and effective** way to **enhance relaxation, lower stress, and improve sleep quality**. Whether through **breathwork, humming, cold therapy, or tVNS devices**, stimulating the vagus nerve may help **regulate sleep cycles and combat insomnia**.

