

# How to Stimulate Vagus Nerve Function to Support the Brain

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## What Is the Vagus Nerve?

The Vagus nerve (also known as the 10th cranial nerve) is actually a set of nerves (right Vagus nerve and left Vagus nerve) that starts at the brain stem. It then meanders through the body, touching the vital organs, and ends in the gut. It in effect connects the brainstem to the gut and other vital organs in the body. The Vagus nerve transmits information between these organs and plays a part in the parasympathetic nervous system.

## Why Vagal Tone Matters

Vagal tone is essentially how healthy or “toned” the Vagus nerve is. The higher the vagal tone, the easier it is to get into a relaxed state.

Research published in *Psychological Science* in 2013 shows a positive feedback loop between high vagal tone, good physical health, and good emotional health. Although the researchers admit “the mechanisms underlying the association between positive emotions and physical health remain a mystery,” they did establish a connection between a toned vagal nerve and better physical and emotional health. The reverse is also true. The better your physical and emotional health, the better your vagal tone.

## What Does the Vagus Nerve Do in the Body?

The Vagus nerve is an important player in optimal health, specifically when it comes to entering a parasympathetic state, or relaxed state. Here are some of the ways the Vagus nerve affects the body.

### Connects the Brain to the Gut

If you’ve ever had a gut feeling about something, that’s because of your Vagus nerve. The Vagus nerve connects the brain to the gut and sends information back and forth. This is also called the gut-brain axis. Your gut tells your brain information via electric impulses called “action potentials.”

### Connects the Brain to Other Organs

The Vagus nerve also connects the brain to other vital organs as it makes its way to the gut. It carries sensory information from the organs to the brain. The Vagus nerve plays an important role in controlling the heart rate. The Vagus nerve stimulates the release of the neurotransmitter acetylcholine which reduces heart rate. An increase in heart rates requires inhibition of Vagus nerve stimulation (which means no acetylcholine release). Doctors can plot your heart rate variability (HRV) and discover a lot about the health of your heart and Vagus nerve. If your HRV is high, your vagal tone is high. The Vagus nerve also plays a part in lung function.

Acetylcholine that the Vagus nerve stimulates to release is also responsible for telling the lungs to breathe.

## **Controls the Parasympathetic Nervous System**

The parasympathetic nervous system is the “rest and digest” aspect of the nervous system (in contrast to the fight or flight mechanism of the sympathetic nervous system). As mentioned, the Vagus nerve stimulates the release of acetylcholine to reduce the heart rate (in relaxation). So, the Vagus nerve plays an important role in activating relaxation and recovery.

## **Stimulates Digestive Tract**

The Vagus nerve is responsible for stimulating digestion. It does this even before eating any food. It sends signals to the gastrointestinal (GI) tract to begin producing gastric juices to prepare for digestion. If the Vagus nerve is not optimal, digestion isn't optimal.

## **Stimulates Memory Making**

A University of Virginia study found that Vagus nerve stimulation can help solidify memories by stimulating the release of norepinephrine. This can be huge for people suffering from memory issues or those with Alzheimer's disease.

## **Prevents Chronic Inflammation**

One of the most amazing functions of the Vagus nerve is that it can prevent inflammation. Chronic inflammation is implicated in many modern illnesses from cancer to heart disease. According to an article published in *Molecular Medicine*, when the Vagus nerve senses inflammation (by the presence of pro-inflammatory cytokine, for example) it stimulates the release of anti-inflammatory neurotransmitters to regulate the immune system. Additionally, a 2016 study found that Vagus nerve stimulation helped reduce symptoms of rheumatoid arthritis, an illness without a cure.

## **Natural Ways to Stimulate the Vagus Nerve**

It's clear that Vagus nerve stimulation is important for optimal health. There is an FDA regulated device that you can have implanted in the body. It sends electrical impulses to stimulate the Vagus nerve. But there are other ways of stimulating the Vagus nerve without surgery, devices, or side effects.

### **Cold Therapy**

Cold therapy has many benefits from faster recovery from exercise to improved immune function. Acute cold exposure also activates the Vagus nerve and cholinergic neurons and nitrenergic neurons through Vagus nerve pathways, according to a 2001 study. This means cold exposure can also increase parasympathetic activity through the Vagus nerve, lowering the sympathetic (fight or flight) response.

## **Deep Breathing**

It's well-known that deep, slow breathing can help induce relaxation. As mentioned earlier, vagal stimulation can cause relaxation but the opposite is also true. Relaxation can stimulate the vagal nerve. So, inducing relaxation through deep breathing can help improve vagal tone. This will then make it easier to get into a relaxed state in the future!

## **Singing, Humming, Gargling**

Singing and humming may be relaxing on their own, but there's a physiological reason for it. The Vagus nerve is attached to the vocal cords. Research published in *Frontiers in Psychology* shows that singing, humming, and even gargling can help activate it. Chewing also stimulates Vagus nerve activity (and the parasympathetic system that activates digestion, which makes sense!). This means chewing gum, while it may have its downsides, also stimulates the Vagus nerve.

## **Intermittent Fasting**

I have talked about intermittent fasting and how it can be beneficial to your health. Intermittent fasting can improve mitochondrial and cognitive function. It may also improve metabolism and reduce the risk of heart disease and cancer.

But it turns out these health benefits may be related to intermittent fasting's ability to stimulate the Vagus nerve and improve vagal tone. A 2003 study found that fasting is a physiological activator of the Vagus nerve.

## **Wave Vibration**

**Wave vibration** has been heavily studied by the scientific community for its health benefits. This therapy involves standing on an oscillating plate that produces low-level vibrations. These vibrations then create positive stress throughout the body (like the kind of stress created by exercise). This stress activates the vagal nerve among other parts of the body.

## **Probiotics**

Probiotics are an important part of the diet and are beneficial for many ailments from digestive problems to skin issues. It turns out, probiotics may also be helpful in stimulating the Vagus nerve. Researchers of a 2011 study found that giving mice *Lactobacillus Rhamnosus* increased their GABA production and decreased stress as well as depression and anxiety-related behavior.

Interestingly, those given the probiotics who did not have a Vagus nerve (it was removed) did not see the same results. This suggests that the improved stress resilience had something to do with activation of the Vagus nerve.

## **Healthy Fats and Omega-3s**

A 2011 study published in *Frontiers of Psychology* discovered that high fish consumption is associated with a nervous system that is predominantly parasympathetic (relaxed) and enhanced vagal activity. Researchers surmised that the omega-3 content of the fish was the reason for this. This is one reason I take an omega-3 supplement daily.

## **Exercise**

Exercise is an important part of a healthy lifestyle. But it looks like it may also be helpful in stimulating the Vagus nerve. This could be the reason that exercise helps us to relax. One 2010 study found that mild exercise stimulated gastric emptying and improved digestion. They discovered that this happened because of vagal stimulation.

## **Massage**

Research suggests that massage can be beneficial in stimulating the Vagus nerve. In one 2012 study premature infants who were massaged had greater weight gain due to vagal activity. This is one reason we try to use a variety of massage techniques and tools at home.

Foot reflexology can also help improve vagal tone. According to a study published in *Alternative Therapies in Health and Medicine*, foot reflexology increased vagal modulation, decreased sympathetic modulation, and lowered blood pressure.

## **Laughter and Social Enjoyment**

We already know that laughter and being around friends and family is a good way to relax. But a 2013 study stumbled upon an interesting finding: there's a connection between physical health emotional health and social enjoyment. Positive social interactions influence positive emotions, which improve vagal tone. This then improved physical health.

The study concluded that "positive emotions, positive social connections, and physical health influence one another in a self-sustaining upward-spiral dynamic." The study also found that regular meditation and positive affirmation could get people into this upward spiral.

## **Acupuncture**

The ancient Chinese medicine treatment of acupuncture may be beneficial in stimulating the Vagus nerve. Research shows that ear acupuncture can benefit the following:

- cardiovascular regulation
- respiratory regulation
- gastrointestinal tract regulation

Also, foot reflexology can decrease blood pressure by modulating the Vagus nerve, according to a 2012 study.

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**HOW TO ACTIVATE**

- 1. Decalcify**  
Kick Fluoride 
- 2. Activate**  
Raw cacao is a great pineal gland detoxifier in high doses 
- 3. Meditate**  
Yoga; Pranayama 
- 4. Sun Gazing**  
First 15 mins of sunrise and last 15 mins of sunset 

# Natural Techniques For Stimulating The Vagus Nerve



## Exercise

Exercise is good for your brain's cognitive faculties, your mental health and your gut flow, thanks to its ability to stimulate the vagus nerve.



## Deep, slow breathing

Breathing slowly and deeply activates your vagus nerve to send messages to your brain that help lower your blood pressure and heart rate.



## Thoughtful meditation

You can improve your mood simply by silently repeating positive phrases about your friends and family.



## Chill out

Exposure to cold dampens the fight or flight response and increases the rest and digest response, like taking a cold shower or drinking ice water.



## Singing

Humming, chanting and singing are all exercises that increase heart rate variability (HRV). Higher HRV is linked with "reduced morbidity and mortality" and "improved psychological well-being and quality of life."

Singing also increases oxytocin, aka the love hormone, because it's an activity that brings people closer together.



## Laughing

Laughter is a natural immune booster which, like singing, can increase HRV in a group setting.



## Gargling

Gargling with water stimulates the muscles of the pallet and has been shown to improve working memory performance.



## Yoga

Disciplines like yoga increase vagus nerve activity to help keep you calm and are particularly effective for people suffering from anxiety or depression.