

Improving Vagal Tone

Information for patients and relatives.

1. Introduction to the leaflet.

This leaflet has been designed to provide you with information on how to stimulate your vagus nerve to help improve the symptoms of long covid syndrome, fibromyalgia, chronic fatigue syndrome, the menopause, stress and anxiety. Symptoms such as fatigue, difficulty breathing, brain fog, palpitations, sweating and dizziness are common to all of these conditions and can significantly interfere with one's quality of life.

Emerging studies now suggest that many of these symptoms may be a consequence of disruption to the vagus nerve. As the body's primary communication superhighway, the vagus nerve extends into every major organ in the body, including the heart, lungs, and gastrointestinal tract. Injury to this nerve, therefore, can disrupt the systems we rely on to breath, digest, and simply function on a daily basis.

In the leaflet, we explore what the vagus nerve is, its functions and the types of symptoms which can be portrayed due to vagus nerve disruption. Also included are exercises and alternative therapies to stimulate the vagus nerve which may help you manage your condition better.

2. Improving Vagal Tone

What is the Vagus Nerve?

The vagus nerve is one of the longest and most important nerves in the body which helps control several crucial functions. It connects your brain to your gut, sending out sensory information to the brain (like information about sights, smells, tastes, and sounds), and controls certain motor functions throughout the body. It can also affect everything from your mood and stress levels to your digestion, heart rate and immune response. It may also play a major role in inflammation and various chronic diseases if not working properly.

There are actually two vagus nerves, but both are often talked about as one. In Latin, the word “vagus” means “wandering.” It’s an apt name, given that the vagus nerve wanders through the body, from the brainstem to the heart, lungs, stomach, digestive tract, liver, kidneys, and spleen. It works within the parasympathetic system, which is responsible for the rest, relaxation and conservation of energy. Within this system, it regulates internal organ functions, like digestion, heart rate and respiratory rate, as well as reflex actions like gagging, sneezing, and swallowing.

How does the Vagus Nerve function?

The vagus nerve communicates with organs in the body via motor and sensory impulses. Signals run up and down the vagus nerve. They tell your brain when you’re hungry or full, signal the muscles in your stomach to start the digestion process, slow down your heart rate, among many other crucial functions.

The vagus nerve is also intimately involved within the microbiome-gut-brain axis, and even allows the microbes in the gut to directly communicate with the brain. Having a “gut feeling” stem from this connection.

The vagus nerve impacts various organs in the body, from the brain through the heart and lungs to the gut including the liver, pancreas, gallbladder, kidneys and spleen. On top of all that, it’s also shown to have

potent anti-inflammatory effects throughout the body. This has led researchers to believe that Vagus Nerve Stimulation may be important in reducing inflammation and treating and preventing many chronic diseases.

What symptoms could I experience?

Since the vagus nerve runs throughout much of the body and impacts so many areas, damage, or dysfunction to it can trigger a variety of symptoms, including;

- Brain Fog
- Loss of gag reflex
- Hoarseness, whispering or nasal voice
- Difficulty swallowing (dysphagia)
- Breathlessness
- Heart arrhythmia (irregular heart rate)
- Change in blood pressure
- Decreased production of stomach acid
- Esophageal motility disorders (like acid reflux or GERD)
- Fatigue
- Anxiety
- Depression
- Irritable bowel syndrome (IBS)
- Gastroparesis (delayed gastric emptying)

What symptoms you experience may depend on what part of the nerve is affected and the activity and strength of the vagus nerve, referred to as vagal tone. Most of the above symptoms are due to underactive nerve activity (or a low vagal tone), but sometimes the vagus nerve can be overstimulated.

How can I Improve Vagal Tone?

Vagal Tone continues to be a growing area of interest for researchers, as it may help treat a wide range of conditions, but there are also many ways you can stimulate the nerve on your own. Below, are some proven techniques.

Breathing Techniques

Breathing has a strong influence on the normal functions of our body, and can affect how we feel i.e. our moods, energy levels and emotions.

Breathing exercises are techniques that can help calm the vagus nerve and relax the nervous system.

Guide to good breathing

- Lie comfortably either on your back or on your side with a pillow under your head and knees.
- Place one hand on your stomach.
- Gently close your mouth, lips together and keep your jaw relaxed.
- Breathe in gently through your nose, feeling your tummy rise and expand 'like a balloon' as you breathe in. The breath should be unforced and silent.
- Breathe out lightly through your nose, if possible, without pushing, keeping your stomach relaxed. Pause at the end of each breath out.
- When you breathe in, your upper chest should be relaxed and not moving. From time to time place your hand on your upper chest to check this.
- As you repeat this sequence be aware of any areas of tension in your body and concentrate on 'letting go', particularly jaw, neck, shoulders, and hands.

Meditation

You can think of mindfulness as engaged relaxation. Luckily, it doesn't take much to feel a positive impact. One of the most accessible ways to practice mindfulness is through meditation. This is easier than you might think. Everyone thinks you have to commit to meditate for 10, 15 or 20 minutes. But you can start with a one-minute meditation practice.

Where you do this one-minute meditation varies and there's no right or wrong place to practice as long as it's relatively quiet and you're unlikely to be disturbed. The next steps are simple:

- Breathe in for five seconds, and then breathe out for five seconds.
- Now do that five more times.
- That's it. That's one-minute meditation.
- A one-minute meditation can have a long-term impact. In fact, don't be surprised if you find yourself starting to meditate for longer periods of time. It may not seem like a lot, but it adds up.

A minute of meditation every day equals 30 minutes in a month, and six hours in a year. That's a lot more than zero.

In addition to helping with stress relief, practicing mindfulness can help you feel calmer and more relaxed. Studies have also shown that breathing better and more deeply — both things that occur in mindfulness practice — can improve your overall health. For example, more oxygen flowing to your brain is always a good thing and can improve your concentration and ability to solve problems.

In addition to meditation, here are other tips you can use to start practicing mindfulness.

- Get a massage
- Go fishing
- Go for a walk
- Walk the dog
- Curl up with a book
- Watch the sunrise/sunset
- Go for a swim
- Knit or crochet
- Savor a cup of tea/coffee
- Treat yourself to a pedicure/manicure.
- Plant flowers / garden
- Sit by a roaring fire
- Eat lunch outside
- Write in a journal
- Take a pottery class
- Go camping
- Try yoga / tai chi
- Join a book club
- Listen to classical music
- Do a hands-on craft (woodworking or painting).

Massage and Aromatherapy

Having a massage is an effective way to improve vagal tone and promote improved mental health and well-being.

Different pressure points throughout the body can stimulate and relax the vagus nerve. Pressure points can be found in the stomach, ear, feet, and neck and are easy to massage. These pressure points can be massaged in a circular and firm motion to allow activation of the nerve endings and promote a sense of relaxation through the parasympathetic nervous system.

Aromatherapy research demonstrates the ability for you to create homeostasis (balance) within the nervous system and calm anxiety. Bergamot and Lavender have been shown to help reduce stress and can be used within several ways, for example, smelling, wearing, adding to massage oils or simply adding into your bath to enjoy the relaxing effects.

Singing, Chanting and Laughing

Using your vocal cords to sing, chant, hum and even laugh can work tremendously well due the vibrations created within the throat.

It also has the added benefit of lightening your mood and making your day a little better. Singing especially, helps to release oxytocin also known as the “happy hormone”. This helps improve mood. Positive emotions are extremely beneficial to the activation and stimulation of the vagus nerve in order calm the parasympathetic nervous system.

Other ways to induce these positive emotions:

- Spend time in outside and absorbing nature calms the nervous system along with,
- Listening to the birds
- Finding beauty in sights such as watching the sunset or appreciating a beautiful view
- Playing with your pet is shown to reduce stress and release happy hormones.

- Praying, if you are a person of faith, can be calming and reduce anxiety.
- Reduce social media usage.

Gratitude journaling

Journalling is another way to really improve mood and relax in order to bring about and restore calm. Journalling is simply writing down your thoughts and feelings to understand them more clearly. If you struggle with stress, depression or anxiety, keeping a journal can be a great idea. Reflecting on something that you are grateful for is a great way to pick up your mood and refocus your mind, this is also known as acknowledging gratitude. Including gratitude within reflective practice is important to reflect on the positive aspects within your day. Write down what you are grateful for and try to expand as much of possible on this.

Cold hydrotherapy

For years studies have shown great benefit to immersing the body in cold water (<15°C). These studies have shown results to increase mood, reduce pain in the muscles and even boost the immune system. However, studies have also shown that when immersing the body or even just the face in cold water the parasympathetic system increases (rest and digest system). The reasoning behind this is that the vagus nerve has been stimulated.

Simple ways to incorporate this into your daily routine is by taking a cold shower, immersing your face in a bowl of cold water or even try open water swimming – there are plenty of local activity centres which offer this. Here is a link if this is something you wish to explore www.swimming.org/openwater/.

Yoga

Yoga is a great way to reduce the body's stress level. By reducing the stress in the body, we decrease the activation of the sympathetic nervous system and increase the activation of the parasympathetic nervous system and in turn, the vagus nerve is stimulated. This can also help lift mood, reduce pain and is a great way for an individual experiencing Long COVID to move

their body with subtle exercise.

Probiotics

The vagus nerve plays a significant part in the regulation of the gut and digestive system. Studies have shown that the microorganisms within the gut can impact the vagus nerve and its process in reducing and preventing inflammation within the gut.

Probiotics are a great way to improve the brain and gut signals of communication and in turn produce improved health and immune system.

Examples of probiotics are:

- Kefir
- Yogurt
- Drinks
- Fermented vegetables
- Sourdough bread
- Kombucha
- Sauerkraut
- Miso
- Pickles
- Raw Cheese

3. Contacts and further information

Useful websites

- www.clevelandclinic.org Vagus nerve stimulation
- www.dietvsdisease.org/vagus-nerve