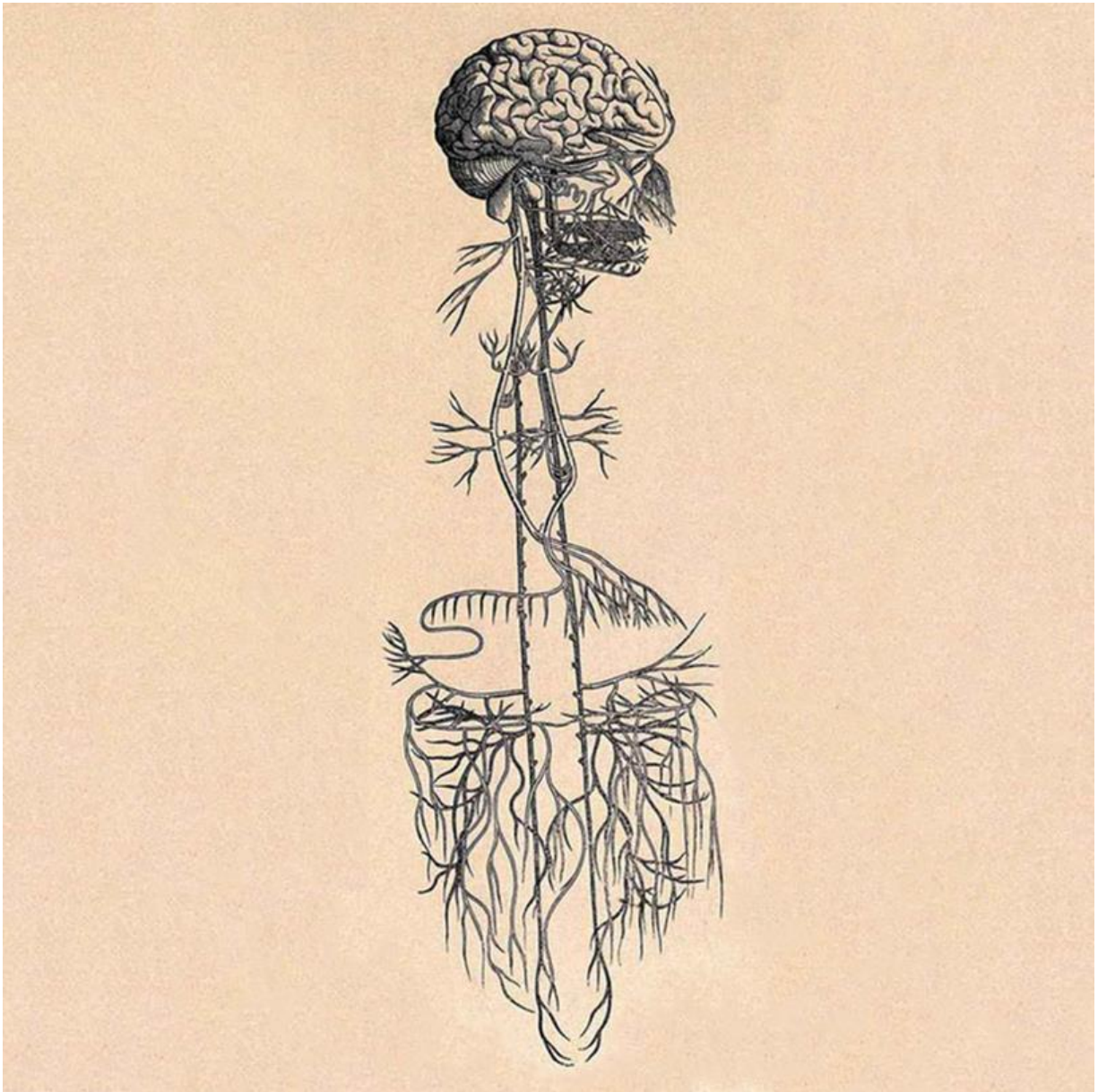


# tVNS – transcutaneous Vagus Nerve Stimulation

Transcutaneous means external contact with the skin.

The Latin word vagus literally means "wandering".

The vagus nerve is the longest nerve in the body and “wanders” from head to groin. It controls the ANS (autonomic nervous system) functions and activates our Sympathetic or Parasympathetic modes.



## Table of Contents

An Introduction to your Vagus Nerve - Diabetes, Digestion, Depression, Pain, High Blood Pressure, Stress, Low Sex Drive, Brain Fog, Chronic Inflammation, Fatigue.... Anyone experience any of these? .....	2
The Autonomic Nervous System (ANS).....	3
There are 2 states of the ANS .....	4
CAUTION .....	4
Increasing Vagal Tone, the potential benefits .....	5
HRV – Heart Rate Variability and aging .....	5
Measuring HRV .....	5
Reprogram the Brain the natural way or the tVNS way .....	6
A simple TENS device for tVNS.....	7
Settings – vagus stimulation protocol.....	7
Conductive Gel.....	3
The Ear Clip .....	3
Polarity Matters .....	3
Where to contact the Ear matters as does which ear .....	4
Ear Clip Placement .....	5
Clinical References .....	6
Commercial tVNS companies.....	7
Electrical Stimulation .....	7
Physical (mechanical vibratory) stimulation .....	7
Oral for TBI (traumatic brain injury) .....	7
Implant for epileptic treatment and autoimmune disorders. ....	7
Clinical Study – If you want a deeper understanding of your self-hacking.....	8
ONE YEAR RESULTS .....	9
HRV Predicts a Health issue. ....	10

## An Introduction to your Vagus Nerve - Diabetes, Digestion, Depression, Pain, High Blood Pressure, Stress, Low Sex Drive, Brain Fog, Chronic Inflammation, Fatigue.... Anyone experience any of these?

Do you have issues with any of the above? Have you tried all the “conventional” therapies and treatments? If you have and you are not happy with your progress, you may consider looking into stimulating your vagus nerve.

There are many clinically proven benefits when we increase vagal tone. This is exciting and practical science that anyone can do. Do you have 10 to 20 minutes of sitting down doing nothing time?

The first thing to do is to find a way to measure your vagus nerve tone. My philosophy is that if I can't measure it, I can't manage it. I use a scale every day for feedback on my eating habits. I check my BP twice a week. I have my annual checkup with full blood work so my Dr. and I can consult on measured aspects of my health and make a plan. I also do an epigenetic DNA methylation test every 9 months to monitor my epigenetic age vs my chronological age (68 as of 2024). As of January 2024, the test indicates my Extrinsic age (immunosenescence) is 26 years younger and my Intrinsic Age (epigenetic age) is 8 years younger, my DunedinPace of Aging is 0.94, when less than 1 it indicates a slower rate of aging.

**How do we measure our vagus nerve tone?** The easiest way is to measure HRV, Heart Rate Variability. There is a section on this important aspect of our health further down this paper.

I've been monitoring my HRV since the first time I heard about it. I started monitoring without doing anything to increase my vagal tone, specifically to get a baseline of where my vagal tone was. I was a bit surprised at how low my numbers were, 40 to 47 over a 7-day period, out of a potential 100 this seemed low and yes, it is. For my age group I should see 50 to 55, so what to do?

After reading over 30 clinical docs on the technology that could stimulate my vagus nerve I realized, I can do that! Most of the techniques were quite technical and the tests were run in a lab environment with lots of good equipment and procedures to ensure results would be measured accurately and documented. Some testing even included MRI's to watch the brain respond in real time to tVNS methods. There is a LOT of research in this area, for good reason.

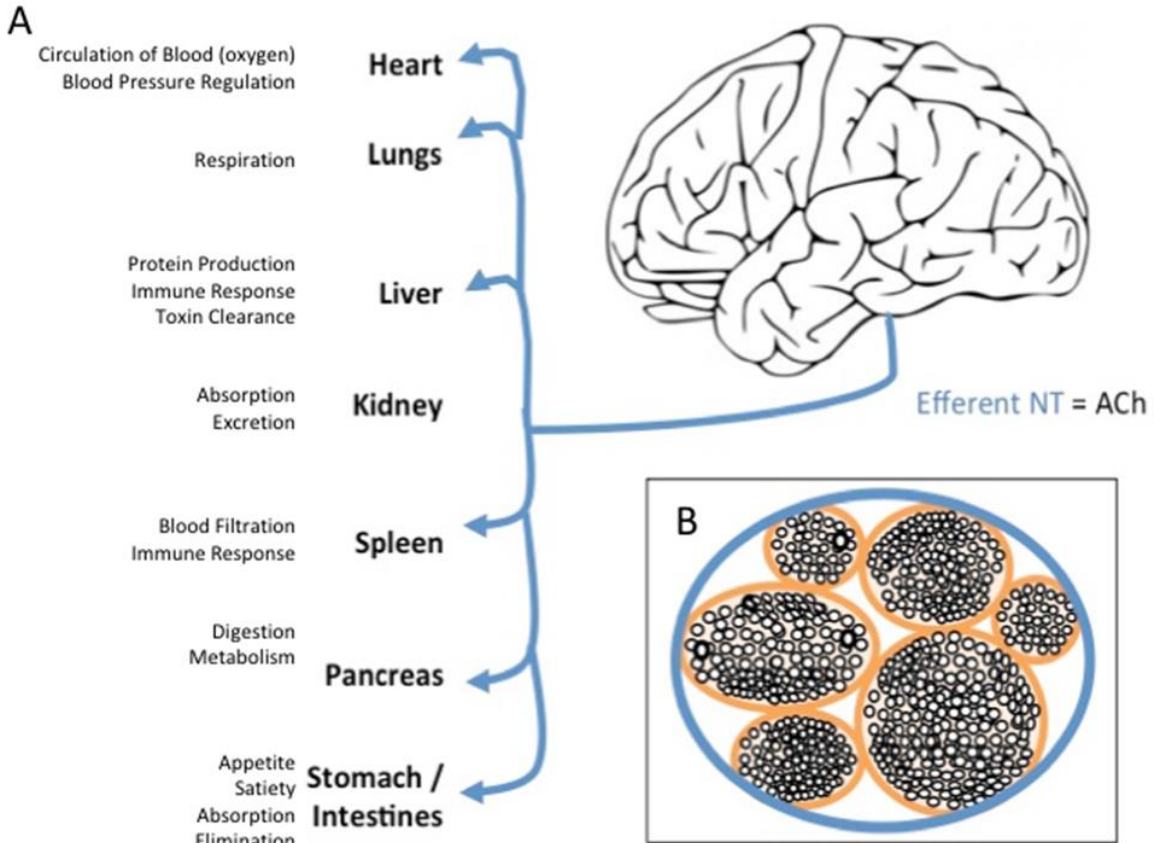
After reading more than a few of these docs I realized anyone could make their own tVNS system. Yes, there are a variety of commercial units available, and I will list some that I have found in an index to this document. But I'm a hacker/maker type, been hacking stuff for over 50 years, how hard could it be? Turns out it is not difficult to DIY an effective tVNS setup.

Remember when I mentioned my HRV was 40 to 47? Well in a very short period of time it came up to 50 to 52 on average. In 2021 I have made some adjustments, and my average is now 57. This is above average for my age group.

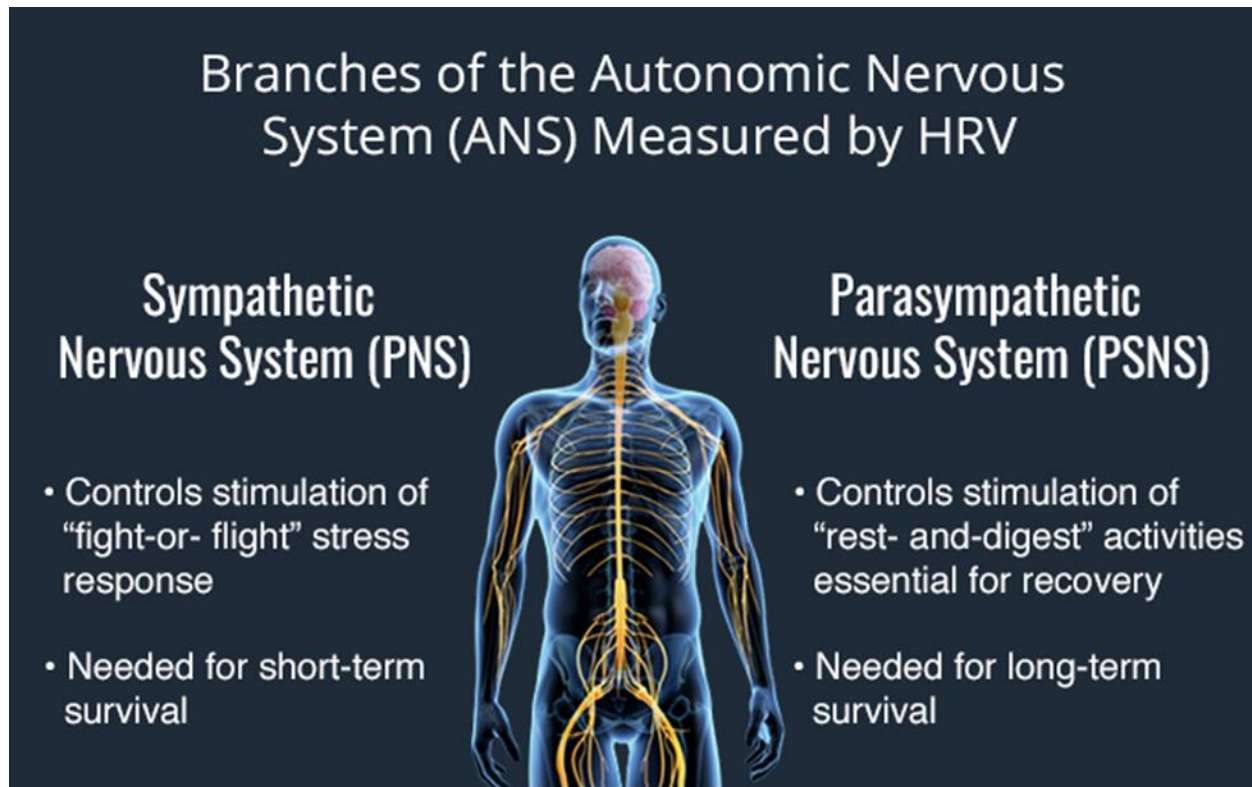
There are a number of natural ways to increase your vagal tone but I personally don't have the time to do those things, well maybe I do have the time but I don't have the inclination 😊

# The Autonomic Nervous System (ANS)

The ANS controls all the bodies activities you don't have to think about. The ANS is what keeps our heart beating and the rate at which it beats as well as the other systems that basically function on autopilot like breathing, digestion, waste processing, etc.



There are 2 states of the ANS



**Sympathetic** - this is our “flight or fight” mode, puts a lot of stress on the body

**Parasympathetic** - this is the “rest and digest” mode, our normal, long term healthy state

These 2 states are critical to all aspects of our health. Without the Sympathetic mode (fight or flight) we would not have the alertness, strength and quick reactions required to get out of danger. This mode releases adrenaline and jump starts our bodies into a heightened level of awareness. This mode is also harmful if we stay in it too long or too often, especially when there is nothing to run from.

The Parasympathetic mode (rest and digest) is where we need to be for long term health. Over the centuries, people have sought out life styles that enable a healthy ANS even when it was not known this was what they were doing. Guru's, Shaman and many others have promoted chanting, meditation, restricted diets, etc. Northern people have embraced the cold, while today some take daily ice baths. It turns out these processes provide benefits for our body and mind.

## CAUTION

Do not use TENS if you have any implants, like a pacemaker, if you have a heart condition, or are pregnant, etc.

Please consult your physician before self experimenting.

## Increasing Vagal Tone, the potential benefits

In 2010, researchers discovered a positive feedback loop between high vagal tone, positive emotions, and good physical health. In other words, the more you increase your vagal tone, the more your physical and mental health will improve, the converse is also true, poor vagal tone will lead to illness.

Mothers who are depressed, anxious, and angry during their pregnancy have lower vagal activity. And once they give birth to their child, the newborn also has low vagal activity along with low dopamine and serotonin levels.

“The vagal response reduces stress. It reduces our heart rate and blood pressure. It changes the function of certain parts of the brain, stimulates digestion, all those things that happen when we are relaxed.”—Dr. Mladen Golubic, MD, Medical Director of the Cleveland Clinic

How do you know that your efforts to increase vagal tone are working? You can measure HRV.

## HRV – Heart Rate Variability and aging

As people age, one of the significant age-related markers is a reduction in HRV (heart rate variability). Having high variability in your heart rate is a good thing, the lower your HRV, the higher your risk of various conditions. Your heart is a dynamic system within a very dynamic system, the human body. The heart is intended to vary its rate based on very short-term demands. It should vary continuously. As we age the Sympathetic (fight or flight) system takes over and this causes our heart rate to become less variable. The heart begins to beat like a metronome, increasing blood pressure and heart fatigue and contributing to heart disease.

Knowing the HRV number is one of the ways elite athletes have of knowing how hard to train, to be effective and to avoid over training.

Here are a couple charts (and there are others) on HRV averages based on age.

<https://elitehrv.com/normal-heart-rate-variability-age-gender>

<https://www.whoop.com/thelocker/heart-rate-variability-hrv/>

## Measuring HRV

The <https://elitehrv.com/science> app is one of the best ways to measure HRV. This is a good way to understand your vagal tone and if your efforts are working. By measuring your HRV consistently over time you will establish a trend that will clearly show if your vagal tone is improving or not. You will also gain insights into your health, [see the kidney stone story at the end of this document.](#)

Have you ever wondered why older people are more cautious? more paranoid? more depressed? have less energy? don't sleep well? etc. It's a complicated formula for ultimate health as we age.

"For the first time, we have shown that age-related autonomic, quality of life, mood and sleep changes may be improved with transcutaneous vagus nerve stimulation administered [for 15 minutes] every day for two weeks. Importantly, the findings point to the influence of initial values in determining magnitude and direction of change following tVNS: high initial sympathetic prevalence, tension, depression, anger and confusion and low energy and sleep quality were associated with greater improvements."

This therapy is a significant add-on to the Combilytics lifestyle philosophy. We know the benefits of clearing senescent cells, now we can add the benefit of re-calibrating the ANS function of our brain while on our journey of becoming a more whole and normalized human being.

The EliteHRV app <https://elitehrv.com/> will collect and interpret the data, now you need an accurate device to provide that data. I've tried Wahoo Ticker and Polar H10 strap as the sensor and they both work well. There are no "general" use smartwatches that are accurate enough as of 2024.

The Whoop system is also an excellent option, monitors HRV and other health parameters. <https://www.whoop.com/>

The Heartmath app and sensor look like a good alternative as well. <https://www.heartmath.com>

## Reprogram the Brain, the natural way or the tVNS way

Basically, we are going to reprogram a very important part of our brain to function like it's young again.

There are benefits from improving vagal tone for adults of all ages!

As we age, the ANS gets out of balance and the Sympathetic side takes a higher precedent. This means we spend more time in the fight or flight mode, thereby causing excess adrenaline to be produced and we suffer from more "stress" type health issues.

What needs to be done to enjoy the benefits of tVNS?

There are natural ways to stimulate and "tone" the vagus nerve. Guru's, Shaman and other mystic types have been engaging in these activities, which happen to tone the vagus nerve, for thousands of years. Here are a number of ways to tone your vagus nerve naturally.

1. Cold - like ice baths, polar bear dips.
2. Meditation
3. Controlled breathing
4. Chanting, singing, even gargling
5. Calorie restricted diets
6. Exercise
7. Massage
8. Socializing and Laughing
9. Probiotics – 2 that are tested, Lactobacillus Rhamnosus, Bifidobacterium Longum
10. Omega-3 Fatty Acids – do not increase your Omega-6, that is counter productive and harmful.

Most people don't have the discipline, time, space or opportunity to perform the many natural methods consistently throughout their life **nor do people measure results.**

## A simple TENS device for tVNS

Readily available low-cost TENS units (Transcutaneous Electrical Nerve Stimulation) can do the job of providing the electrical stimulus, and proper ear clips are now available on Amazon and other sources.

These TENS units can also do EMS, electrical muscle stimulation. We do NOT want to be in the EMS mode. As you set your TENS unit up be aware of the mode you are in. Once everything is set up, it will retain the settings even if the battery is removed so all you will need to do going forward it turn it on.

There are a lot of low-cost TENS units, we've purchased 5 different versions of TENS units and this one is the best type for tVNS applications due to its adjustability. There are several "brands" of this same unit, they should all be the same and have the same features; iSTIM, TENS 5000 or TENS 7000 is the type we've settled on, in 2022 we switched to the rechargeable version, the EV-804.

<https://www.amazon.ca/Digital-Relief-System-Muscle-Joint/dp/B00A4BSD22>

<https://www.amazon.com/TENS-7000-Digital-Unit-Accessories/dp/B00NCRE4GO>

The rechargeable one is a bit more expensive, but it is my favorite so far. I find the power or intensity control to be more easily adjustable and the rechargeable aspect is nice, so you don't need to keep a spare 9V battery handy, "just in case".

### iStim EV-804 TENS/EMS 2 Channel Rechargeable

[https://www.amazon.com/dp/B07D1YPTGF/ref=sspa\\_dk\\_detail\\_0](https://www.amazon.com/dp/B07D1YPTGF/ref=sspa_dk_detail_0)

These devices are available in 2 or 4 channel versions you only need the 2-channel version. We will only use 1 channel; it does not matter if you use channel 1 or 2.

## Settings – vagus stimulation protocol

The settings for the TENS unit are very specific for tVNS applications. The TENS unit will be used to provide electrical stimulation and this electric signal has 5 variables that we can adjust;

- 1) **Mode** – constant or modulated
- 2) **Power** – ma (milli-amps) or level of power, i.e. current
- 3) **Pulse width** – in  $\mu$ s (micro-seconds)
- 4) **Frequency** – in Hz (hertz or cycles per second)
- 5) **Time** – how long to run the device.

**Mode** – this refers to how the current is delivered, there are 2 main options, Normal or Modulation often just seen as "M" on the screen. Modulation is the best setting as it will vary the current up and down through the timed cycle. Modulation prevents adapting to a constant current source.

**Power** - relates to the amount of current (milli-amps) applied to the skin and is typically between 2ma and 5ma. This is a very low current, but the TENS units are capable of 100ma so it's important to move the power dial very slowly and carefully. The worst that will happen is a very sharp stinging sensation but would cause no damage, just discomfort. The objective is to just "feel" the tingle and turn the power down until it is barely noticeable. I have found that with the TENS 5000 a setting around 1.5 to 2



on the dial is where it works best for me. A high level of stimulation is not required, tVNS should NOT be uncomfortable.

**Pulse width** - references how wide the electrical pulse will be. Tests indicate it should be around 250 $\mu$ s (micro-seconds) wide. Tests have been done with a variety of pulse widths from 50 $\mu$ s to 500 $\mu$ s and the sweet spot appears to be 250 $\mu$ s. This is something you can experiment with and see results in your HRV monitoring. This would be one of the last variables to experiment with.

**Frequency** - is measured in Hz = hertz or cycles per second. This is the time from one pulse to another and this is fairly low at 25hz to 100hz. A good starting point is 40hz. This is something you can experiment with and see results in your HRV monitoring. Different frequencies will affect different ANS functions. If experimenting with this parameter, increase or decrease by 10Hz for 30 days to evaluate the effect. Go from 40 to 30Hz for example, assess the measured change in your HRV or what ever else you may be measuring. The 100hz frequency has shown in clinical tests to reduce blood pressure for some but not all people.

**Time** – this is somewhat of a personal preference; you may choose to do 3 or 4 short (5 to 10 min) sessions a day or 1 longer session. I prefer one 20-minute session 4 to 5 times a week in the evening while watching TV.



## Conductive Gel

Wipe your ear with an alcohol swab to ensure clean skin as this will lower resistance and help to ensure a better electrical contact. High resistance requires a higher power level, which may cause discomfort.

For current to be conducted effectively with TENS equipment, a conductive gel is used on clean skin. This ensures a low resistance contact that will also be more comfortable. Use a conductive gel, a small dab on the 2 contact points of the ear clip is all it takes. US and Cdn sources;

[https://www.amazon.com/Spectra-PAR12-02-Parker-Laboratories-Electrode/dp/B00AMGUZ70/ref=pd\\_bxgy\\_2/145-1290498-3828201](https://www.amazon.com/Spectra-PAR12-02-Parker-Laboratories-Electrode/dp/B00AMGUZ70/ref=pd_bxgy_2/145-1290498-3828201)

[https://www.amazon.ca/Parker-15-60pk3-15-60-SignaGel-Conductivity/dp/B0744PTVZQ/ref=sr\\_1\\_3?](https://www.amazon.ca/Parker-15-60pk3-15-60-SignaGel-Conductivity/dp/B0744PTVZQ/ref=sr_1_3?)

## The Ear Clip

The ear clip is one of the keys to successful implementation of this protocol. Here are 2 sources;

An OK version, I have used this one, I did round the Red side a bit for more contact in the ear canal.

[https://www.amazon.ca/Electrode-Vagus-Device-Double-Silicone/dp/B0C88V4FFW/ref=sr\\_1\\_7](https://www.amazon.ca/Electrode-Vagus-Device-Double-Silicone/dp/B0C88V4FFW/ref=sr_1_7)

This one is also very good and I've used these from the beginning.

<https://nemechektechnologies.shop/>

Note: that **POLARIY MATTERS**, you must ensure that the + positive (RED) pole is on the inside of your ear canal. Use the RED lead as your indicator for a positive pole.

## Polarity Matters

Polarity means positive (+) and negative (-) current flow. Studies indicate that the positive pole of the ear clip must be the one that stimulates the vagus nerve in the ear. This means the + side of the ear clip goes in your ear canal. The negative pole is to be placed in a manner that it is not near the vagus nerve endings, like the outside of your ear.

There are several VERY important aspects for an effective tVNS ear clip;

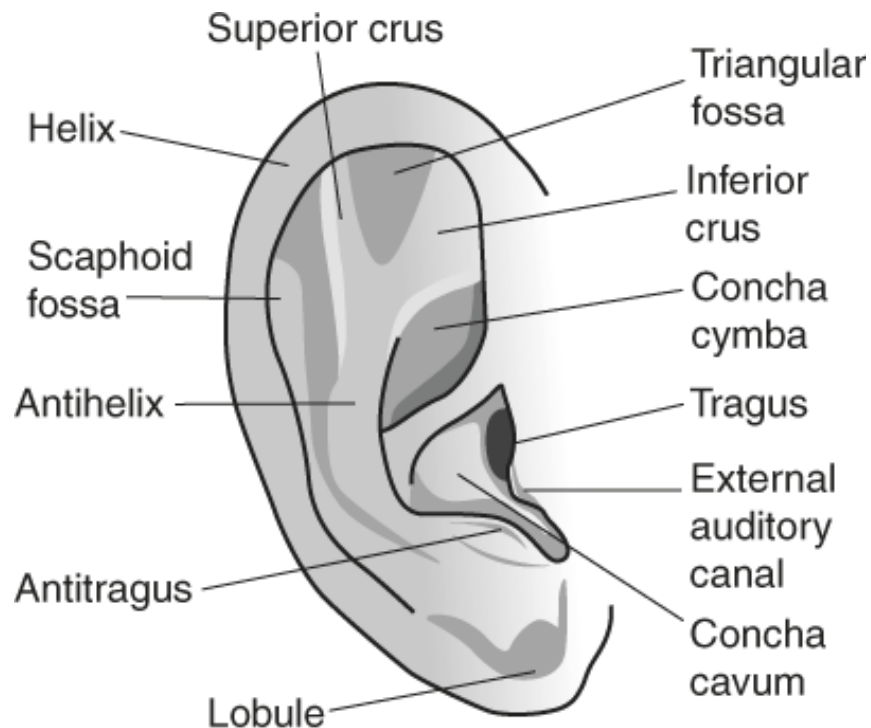
1. TWO CONNECTIONS – For any TENS systems to work there must be 2 connections ( + and - ) to the body to complete the electrical circuit, most readily available ear clips only have one connection.
2. POLARITY is important, you must have the + or positive connection on the inside of the ear, on the anterior wall of the ear canal.
3. COLOUR – a RED conductor indicates + In most cases you will have a cable with 2 coloured conductors/connections. The easiest to understand is a RED and a BLACK (or WHITE) 2 conductor cable as RED = + and BLACK = -

Where to contact the Ear matters, which ear is best?

**Connect to the LEFT EAR only.** The right ear may have a closer connection to the heart, and we do not want to directly stimulate the heart. There is no inherent risk with this but it's not beneficial to stimulate the heart.

The vagus nerve is present in several parts of the ear, one area of interest is the ear canal, specifically the anterior portion. Anterior references the "front" of the ear canal, towards your face. The other area is the concha cymba. This may be the best position, but it is more difficult to establish a connection there.

With a 2-pole clip, we will contact the anterior wall of the ear canal with the + (red) side of the ear clip and the outside of the tragus with the - (black) side of the ear clip. While this sounds overly anatomical, it is very important, but it is also easy and quite natural once you do it. There is a picture further down showing how this is done.



Source: Lalwani AK: *CURRENT Diagnosis & Treatment in Otolaryngology – Head & Neck Surgery, 3rd Edition*:  
www.accesssurgery.com  
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## Ear Clip Placement

Note that the wire is going over the top of the head, this helps keep the ear clip in place. The ear clip in this picture has been rotated a bit to show the red + side of the clip in the ear canal. The black side of the clip would be a little higher and placed on the tragus, the protruding part of the ear. Interestingly the tragus is there to help you pick up sound that is behind you.



## Clinical References

Tragus or cymba conchae? Investigating the anatomical foundation of transcutaneous auricular vagus nerve stimulation (taVNS)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6607436/>

The anatomical basis for transcutaneous auricular vagus nerve stimulation

<https://onlinelibrary.wiley.com/doi/full/10.1111/joa.13122>

Acute vagus nerve stimulation using different pulse widths produces varying brain effects

[https://www.researchgate.net/publication/8649841\\_Acute\\_vagus\\_nerve\\_stimulation\\_using\\_different\\_pulse\\_widths\\_produces\\_varying\\_brain\\_effects](https://www.researchgate.net/publication/8649841_Acute_vagus_nerve_stimulation_using_different_pulse_widths_produces_varying_brain_effects)

Non-invasive Low-level Tragus Stimulation in Cardiovascular Diseases

<https://www.aerjournal.com/articles/non-invasive-low-level-tractus-stimulation-cardiovascular-diseases>

Vagus Nerve Stimulation Dramatically Reduces Inflammation

Stimulating the vagus nerve reduces inflammation and the symptoms of arthritis.

<https://www.psychologytoday.com/ca/blog/the-athletes-way/201607/vagus-nerve-stimulation-dramatically-reduces-inflammation>

Realizing the Benefits of Vagus Nerve Stimulation – an implant story

<https://www.brainfacts.org/brain-anatomy-and-function/body-systems/2019/realizing-the-benefits-of-vagus-nerve-stimulation-042419>

Noninvasive Ear-Clip Nerve Stimulation Suppresses Atrial Fibrillation

New approach could change how patients are treated for AFib

<https://www.dicardiology.com/content/noninvasive-ear-clip-nerve-stimulation-suppresses-atrial-fibrillation>

Effects of transcutaneous vagus nerve stimulation in individuals aged 55 years or above: potential benefits of daily stimulation

<https://www.aging-us.com/article/102074/text>

Early cortical biomarkers of longitudinal transcutaneous vagus nerve stimulation treatment success in depression

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5279909/>

Vagal Nerve Stimulation Helps Treat Chronic Pain

<https://www.hospimedica.com/patient-care/articles/294782862/vagal-nerve-stimulation-helps-treat-chronic-pain.html>

Non-Invasive Nerve Stimulation Boosts Learning of Foreign Language Sounds

<https://www.upmc.com/media/news/080620-mandarin-vagus-stim>

## Commercial tVNS companies

### Electrical Stimulation

I've purchased and used several commercial units. None have provided better results than the "home made" version and a few have not provided any measurable results.

<https://coolstim.com/>

<https://neuvanalife.com/>

<https://nemechektechnologies.shop/>

<https://www.szelestim.com/>

<https://nemos.t-vns.com/en/>

<https://www.gammacore.com/>

<https://www.parasym.co/>

### Physical (mechanical vibratory) stimulation

<https://apolloneuro.com/>

<https://www.getsensate.com/>

### Oral for TBI (traumatic brain injury)

<https://www.ponstreatment.ca/>

### Implant for epileptic treatment and autoimmune disorders.

<https://setpointmedical.com/bioelectronic-medicine-therapy/setpoint-platform/>

## Clinical Study – If you want a deeper understanding of your self-hacking

As suggested by Oliver Zolman <https://www.oliverzolman.com/>

Oliver earned his M.B.B.S. from King's College London, England (equivalent to the US M.D.) and also earned a BSc in Regenerative Medicine, Aging & Medical Device Innovation Technology, with First Class Honours.

Oliver has received the following awards:

King's College London social enterprise award  
Weizmann Institute of Science scholarship  
and a visiting Fellowship in Evidence Based Medicine, at the University of Sydney

He is currently a member of the Cambridge University Judge Business School Accelerator Program

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How to prove self-experiment tVNS interventions with HRV measurements:

To conduct your own N = 1 trial (Number in trial = 1), here are the steps to follow;

To prove any intervention works for HRV we need to track the following data for a double set AB test (ABAB test)

- 1) Daily measurement of HRV – Whoop, EliteHRV, Vagus ECG smartwatch, etc.
- 2) Measure only 1 timer per day, upon waking.
- 3) Sitting, laying or standing status – pick one and be consistent
- 4) Calorie intake, e.g. cronometer or myfitness pal
- 5) Exercise METs, e.g. Whoop does this automatically
  - a. <https://www.healthline.com/health/what-are-mets>
- 6) Whether used TENS day before or not
- 7) Document all TENS settings – see “Settings – stimulation protocol” page 8 above.
- 8) Total sleep time, Whoop does this automatically
- 9) Presence of any illness or infection

Any planned change to the stimulation protocol would require a 30 day period of no tVNS to allow the vagus nerve to normalize. During this time, continue to track all other data.

All HRV readings must be for 3 mins +

## ONE YEAR RESULTS

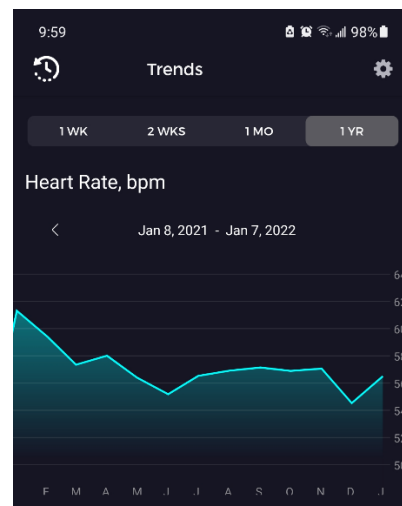
Here are my 1 year HRV results from Jan 2021 to Jan 2022. When you start doing this you will see a lot of spikes in your data, both up and down. Don't get discouraged with these variations, they are normal. The goal is to be on a path of continuous, long-term improvement.

These 2 charts show the improvement in my HRV over time, the left one is the raw data, the right one shows a 7-day rolling average.



The dip in Jan 2022 is mostly due to a partial month and that I received my 3<sup>rd</sup> dose of mRNA vaccination. As can be seen, my HRV is increasing pretty consistently over time. Starting in June, I increased the **frequency** by 10hz every month from 25 to 35, 35 to 45 and in December 2021 I'm now at 95hz.

Here are a couple of other annual charts. The left one is Readiness an indicator of the body's readiness to work, both physically and mentally. The right chart shows that my resting heart rate (RHR) continues to improve.





## HRV Predicts a Health issue.

I've been experimenting with tVNS since 2020 to increase my HRV (Heart Rate Variability). To know for sure if this is changing my ANS I've been using an HRV monitoring system.

tVNS is hard science, backed up by over 100 studies. Implanted VNS units are used to successfully help people with uncontrollable epileptic seizures as well as untreatable depression. Stimulating the vagus nerve is a proven method for improving recovery, mental health, digestive health, heart health, the list is long and getting longer every year.

I like data so I've been using a device and app to track my progress over time. The tVNS protocol I'm using has increased my HRV from 40 - 47 a year ago to 55 - 57. Above average for my age group.

The app I use is <https://elitehrv.com/> and I use a Polar 10 strap it senses heart rate as it is accurate enough to provide data for HRV measurements. It can easily be shared.

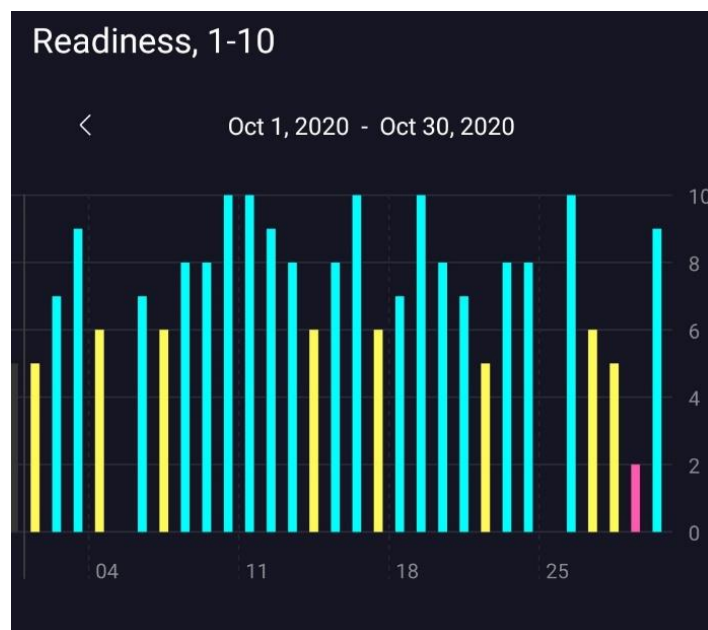
One aspect of HRV that I was kind of skeptical about is the claim it can predict illness. Measuring HRV is also used by elite athletes to understand if they can work harder now or need a recovery period. Anyone considering or participating in high level fitness should use this tech to be better and healthier.

### So, what is this little discourse about?

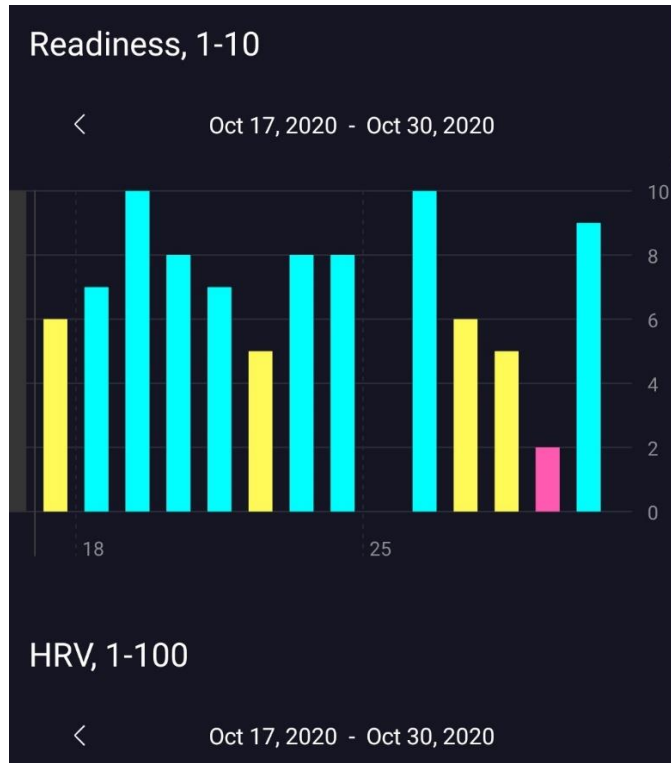
Thursday, Oct 28, 2020 at 2:23AM to be exact, I woke up to a pain in my side. The 5 reading in RED on the far right of the chart below.

Earlier in the week, Monday I felt fine but noticed my urine was discolored and had a slight brown tinge, this is an indication of blood in the urine. Same thing Tuesday and Wednesday but I never clued in to what was happening because there was no pain. I found out early Thursday morning.

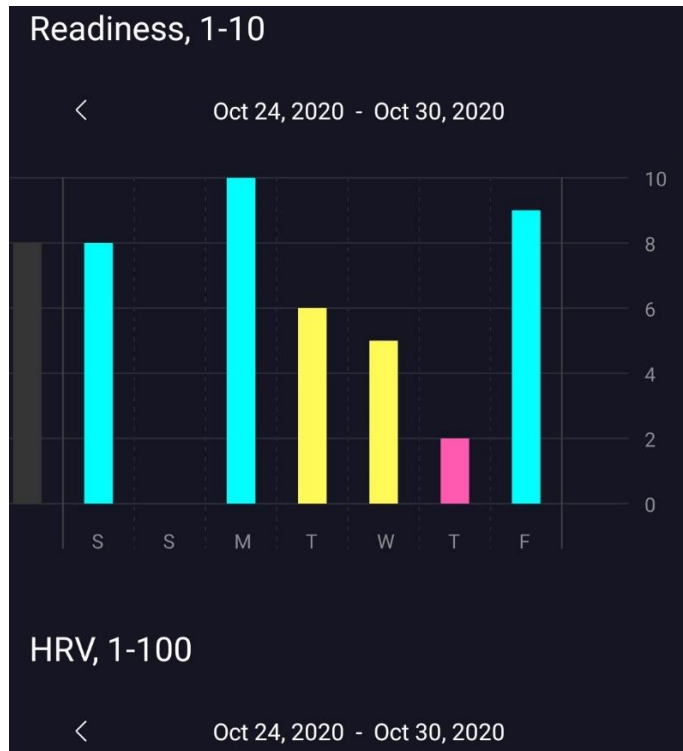
Here is my monthly chart where you can see I'm mostly in parasympathetic mode, the light blue.



Here is my 2-week chart showing the week previous to and then the week of the kidney stone



Here is my weekly chart when the “incident” was predicted by HRV analysis



As you can see, Monday my “readiness” was good. The Readiness score comes from an algorithm that EliteHRV has developed that looks at all the heart related variables. This algorithm lets you know if you are ready to go hard or if you need some sort of recovery, such as breath control, additional rest, etc. I use my home made tVNS device every evening for 20 minutes and it keeps me “ready” the majority of the time. As well as increasing my HRV.

Then Tuesday my “readiness” was declining, even using the tVNS protocol, same for Wednesday. If I was more “aware” this would have been a strong signal that something was happening, an impending illness or something else that was disturbing my autonomic system. I might have correlated this with my urine colour and had a clue that I was about to be laying on the floor at 3:00am Thursday morning.

Thursday morning around 5:00am, after the stone moved out of the ureter and the pain receded, I had a little nap and at 7:30am I started my normal daily routine with my HRV measurement and as expected my “readiness” was extremely low and this is the lowest it’s ever been for me.

That night (Thursday) I continued my tVNS protocol (20 minutes in the evening while watching TV) and you can see the result for Friday morning. For me, this was a very impressive and unexpected recovery.

Originally my primary interest was increasing HRV for basic anti-aging and health reasons and when I discovered there was an app that could measure my HRV, that got me excited as I do like to measure things. Now I’m sold on this type of data and what it can do to help me understand what my body is doing in near real time.

If anyone has questions, please feel free to contact me.

Regards,

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