



SPECIALTY 09 • ANS

Internal Medicine & Specialties

Cardio, respiratory, digestive, vascular, ENT, dry eye and more.

33 SHEETS



What NESA modulates (and what it doesn't)

NESA does not treat or cure any of the conditions covered in these sheets. Its non-invasive neuromodulation acts on the autonomic nervous system (ANS) to help relieve the symptoms associated with its dysregulation —dysautonomia— that accompanies each condition. It does not replace diagnosis, medication or the professional's judgement: it supports them.

IN PLAIN WORDS, FOR THE PATIENT



Your body runs on electricity

Every heartbeat, movement and thought travels as a tiny electrical signal along your nerves.



The ANS is your autopilot

The autonomic nervous system quietly runs your heart, breathing, digestion and sleep — without you thinking about it.



It has an accelerator and a brake

The "sympathetic" switches you on; the "parasympathetic" calms you down. Health is when they take turns at the right time.

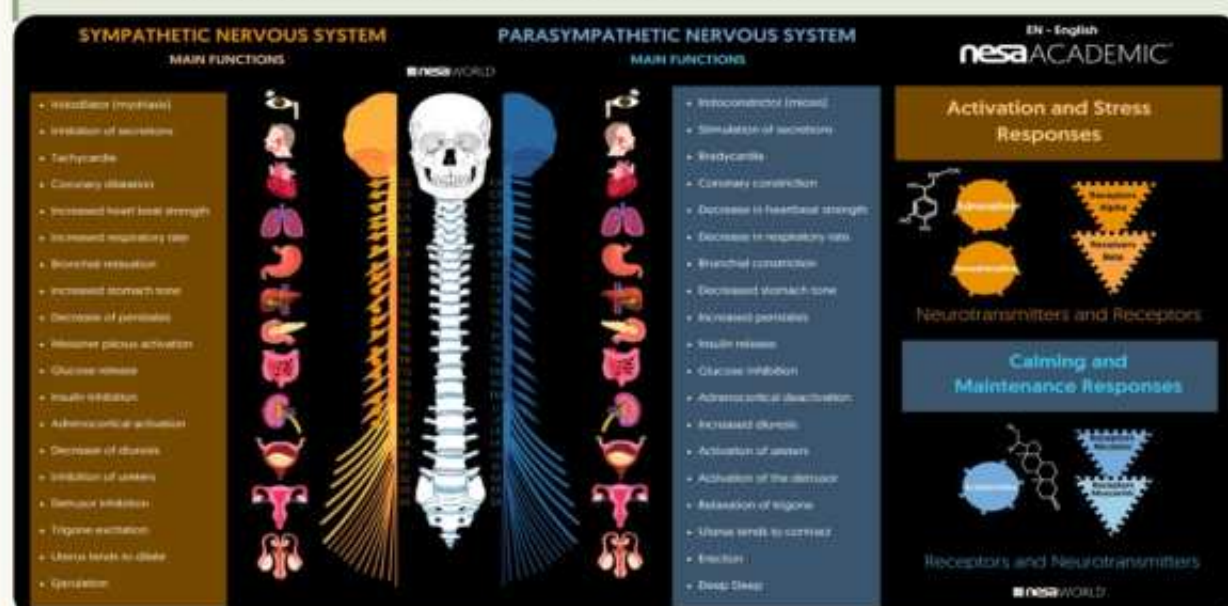


NESA speaks that language

Very gentle microcurrents through hands and feet help the accelerator and brake find their balance again.



Safe and imperceptible. No needles, no heat: the current is so faint it stays below what you can feel. Most people notice nothing during the session.



Main functions of the sympathetic and parasympathetic branches: the physiological ground —the ANS— on which NESA neuromodulation acts.

REFERENCE Goldstein DS, Robertson D, Esler M, Straus SE, Eisenhofer G. *Dysautonomias: clinical disorders of the autonomic nervous system*. Ann Intern Med. 2002;137(9):753–763. • Thayer JF, Lane RD. *A model of neurovisceral integration in emotion regulation and dysregulation*. J Affect Disord. 2000;61(3):201–216.



High blood pressure that won't quite come down

Your blood pressure and your body's conductor, when medication doesn't fully control it.

1 PHASE 1 Do you recognise yourself?

- ✓ High blood pressure despite medication
- ✓ A feeling it never fully drops
- ✓ Poor sleep and rest
- ✓ Pressure or heaviness in the head
- ✓ Worse with stress or nerves
- ✓ Flushing or a hot face

“ Is your blood pressure still high despite treatment?

“ Does it get worse when you are stressed?

3 PHASE 3 The cycle

- 1 Detect the background pressure that won't ease.
- 2 The high accelerator keeps the vessels closed.
- 3 Pressure stays up despite medication → more strain.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a better vagal tone with more relaxed vessels and fewer revs, supporting your medication for blood pressure. (Grassi et al., *Hypertension* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Keep taking your medication and measure your blood pressure at home. NESA **supports** your treatment, it does not replace it.

✓ What you may notice

- ✓ Steadier blood pressure
- ✓ Less pressure in the head
- ✓ Better response to medication
- ✓ More calm under stress

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture *a pipe under too much pressure*. Your nervous system has an “accelerator” and a “brake”: when the brake comes in, the vessels widen and blood flows more calmly.



Accelerator

Sympathetic - closes the vessels and speeds the heart; pressure stays high.



Brake

Parasympathetic - relaxes the vessels and lowers the revs; pressure eases.

With the **accelerator high**, the vessels stay closed and the vagal brake barely engages.



Steadier blood pressure, with less pressure in the head.



Palpitations and an irregular heartbeat

Your heart rhythm and the balance of your nervous system, seen through heart rate variability (HRV).

1 PHASE 1 Do you recognise yourself?

- ✓ Racing or "skipped" beats
- ✓ Triggered by nerves
- ✓ Hard to settle again
- ✓ Irregular beat with no clear cause
- ✓ Startles or light-headedness
- ✓ A pulse that won't keep time

„ Do you feel your heart lurch for no reason?

„ Does it race when you get nervous?

3 PHASE 3 The cycle

- 1 Detect the reactive rhythm and low HRV.
- 2 The accelerator dominates and the tempo turns rigid.
- 3 Palpitations and startles appear → more nerves.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *nervous conductor* who has lost the beat. Your nervous system sets the heart's tempo; as the brake returns, a steadier rhythm comes back.



Accelerator

Sympathetic · a rigid, reactive rhythm with little room to adapt.



Brake

Parasympathetic · softens the tempo and improves variability (HRV).

A low HRV reflects little reserve: the heart runs rigid and lacks vagal brake.



4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ Research links a stronger vagal brake with better HRV, helping to steady the heart's tempo. (Wang et al., *Front. Cardiovasc. Med.* 2026)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Keep your check-ups, your cardiologist and your medication. NESA supports that follow-up.

What you may notice

- ✓ Fewer palpitations
 - ✓ A rhythm that feels steadier
 - ✓ More calm day to day
 - ✓ Better recovery after a fright
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · Wolf et al., *Psychophysiology* 2021 · ANS vagal mechanism; NESA evidence still preliminary.

For use under professional supervision. NESA does not replace your treatment or your medication.

We modulate the autonomic nervous system. Everything else follows.

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Heart failure: fewer revs, more headroom

When the heart is tired and there is little energy for the day.

1 PHASE 1 Do you recognise yourself?

- ✓ Tired with the slightest effort
- ✓ Swollen legs
- ✓ Rest that doesn't restore
- ✓ Breathless when walking
- ✓ Little "battery" all day
- ✓ A sense of overload

“ Do small efforts tire you out?

“ Are you short of breath when walking?

3 PHASE 3 The cycle

- 1 Detect the overload on a tired heart.
- 2 The high accelerator burns the little reserve.
- 3 Fatigue and breathlessness set in → more demand.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *an over-revved engine* wearing itself out. Lowering the revs restores some reserve: your nervous system can help ease that demand.



Accelerator

Over-active sympathetic - overdrives an already tired heart.



Brake

Parasympathetic - eases the overload and leaves a little reserve and rest.

A low vagal tone leaves little reserve; the accelerator asks more than the heart can give.



A little more energy and better rest day to day.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a higher vagal tone with less cardiac overload and a little recovered reserve and rest. (Wang et al., *Front. Cardiovasc. Med.* 2026)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your cardiologist, your medication and fluid control are the basis. NESA supports, it does not replace.

What you may notice

- ✓ A little more energy
- ✓ Better rest
- ✓ Less sense of breathlessness
- ✓ Slightly easier days

It may help; results vary from person to person.

SCIENTIFIC BASIS Grassi, Mark & Esler, *Circ. Res.* 2015 · Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · ANS vagal mechanism; NESA evidence still preliminary.

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Poor circulation: let the blood flow again

Cold feet, tingling or pain when walking that eases when you stop.

1 PHASE 1 Do you recognise yourself?

- ✓ Cold feet or hands
- ✓ Pain when walking that eases on stopping
- ✓ Tingling in legs or feet
- ✓ Pale skin
- ✓ A feeling of closed circulation
- ✓ Heavy legs

“ Do your feet get cold easily?

“ Do your legs hurt when walking and ease when you stop?

3 PHASE 3 The cycle

- 1 Detect the closed flow in feet and legs.
- 2 The accelerator keeps the vessels constricted.
- 3 Cold and pain when walking appear → less movement.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ Research links a better ANS balance with more open vessels and better flow to legs, feet and hands. (ANS in cardiovascular regulation (rev.), *Front. Neurosci.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Your vascular check-ups, your medication and walking as advised are the basis. NESA supports.

✓ What you may notice

- ✓ Warmer feet
- ✓ Walking with less pain
- ✓ A better sense of circulation
- ✓ Less tingling

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture *narrowed roads* with barely any traffic. As the brake comes in, the vessels widen and the flow runs again.

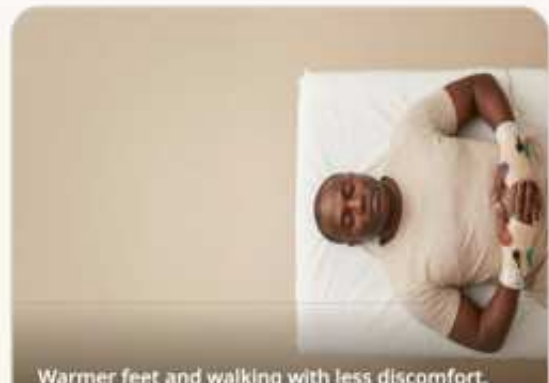
⚡ Accelerator

Sympathetic · narrows the vessels and closes the flow to legs, feet and hands.

⏸ Brake

Parasympathetic · opens the vessels (vasodilation) and improves circulation.

With the **accelerator high**, the vessels stay constricted; the brake that opens them is missing.



Warmer feet and walking with less discomfort.



Raynaud's: cold, stress and your vessels

Fingers that turn white or blue with cold or nerves.

1 PHASE 1 Do you recognise yourself?

- ✓ White or blue fingers in the cold
- ✓ Attacks with stress too
- ✓ Clumsy fingers during an attack
- ✓ Very cold hands all of a sudden
- ✓ Tingling as colour returns
- ✓ Slow return of colour

“ Do your fingers go white in the cold?

“ Does it happen with nerves too?

3 PHASE 3 The cycle

- 1 Detect the triggers (cold, stress).
- 2 The accelerator slams the small vessels shut.
- 3 The fingers lose colour and go cold → more alarm.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *floodgates that slam shut* in the cold. As the body's alarm calms, those gates open again little by little.



Accelerator

Sympathetic · an exaggerated response that slams the small vessels shut.



Brake

Parasympathetic · softens the alarm and lets the vessels reopen.

An exaggerated sympathetic response drives the vasospasm in the fingers.



Less abrupt attacks and a quicker return of colour.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a balanced ANS with attacks that are less abrupt and less frequent. (ANS in cardiovascular regulation (rev.), *Front. Neurosci.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Keep warm, avoid triggers and follow your doctor. NESA supports that care.

What you may notice

- ✓ Fewer attacks
- ✓ Milder episodes
- ✓ A quicker return of colour
- ✓ Slightly warmer hands

It may help; results vary from person to person.

SCIENTIFIC BASIS · Charkoudian & Rabbitts, *Mayo Clin. Proc.* 2009 · Thayer et al., *Int. J. Cardiol.* 2010 · Minguéz-Esteban et al., *Front. Neurosci.* (NESA) · ANS vagal mechanism; NESA evidence still preliminary.

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Slow healing: blood flow so tissue can repair

Wounds that close poorly or ulcers on the legs and feet.

1 PHASE 1 Do you recognise yourself?

- ✓ Wounds slow to close
- ✓ Fragile or breaking skin
- ✓ Poor progress despite dressings
- ✓ Ulcers on legs or feet
- ✓ Little sense of circulation
- ✓ Tissue that won't finish repairing

“ Do your wounds take a long time to close?

“ Do you have ulcers that won't heal?

3 PHASE 3 The cycle

- 1 Detect the flow deficit in the area.
- 2 The **accelerator** keeps perfusion low.
- 3 The wound won't close and tissue suffers → more fragility.

🔄 AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence on the vagal anti-inflammatory reflex links a better vagal tone with less inflammation; together with good circulation, it helps tissue repair. (ANS in cardiovascular regulation (rev.), *Front. Neurosci.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Dressings, diabetes control and your wound-care team are the basis. NESA supports.

✓ What you may notice

- ✓ Better wound progress
 - ✓ Better-nourished skin
 - ✓ Less coldness in the area
 - ✓ Support for routine dressings
- It may help; results vary from person to person.*

2 PHASE 2 What happens in your ANS

Picture a **dry garden** that won't bloom. As circulation returns, the tissue gets what it needs to repair.



Accelerator

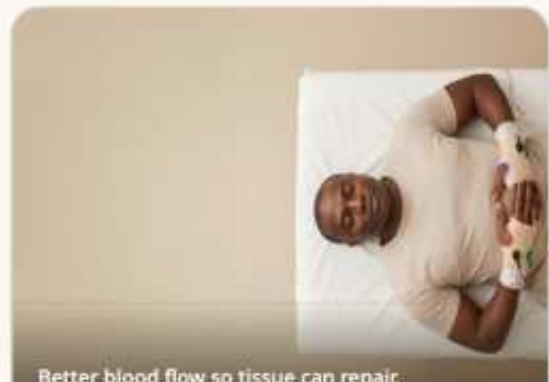
Sympathetic - closed flow; less blood, oxygen and nutrients arrive.



Brake

Parasympathetic - opens the flow and favours tissue repair.

With closed flow, less blood arrives and repair is held back.



Better blood flow so tissue can repair.



Asthma: when the chest tightens

Airways that over-react to cold, exertion or nerves.

1 PHASE 1

Do you recognise yourself?

- ✓ Tight or constricted chest
- ✓ Wheezing when breathing
- ✓ Cough and breathlessness with cold or effort
- ✓ Worse with nerves
- ✓ Breathing that's hard work
- ✓ Attacks that come on suddenly

“ Does your chest tighten with cold or nerves?

“ Do you wheeze when breathing?

3 PHASE 3

The cycle

- 1 Detect the hyper-reactivity of the airways.
- 2 The accelerator makes them over-react.
- 3 An attack arrives: wheeze and breathlessness → more alarm.

🔄 AND IT STARTS AGAIN

2 PHASE 2

What happens in your ANS

Picture *air passages that narrow at the alarm*. As it calms, those passages open wide and air flows better.



Accelerator

Sympathetic - the airways over-react and close easily.



Brake

Balanced parasympathetic - helps the bronchi react less abruptly.

The ANS regulates **airway calibre**; with the accelerator high, the airways turn hyper-reactive.



Easier breathing and fewer attacks.

4 PHASE 4

How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.



The evidence on autonomic airway control and the anti-inflammatory reflex links a better vagal tone with bronchi that react less abruptly. (VNS for bronchoconstriction (rev.), *Front. Physiol.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5

With your professional & what you may notice

With your specialist

Your inhalers and your respiratory physician are the basis; always carry your reliever. NESA supports.

What you may notice

- ✓ Fewer attacks
- ✓ Easier breathing
- ✓ Less wheezing
- ✓ More calm around triggers

It may help; results vary from person to person.

SCIENTIFIC BASIS · Autonomic control of the airways, *Auton. Neurosci.* 2006 · Tracey, *Nature* 2002 · ANS vagal mechanism; NESA evidence still preliminary.

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COPD: lighten the load of breathing

Breathlessness with everyday tasks and tiredness that comes early.

1 PHASE 1 Do you recognise yourself?

- ✓ Breathless with everyday tasks
- ✓ Tiredness that comes early
- ✓ Effort to breathe
- ✓ Cough and phlegm
- ✓ Fear of breathlessness
- ✓ Low tolerance for exercise

“ Are you breathless with everyday things?

“ Do you tire sooner than you'd like?

3 PHASE 3 The cycle

- 1 Detect the background load of breathing.
- 2 The accelerator adds tension and fatigue.
- 3 More breathlessness and exhaustion set in → more effort.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *climbing a hill with a heavy rucksack*. As the body's load lightens, each step costs a little less.



Accelerator

Sympathetic · the effort of breathing keeps tension and fatigue high.



Brake

Parasympathetic · lowers tension and fatigue and helps you get more from rehab.

The effort of breathing keeps the **accelerator** high; fatigue and tension close things further.



Walking more comfortably with less background fatigue.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a better vagal tone with less tension and fatigue, helping you get more from your respiratory rehabilitation. (VNS for bronchoconstriction (rev.), *Front. Physiol.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Inhalers, oxygen if you use it and respiratory rehab are the basis. NESA supports.

What you may notice

- ✓ Less background fatigue
- ✓ Better tolerance for effort
- ✓ More calm around breathlessness
- ✓ Getting more from rehab

It may help; results vary from person to person.

SCIENTIFIC BASIS · Autonomic control of the airways, *Auton. Neurosci.* 2006 · Tracey, *Nature* 2002 · ANS vagal mechanism; NESA evidence still preliminary.

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Chronic cough: the reflex and the vagus nerve

A dry cough lasting weeks with no infection to explain it.

1 PHASE 1 Do you recognise yourself?

- ✓ Dry cough for weeks
- ✓ Constant throat-clearing
- ✓ Tickle in the throat
- ✓ Coughing fits
- ✓ No infection to explain it
- ✓ An irritated throat

“ Have you had a dry cough for weeks?

“ Do you get fits of tickling?

3 PHASE 3 The cycle

- 1 Rule out other causes with your doctor.
- 2 An unbalanced vagal tone leaves the reflex sensitive.
- 3 A coughing fit irritates further → more cough.

🔄 AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a balanced vagal tone with a less reactive cough reflex. (VNS for bronchoconstriction (rev.), *Front. Physiol.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

First rule out reflux, medicines or asthma with your doctor. NESA supports that work-up.

✓ What you may notice

- ✓ Fewer coughing fits
 - ✓ A calmer throat
 - ✓ Less throat-clearing
 - ✓ Better night-time rest
- It may help; results vary from person to person.*

2 PHASE 2 What happens in your ANS

Picture a *smoke alarm* that's too sensitive, going off with no fire. The cough reflex can be retuned by balancing the vagus nerve.

⚡ Accelerator

Sympathetic - the cough reflex stays hypersensitive and reactive.

🛑 Brake

Balanced parasympathetic - makes the cough reflex less reactive.

The cough reflex is regulated by the vagus nerve; out of balance, it stays hypersensitive.



Fewer coughing fits and a calmer throat.



Night-time asthma: breathing calmly as you sleep

Respiratory symptoms that worsen in the small hours and break your rest.

1 PHASE 1 Do you recognise yourself?

- ✓ Waking with cough or wheeze
- ✓ Poor sleep from breathing
- ✓ Tight chest at night
- ✓ Breathlessness in the small hours
- ✓ Tired on waking
- ✓ Sleep that doesn't restore

“ Do you wake with cough or breathlessness?

“ Do you wake up tired?

3 PHASE 3 The cycle

- 1 Detect the night-time symptoms.
- 2 The vagal brake doesn't engage well in sleep.
- 3 Waking with cough or breathlessness follows → worse rest.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *thermostat that resets at night*. When the vagal brake engages well in sleep, breathing stays calm.



Accelerator

Sympathetic · if it dominates at night, the bronchi tend to close.



Brake

Night-time parasympathetic · steadies breathing and improves sleep.

At night the balance shifts; if the vagal brake doesn't engage well, the bronchi close.



Fewer awakenings and steadier breathing at night.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a good night-time vagal tone with steadier airways and calmer breathing during sleep. (VNS for bronchoconstriction (rev.), *Front. Physiol.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Keep your maintenance treatment and tell your respiratory physician about night symptoms. NESA supports.

What you may notice

- ✓ Fewer awakenings
- ✓ Steadier breathing at night
- ✓ More restorative sleep
- ✓ Better energy next day

It may help; results vary from person to person.

SCIENTIFIC BASIS · Autonomic control of the airways, *Auton. Neurosci.* 2006 · Tracey, *Nature* 2002 · ANS vagal mechanism; NESA evidence still preliminary.

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Irritable bowel: your gut and the vagus nerve

Pain, bloating and changes in bowel habit, worse with nerves.

1 PHASE 1 Do you recognise yourself?

- ✓ Pain or cramps
- ✓ Changes in bowel habit
- ✓ Alternating constipation and diarrhoea
- ✓ Abdominal bloating
- ✓ Worse with nerves
- ✓ A gut on alert

“ Does your gut go haywire with stress?

“ Do you alternate constipation and diarrhoea?

3 PHASE 3 The cycle

- 1 Detect the gut on alert.
- 2 The accelerator makes it hypersensitive.
- 3 Pain and bloating arrive → more nerves.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *an alarm panel left too switched-on* in the gut. As the brake comes up, that panel settles.



Accelerator

Sympathetic - makes the gut hypersensitive and disrupts motility.



Brake

Parasympathetic (vagus) - lowers hypersensitivity and orders motility.

The *vagus* regulates motility and sensitivity; with the accelerator high, the gut turns hypersensitive.



Less pain and bloating and a steadier habit.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ The evidence links a stronger vagal brake with less hypersensitivity and more ordered gut motility. (ANS dysfunction in IBS (rev.), *Front. Neurosci.* 2026)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your diet, your gastroenterologist and your treatment are the basis. NESA supports that plan.

What you may notice

- ✓ Less pain and bloating
- ✓ A steadier bowel habit
- ✓ Less dependence on nerves
- ✓ A calmer gut

It may help; results vary from person to person.

SCIENTIFIC BASIS · Bonaz et al., *J. Intern. Med.* 2017 · Bonaz et al., *Front. Immunol.* 2017 · Bonaz et al., *Neurogastroenterol. Motil.* 2016 · ANS vagal mechanism; NESA evidence still preliminary.

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Heavy digestion: the stomach's rhythm

Slow digestion, reflux or fullness with normal tests.

1 PHASE 1 Do you recognise yourself?

- ✓ Heavy digestion
- ✓ Heartburn or reflux
- ✓ Early fullness
- ✓ Wind or fullness
- ✓ Meals that disagree
- ✓ Slow gastric emptying

“ Do meals disagree with you?

“ Do you have reflux or a sense of fullness?

3 PHASE 3 The cycle

- 1 Detect the slow digestion.
- 2 The low vagal brake disrupts emptying.
- 3 Reflux and fullness arrive → more discomfort.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a conveyor belt running in fits and starts. As vagal tone returns, it flows again at a coordinated pace.



Accelerator

Sympathetic - slows and disrupts gastric emptying.



Brake

Parasympathetic (vagus) - sets a coordinated pace and lightens digestion.

The **vagus** sets the pace and emptying; with little brake it slows or loses coordination.



Lighter digestion and less reflux.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links a better vagal tone with a more coordinated gastric rhythm and less heavy digestion. (VNS in GI disorders (rev.), *Gastroenterol. Rep.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Guidance, medication and your digestive check-ups are the basis. NESA supports.

What you may notice

- ✓ Lighter digestion
 - ✓ Less reflux
 - ✓ Better emptying
 - ✓ Less wind and fullness
- It may help; results vary from person to person.

SCIENTIFIC BASIS Bonaz et al., *J. Intern. Med.* 2017 · Bonaz et al., *Front. Immunol.* 2017 · Bonaz et al., *Neurogastroenterol. Motil.* 2016 · ANS vagal mechanism; NESA evidence still preliminary.

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Gut and stress: **regaining the rhythm**

A gut that locks up or speeds up depending on your nerves.

1 PHASE 1 Do you recognise yourself?

- ✓ The gut locks up with stress
- ✓ Or speeds up with nerves
- ✓ Changes before events
- ✓ A very variable rhythm
- ✓ Depends on your mood
- ✓ Abdominal discomfort with tension

“ Does your gut go haywire before an event?

“ Does your rhythm depend on nerves?

3 PHASE 3 The cycle

- 1 Detect the pattern with stress.
- 2 The accelerator locks up or speeds the gut.
- 3 The bowel goes out of control → more tension.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ The evidence links a balanced ANS with a steadier rhythm that is less dependent on nerves. (ANS dysfunction in IBS (rev.), *Front. Neurosci.* 2026)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Hydration, fibre, guidance and your doctor are the basis. NESA supports that care.

✓ What you may notice

- ✓ A steadier bowel rhythm
 - ✓ Less driven by stress
 - ✓ Less abdominal discomfort
 - ✓ More calm before events
- It may help; results vary from person to person.*

2 PHASE 2 What happens in your ANS

Picture a *stuck traffic light* on red or green. As the nervous system rebalances, the normal change returns.



Accelerator

Sympathetic - slows or speeds motility with the stress of the moment.



Brake

Parasympathetic - returns a steadier, less reactive rhythm.

Stress slows or speeds motility; without a good vagal brake it can't regulate its rhythm.



A steadier bowel rhythm, less driven by stress.



Diabetes and stress: steadier control

Blood sugar that swings, worse with stress or poor sleep.

1 PHASE 1 Do you recognise yourself?

- ✓ Blood sugar that swings
- ✓ Tiredness or thirst
- ✓ Worse control with stress
- ✓ Worse with poor sleep
- ✓ Hard to keep control
- ✓ Ups and downs with no clear cause

“ Does your blood sugar worsen with stress?

“ Do you find it hard to keep control?

3 PHASE 3 The cycle

- 1 Detect the effect of stress on your sugar.
- 2 The high cortisol raises glucose.
- 3 Spikes and swings appear → harder to control.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a scale knocked off balance by tension*. As the stress load drops, it steadies again, alongside your treatment.



Accelerator

Sympathetic · stress and cortisol raise blood sugar and unsettle control.



Brake

Parasympathetic · favours a steadier metabolism with fewer spikes.

Sustained stress (cortisol) raises blood sugar; the vagal brake favours a steadier metabolism.



Slightly steadier glycaemic control, alongside your treatment.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links a lower stress load and a better vagal tone with steadier control, alongside your treatment. (ANS in cardiovascular regulation (rev.), *Front. Neurosci.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Insulin or oral agents, diet and your endocrinologist are the basis; **NESA does not replace insulin.**

What you may notice

- ✓ Slightly steadier control
 - ✓ Fewer stress spikes
 - ✓ More stable energy
 - ✓ Better rest
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Bonaz et al., *J. Intern. Med.* 2017 · Tracey, *Nature* 2002 · ANS vagal mechanism; NESA evidence still preliminary.

For use under professional supervision. NESA does not replace your treatment or your medication.

We modulate the autonomic nervous system. Everything else follows.

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Hormonal fatigue: when the tests are “fine”

Tiredness that won't lift despite a well-adjusted thyroid.

1 PHASE 1 Do you recognise yourself?

- ✓ Tiredness that won't lift
- ✓ A feeling of cold
- ✓ A slow, foggy mind
- ✓ Low mood
- ✓ Hard to get going
- ✓ Low background energy

“ Are you still tired even though your thyroid is “fine”?

“ Do you struggle to get going?

3 PHASE 3 The cycle

- 1 Detect the background stress load.
- 2 The accelerator throws the hormonal rhythm out of tune.
- 3 Persistent fatigue sets in → more exhaustion.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a lower stress load and a better vagal tone with recovered energy and rest, as support for your treatment. (HRV in psychosomatic disorders (rev.), *Heart Mind* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Your thyroid or hormonal medication and your endocrinologist are the basis. NESA supports, it does not replace.

✓ What you may notice

- ✓ More background energy
- ✓ A clearer mind
- ✓ Better rest
- ✓ Slightly more active days

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture a *hormonal orchestra out of tune from stress*. As that load eases, the ensemble tunes up again.



Accelerator

Sympathetic - high stress disrupts the hormonal rhythm and sustains fatigue.



Brake

Parasympathetic - recovers energy and rest, supporting your treatment.

The ANS and the hormonal axis work together; **high stress** disrupts the rhythm and sustains fatigue.



More background energy and a clearer mind.



Rheumatoid arthritis: your defence and the vagus nerve

Flares of joint pain and inflammation that worsen with stress.

1 PHASE 1 Do you recognise yourself?

- ✓ Flares of joint pain
- ✓ Swelling and stiffness
- ✓ Tiredness during flares
- ✓ Worse with stress or poor sleep
- ✓ Stiffness on waking
- ✓ Joints that pull

“ Do your flares worsen with stress or poor sleep?

“ Do you wake up stiff?

3 PHASE 3 The cycle

- 1 Detect the pattern of flares.
- 2 The low vagal brake leaves inflammation high.
- 3 A flare arrives: pain and stiffness → more load.

🔄 AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

🌊 Clinical evidence shows that stimulating the vagal brake reduces cytokine production and the activity of rheumatoid arthritis. (RESET-RA, *Nat. Med.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Biologics, immunosuppressants and your rheumatologist are the basis; **NESA does not replace biologics.**

✓ What you may notice

- ✓ Less frequent or intense flares
- ✓ Less stiffness
- ✓ Better rest
- ✓ More calm under stress

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture a defence system with its alarm turned too high. The vagus nerve can help turn down the volume.



Accelerator

Sympathetic · with little vagal brake, inflammation and flares take off.



Brake

Parasympathetic (vagus) · favours the anti-inflammatory effect and immune balance.

The **vagus** regulates inflammation (cholinergic reflex) and immune balance; with low vagal tone, flares take off.





Joint pain: how your ANS shapes what you feel

Daily pain and stiffness that amplify with tiredness or tension.

1 PHASE 1 Do you recognise yourself?

- ✓ Daily pain and stiffness
- ✓ Joints that pull in the morning
- ✓ Pain rises with tiredness
- ✓ Worse with tension
- ✓ Pain that lasts all day
- ✓ Less inclination to move

“ Does the pain rise when you are tired or tense?

“ Does it last all day?

3 PHASE 3 The cycle

- 1 Detect the amplification of pain.
- 2 The accelerator turns up the signal's volume.
- 3 Pain and stiffness wear you down → more tension.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a pain loudspeaker turned up too loud*. As the brake comes in, that volume drops and the pain becomes more bearable.



Accelerator

Sympathetic · amplifies the pain signal and sustains background inflammation.



Brake

Parasympathetic · modulates the pain and lowers background inflammation.

With the **accelerator high** the nervous system amplifies pain and sustains inflammation; the brake is missing.



More bearable pain and less stiffness.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence on the vagal anti-inflammatory reflex links a better vagal tone with less background inflammation and a modulated pain signal. (RESET-RA, *Nat. Med.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your treatment, your rehabilitation and your rheumatologist are the basis. NESA supports.

What you may notice

- ✓ More bearable pain
- ✓ Less stiffness
- ✓ Better rest
- ✓ More inclination to move

It may help; results vary from person to person.

SCIENTIFIC BASIS Tracey, *Nature* 2002 · van Maanen et al., *Nat. Rev. Rheumatol.* 2009 · Azevedo & Medina-Ramirez, *Front. Neurosci.* (NESA) · ANS vagal mechanisms; NESA evidence still preliminary.

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Unbalanced immunity: neither too much nor too little

Frequent allergies or infections that recur easily.

1 PHASE 1 Do you recognise yourself?

- ✓ Frequent allergies
- ✓ Very sensitive skin or airways
- ✓ Colds that recur
- ✓ Easy infections
- ✓ Reacting to many things
- ✓ Defences that won't keep step

“ Do you react to many things?

“ Or do you catch infections easily?

3 PHASE 3 The cycle

- 1 Detect the immune imbalance.
- 2 The low vagal tone unbalances the defence.
- 3 Allergies or infections arrive → more wear.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a guard learning good judgement*: neither jumping at nothing nor falling asleep. Vagal tone helps that balance.

⚡ Accelerator

Imbalance - the immune response over- or under-reacts.

🛑 Brake

Parasympathetic (vagus) - helps a more finely tuned immune balance.

Vagal tone balances the immune response (Th1-Th2-Th17); out of balance it over- or under-reacts.



More controlled reactions or more balanced defences.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ The evidence links vagal tone with the regulation of the immune response through the cholinergic anti-inflammatory reflex. (RESET-RA, *Nat. Med.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Antihistamines, vaccines, treatments and your doctor are the basis. NESA supports.

✓ What you may notice

- ✓ More controlled reactions
 - ✓ More balanced defences
 - ✓ Fewer immune ups and downs
 - ✓ A greater sense of resilience
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Tracey, *Nature* 2002 · Borovikova et al., *Nature* 2000 · van Maanen et al., *Nat. Rev. Rheumatol.* 2009 · ANS vagal mechanism; NESA evidence still preliminary.

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Refractory dry eye: tears and the brake

Dry eyes that don't fully improve with artificial tears.

1 PHASE 1 Do you recognise yourself?

- ✓ Dry or gritty eyes
- ✓ Stinging or itching
- ✓ Vision that fluctuates
- ✓ Tears that bring little relief
- ✓ A foreign-body feeling
- ✓ Eyes that tire early

“ Do your eyes feel dry or gritty?

“ Do your tears last only briefly?

3 PHASE 3 The cycle

- 1 Detect the tear deficit.
- 2 The low vagal tone reduces secretion.
- 3 Dryness and stinging appear → more discomfort.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ By ANS physiology, tear secretion depends on parasympathetic tone; reinforcing it may favour more natural tears. (sympathetic control of tearing, *Nat. Commun.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Your eye drops, your tears and your ophthalmologist are the basis. NESA supports, it does not replace.

✓ What you may notice

- ✓ More comfortable eyes
- ✓ Less dryness and stinging
- ✓ Slightly steadier vision
- ✓ Less grittiness

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture a watering system that barely drips. As the parasympathetic brake is reinforced, the eye moistens better again.



Accelerator

Sympathetic · with little brake, tear secretion drops and the eye dries.



Brake

Parasympathetic · activates natural tears and the eye feels more comfortable.

Tear secretion is driven by the parasympathetic brake; with low vagal tone, the eye dries.



More comfortable eyes with less dryness.



Visual fatigue: eye tension and your ANS

Tired eyes, discomfort with light and tension around the eyes.

1 PHASE 1 Do you recognise yourself?

- ✓ Eyes tired by the end of the day
- ✓ Discomfort with light
- ✓ Tension around the eyes
- ✓ Headache
- ✓ Vision that blurs with tiredness
- ✓ Hard to focus up close

“ Does light bother you?

“ Do you end the day with exhausted eyes?

3 PHASE 3 The cycle

- 1 Detect the eye tension.
- 2 The accelerator keeps the eye tense.
- 3 Fatigue and photophobia arrive → more headache.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *camera aperture held tense*. As it relaxes, the eye regains comfort and tolerates light better.



Accelerator

Sympathetic · the eye stays tense and over-reacts to light.



Brake

Parasympathetic · relaxes the eye and improves tolerance to light.

The ANS adjusts **pupil and focus**; with the accelerator high the eye stays tense and over-reacts.



Less visual fatigue and better tolerance to light.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ By ANS physiology, balancing the system and raising the brake may ease eye tension and improve tolerance to light. (sympathetic control of tearing, *Nat. Commun.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Review your prescription and eye health with your ophthalmologist. NESA supports that care.

What you may notice

- ✓ Less visual fatigue
- ✓ Better tolerance to light
- ✓ Less headache
- ✓ More rested eyes

It may help; results vary from person to person.

SCIENTIFIC BASIS · Dartt, *Prog. Retin. Eye Res.* 2009 · Thayer et al., *Int. J. Cardiol.* 2010 · ANS vagal mechanism; NESA evidence still preliminary.

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Multi-organ fatigue: your body's conductor

Deep, whole-body tiredness with several complaints at once.

1 PHASE 1 Do you recognise yourself?

- ✓ Deep, whole-body tiredness
- ✓ A sense that nothing is right
- ✓ Rest that doesn't restore
- ✓ Several complaints at once
- ✓ Low background energy
- ✓ An overloaded body

“ Do you feel exhausted all over?

“ Do complaints pile up?

3 PHASE 3 The cycle

- 1 Detect the background load.
- 2 The sustained accelerator wears the system out.
- 3 Multi-organ fatigue sets in → more wear.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a worn-out orchestra* because the conductor has gone too long without rest. Letting it rest lets the ensemble tune up.



Accelerator

Sympathetic · a high allostatic load wears down the whole system.



Brake

Parasympathetic · lowers the background load and recovers energy and repair.

The ANS coordinates every organ; a high allostatic load wears the system out and brings multi-organ fatigue.



More energy and better whole-body recovery.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links a high allostatic load and low HRV with fatigue; improving vagal tone is linked to more energy and repair. (HRV in psychosomatic disorders (rev.), *Heart Mind* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Investigate the causes with your physician and keep your treatments. NESA supports.

What you may notice

- ✓ More energy
 - ✓ Fewer piled-up complaints
 - ✓ Better rest
 - ✓ A sense of recovery
- It may help; results vary from person to person.*

SCIENTIFIC BASIS · Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · Laguarda-Val et al., *Brain Sci.* 2025 (NESA) · ANS vagal mechanism; NESA evidence still preliminary.

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Chronic stress: releasing the accelerator

Constant tension and physical symptoms that rise and fall with stress.

1 PHASE 1 Do you recognise yourself?

- ✓ Almost constant tension
- ✓ A racing mind
- ✓ Symptoms that come and go with stress
- ✓ Hard to switch off
- ✓ Poor rest
- ✓ A sense of alarm mode

“ Do you live in constant tension?

“ Do your symptoms rise and fall with stress?

3 PHASE 3 The cycle

- 1 Detect alarm mode.
- 2 The stuck accelerator raises cortisol.
- 3 Physical symptoms appear → more stress.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a stuck, pressed accelerator*. As the brake is reinforced, the body finally leaves alarm mode.

⚡ Accelerator

Sympathetic - keeps the body in alarm mode with high cortisol.

🛑 Brake

Parasympathetic - lowers background activation and brings calm back.

Chronic stress keeps the sympathetic accelerator and cortisol high (HPA axis).



More background calm and less reactive symptoms.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ The evidence links a stronger vagal brake with lower background activation, taking the body out of alarm mode. (HRV in psychosomatic disorders (rev.), *Heart Mind* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

If stress overwhelms you, seek professional support. NESA supports, it does not replace.

✓ What you may notice

- ✓ More background calm
 - ✓ Symptoms less reactive to stress
 - ✓ Better rest
 - ✓ A greater sense of control
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · Laguarda-Val et al., *Brain Sci.* 2025 (NESA) · ANS vagal mechanism; NESA evidence still preliminary.

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Restorative sleep: the body's night-time workshop

Sleep that doesn't restore and worsens your chronic illness.

1 PHASE 1 Do you recognise yourself?

- ✓ Hard to fall asleep or frequent waking
- ✓ Sleep that doesn't restore
- ✓ Worse the next day
- ✓ A busy mind at bedtime
- ✓ Tired on waking
- ✓ Other symptoms worsen

“ Do you sleep but not feel rested?

“ Do you wake many times?

3 PHASE 3 The cycle

- 1 Detect the poor sleep.
- 2 The night-time accelerator fragments rest.
- 3 A worse day and more symptoms follow → more tension.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a repair workshop that opens at night*. Only with a good vagal tone does that workshop run and the body repair.



Accelerator

Sympathetic · in accelerator mode, sleep fragments and doesn't restore.



Brake

Night-time parasympathetic · makes sleep deeper and more restorative.

Sleeping well needs the vagal brake at night; in accelerator mode sleep fragments.



Deeper sleep and more rested awakenings.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ The evidence links a good night-time vagal tone with deeper, more restorative sleep — the basis on which everything improves. (HRV in psychosomatic disorders (rev.), *Heart Mind* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Mind your sleep hygiene and tell your doctor about persistent insomnia. NESA supports.

What you may notice

- ✓ Deeper sleep
- ✓ More rested awakenings
- ✓ Better control of other symptoms
- ✓ More daytime energy

It may help; results vary from person to person.

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · Blasco-Bonora et al., *J. Clin. Med.* 2025 (NESA) · ANS vagal mechanism; NESA evidence still preliminary.

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Prevention and HRV: tune the engine before it fails

Looking after yourself in time when your risk factors are "borderline".

1 PHASE 1 Do you recognise yourself?

- ✓ You feel well, but borderline
- ✓ Family history
- ✓ Stress that builds up
- ✓ Borderline blood pressure or sugar
- ✓ A wish to look after yourself in time
- ✓ Little reserve against excess

“ Do you have “borderline” risk factors?

“ Do you want to prevent in time?

3 PHASE 3 The cycle

- 1 Know your reserve (HRV).
- 2 A low reserve leaves background inflammation.
- 3 Long-term risk rises → worth preventing.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *tuning the engine before it fails*. Heart rate variability (HRV) reflects your reserve: looking after it today protects you tomorrow.



Accelerator

Sympathetic · low reserve leaves more background inflammation and risk.



Brake

Parasympathetic · improves HRV and reinforces your autonomic reserve.

HRV reflects your autonomic reserve; low reserve = more background inflammation and cardiometabolic risk.



Better reserve, more energy and less background risk.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ The evidence shows that low HRV predicts more cardiovascular risk; improving vagal tone and HRV reinforces reserve, within a preventive plan. (Wang et al., *Front. Cardiovasc. Med.* 2026)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Prevention is exercise, sleep, diet and check-ups with your doctor. NESA supports that plan.

What you may notice

- ✓ Better reserve (HRV)
 - ✓ More energy
 - ✓ Less long-term background risk
 - ✓ Habits that stick
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Shaffer & Ginsberg, *Front. Public Health* 2017 · Wolf et al., *Psychophysiology* 2021 · ANS vagal mechanisms: NESA evidence still preliminary.

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Leaving alarm mode

Metabolic syndrome and stress load: weight, blood pressure and sugar borderline, worse with stress.

1 PHASE 1

Do you recognise yourself?

- ✓ Weight that's hard to shift
- ✓ Borderline blood pressure
- ✓ Borderline blood sugar
- ✓ Background tiredness
- ✓ Worse with stress
- ✓ Poor sleep

“ Do you notice your weight, blood pressure or sugar borderline?

“ Does everything get worse in stressful spells?

3 PHASE 3

The cycle

- 1 Detect the background alarm mode.
- 2 The high accelerator dysregulates weight, blood pressure and sugar.
- 3 More tiredness and poor sleep → more alarm.

↻ AND IT STARTS AGAIN

2 PHASE 2

What happens in your ANS

Picture a body in “alarm mode” all day: it spends and stores poorly. As the alarm comes down, the body regulates itself better.



Accelerator

Sympathetic · sustained stress and cortisol favour metabolic syndrome.



Brake

Parasympathetic · linked to a calmer metabolism.

Sustained stress (cortisol) favours metabolic syndrome; the vagal brake is linked to a calmer metabolism.



A calmer body that rests and regulates better.

4 PHASE 4

How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ Research links a lower stress load and a better vagal tone with a calmer metabolism and better rest, alongside your treatment and habits. (Cuberos Paredes et al., *Physiol. Rep.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5

With your professional & what you may notice

With your specialist

Diet, exercise, medication and your endocrinologist are the basis. NESA supports, it does not replace.

What you may notice

- ✓ More background calm
 - ✓ Better rest
 - ✓ More stable energy
 - ✓ Better adherence to your habits
- It may help; results vary from person to person.*

SCIENTIFIC BASIS Thayer et al., *Int. J. Cardiol.* 2010 · Cuberos Paredes et al., *Physiol. Rep.* 2025 · vagal stimulation review (endocrine integration), 2025 · ANS vagal mechanism; NESA evidence still preliminary.

For use under professional supervision. NESA does not replace your treatment or your medication.

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Helping your body respond better

Insulin resistance or prediabetes, when stress and poor sleep don't help.

1 PHASE 1 Do you recognise yourself?

- ✓ Energy slumps after eating
- ✓ Tiredness
- ✓ Worse with stress
- ✓ Cravings
- ✓ Prediabetes or insulin resistance
- ✓ Poor rest

“ Do you get energy slumps and cravings after eating?

“ Have you been told about prediabetes or insulin resistance?

3 PHASE 3 The cycle

- 1 Detect the effect of stress and poor sleep.
- 2 The body handles sugar worse.
- 3 Slumps and cravings → more tiredness.

↻ AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ Research links lowering stress and improving rest with a body that copes better day to day, supporting your plan of habits and treatment. (Thayer et al., *Int. J. Cardiol.* 2010)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

Diet, exercise and endocrine follow-up are the basis;
NESA is not an antidiabetic.

✓ What you may notice

- ✓ More stable energy
- ✓ Fewer stress slumps
- ✓ Better rest
- ✓ More support for your habits

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture *a lock that responds worse to the key*. With a calmer body, the key turns more easily.



Accelerator

Sympathetic - stress and poor sleep worsen how the body handles sugar.



Brake

Parasympathetic - linked to better metabolic sensitivity.

Stress and poor sleep worsen sugar handling; vagal tone is linked to better sensitivity.



A body that copes better day to day, alongside your plan.



A calmer hormonal baseline

Thyroid and hormones: ups and downs that worsen with stress, even with adjusted medication.

1 PHASE 1 Do you recognise yourself?

- ✓ Energy ups and downs
- ✓ Mood ups and downs
- ✓ Worse stress tolerance
- ✓ Irregular sleep
- ✓ Despite adjusted medication
- ✓ A feeling of not recovering

“ Do you have energy and mood swings despite your medication?

“ Do you tolerate stress worse and sleep irregularly?

3 PHASE 3 The cycle

- 1 Detect the reactivity to stress.
- 2 The hormonal axis swings easily.
- 3 Energy and mood ups and downs → more wear.

↻ AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *hormonal thermostat sensitive to stress*.
Stabilising the baseline helps it swing less.



Accelerator

Sympathetic - low vagal tone is linked to more stress reactivity.



Brake

Parasympathetic - better recovery and a calmer baseline.

The ANS and the hormonal axis (HPA) work together; low vagal tone = more reactivity and poorer recovery.



A calmer hormonal baseline, supporting your treatment.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

~ Research links improving vagal tone and lowering stress with more energy and rest, supporting your hormonal treatment. (Cuberos Paredes et al., *Physiol. Rep.* 2025)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your thyroid/hormonal medication and your endocrinologist are the essential basis. NESA supports, it does not replace.

What you may notice

- ✓ More background energy
- ✓ More stable mood
- ✓ Better stress tolerance
- ✓ Better rest

It may help; results vary from person to person.

SCIENTIFIC BASIS · Cuberos Paredes et al., *Physiol. Rep.* 2025 · Thayer et al., *Int. J. Cardiol.* 2010 · vagal stimulation review (endocrine integration), 2025 · ANS vagal mechanism; NESA evidence still preliminary.

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We modulate the autonomic nervous system. Everything else follows.

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Living flares with more calm

Inflammatory bowel disease: flares and tiredness that worsen with stress.

1 PHASE 1 Do you recognise yourself?

- ✓ Flares of discomfort
- ✓ Tiredness
- ✓ Poor sleep
- ✓ Urgency
- ✓ Worse with stress
- ✓ Tension that won't drop

“ Do your flares worsen with stress and poor sleep?

“ Do you notice urgency and tiredness during flares?

3 PHASE 3 The cycle

- 1 Detect the pattern with stress.
- 2 The accelerator fans discomfort and urgency.
- 3 Flare and tiredness → more tension.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture *a gut fire that stress fans*. With a calmer body, it's lived with less tension.

⚡ Accelerator

Sympathetic - in inflammatory disorders vagal tone is usually low.

🛑 Brake

Parasympathetic (vagus) - takes part in regulating inflammation and visceral sensitivity.

Autonomic balance is altered (low vagal tone); the vagus takes part in inflammation and visceral sensitivity.



Living the flare with more comfort and better rest.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

🌊 Research links supporting vagal tone and calm with living the flare with more comfort and better rest, alongside your treatment. (VNS in digestive disease, *Gastroenterol. Rep.* 2025)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

🤝 With your specialist

Your gastroenterologist and your treatment (including biologics) are the basis; **NESA does not cure IBD or replace medication**.

✓ What you may notice

- ✓ Flares lived with more calm
 - ✓ Less associated tension
 - ✓ Better rest
 - ✓ A greater sense of control
- It may help; results vary from person to person.*

SCIENTIFIC BASIS HRV in functional digestive disorders, *Diagnostics* 2023 · Bonaz et al., *J. Intern. Med.* 2017 · VNS in digestive disease, *Gastroenterol. Rep.* 2025 · ANS vagal mechanism; NESA evidence still preliminary.

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Calming the head-gut line

Nervous digestion: the stomach closes, hurts or churns with nerves.

1 PHASE 1 Do you recognise yourself?

- ✓ The stomach closes with nerves
- ✓ It hurts or churns
- ✓ Worse with tension
- ✓ Digestion in fits and starts
- ✓ A feeling of alarm
- ✓ A bad time after eating tense

“ Does your stomach “feel” the nerves?

“ Does it close, hurt or churn when you are tense?

3 PHASE 3 The cycle

- 1 Detect the nervous digestion.
- 2 Stress interferes on the head-gut line.
- 3 The stomach closes or hurts → more nerves.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *phone line* between head and gut with *interference*. Calming the line improves the conversation.



Accelerator

Sympathetic · stress alters motility and raises visceral sensitivity.



Brake

Parasympathetic (vagus) · the gut-brain axis pathway; more comfort.

The *gut-brain axis* is bidirectional and runs through the vagus; stress alters motility and sensitivity.



More digestive comfort and a sense of regular motility.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links supporting vagal tone and calm with more digestive comfort and a sense of regular motility, alongside your treatment. (Bonaz et al., *Neurogastroenterol. Motil.* 2016)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your gastroenterologist assesses and leads; NESA supports, it does not replace.

What you may notice

- ✓ More digestive comfort
 - ✓ Less dependent on nerves
 - ✓ Motility that feels more regular
 - ✓ More calm
- It may help; results vary from person to person.*

SCIENTIFIC BASIS · Bonaz et al., *Neurogastroenterol. Motil.* 2016 · vagal tone: sensitivity, motility & inflammation, 2016 · HRV in IBS, 2018 · ANS vagal mechanism; NESA evidence still preliminary.

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Helping digestion find its rhythm

Nausea and functional slow digestion, when the body runs slow.

1 PHASE 1 Do you recognise yourself?

- ✓ Fullness
- ✓ Nausea with no clear cause
- ✓ Worse with stress
- ✓ Very slow digestion
- ✓ Early satiety
- ✓ Discomfort after eating

“ Do you feel fullness or very slow digestion?

“ Do you have nausea with no cause that fully explains it?

3 PHASE 3 The cycle

- 1 Detect the slow digestion.
- 2 The accelerator slows the gastric pace.
- 3 Fullness and nausea → more discomfort.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a *digestive engine* that starts slowly. With a calmer body, it finds its rhythm again.



Accelerator

Sympathetic - low vagal tone and stress are linked to slower digestion.



Brake

Parasympathetic (vagus) - sets the pace of gastric motility.

The *vagus* sets the pace of gastric motility; low vagal tone and stress = slow digestion and nausea.



A digestion that finds its rhythm, alongside your treatment.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the *accelerator* and the *brake*.

~ Research links supporting vagal tone and calm with a better sense of digestion and comfort, alongside your treatment. (vagal tone: sensitivity, motility & inflammation, 2016)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Your gastroenterologist rules out causes and leads; NESA supports, it does not replace.

What you may notice

- ✓ A better sense of digestion
- ✓ Less fullness
- ✓ Less nausea
- ✓ More comfort

It may help; results vary from person to person.

SCIENTIFIC BASIS · Bonaz et al., *Neurogastroenterol. Motil.* 2016 · HRV in functional digestive disorders, *Diagnostics* 2023 · VNS in digestive disease, *Gastroenterol. Rep.* 2025 · ANS vagal mechanism; NESA evidence still preliminary.

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Better tolerance when you stand up

Dysautonomia and orthostatic intolerance: dizziness or palpitations on standing.

1 PHASE 1 Do you recognise yourself?

- ✓ Dizziness on standing
- ✓ Palpitations on getting up
- ✓ Tiredness with posture changes
- ✓ Worse standing for a while
- ✓ A feeling of instability
- ✓ Better when you sit

“ Do you feel dizzy or notice palpitations on standing?

“ Does your body regulate posture changes worse?

3 PHASE 3 The cycle

- 1 Detect the poor postural tolerance.
- 2 The ANS is slow to adjust pressure, rate and flow.
- 3 Dizziness and palpitations → more alertness.

🔄 AND IT STARTS AGAIN

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the **accelerator** and the **brake**.

🌊 Research links supporting ANS balance with better tolerance to posture changes, calm and rest, alongside your plan. (HRV neuromodulation, Auton. Neurosci. 2026)

The electrodes go on the hands and feet, not on the organ; they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

The work-up and your specialist's plan (hydration, salt, measures, medication) are the basis. NESA supports, it does not replace.

✓ What you may notice

- ✓ Better tolerance when standing
- ✓ Less dizziness
- ✓ More calm
- ✓ Better rest

It may help; results vary from person to person.

2 PHASE 2 What happens in your ANS

Picture a control slow to adjust the volume when you change position. A more balanced system adjusts sooner.



Accelerator

Sympathetic - an imbalance that hinders the postural response.



Brake

Parasympathetic - balance that helps tolerate the change of posture.

Dysautonomia reflects a sympathetic-parasympathetic imbalance; the ANS regulates the response to standing.



Better tolerance to posture changes, alongside your plan.



Your balance, beat by beat

What heart rate variability (HRV) is and your nervous-system balance.

1 PHASE 1 Do you recognise yourself?

- ✓ You've been told to measure your HRV
- ✓ You're not sure what it means
- ✓ You want to look after yourself better
- ✓ Or your "nervous balance"
- ✓ You want to understand it
- ✓ Curiosity about your reserve

“ Have you been told to measure your “heart rate variability” (HRV)?

“ Do you want to understand your nervous balance?

3 PHASE 3 The cycle

- 1 Know your HRV with your professional.
- 2 It reflects your ANS balance.
- 3 Better variability → more reserve and calm.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a tuner that shows how balanced your nervous system is, beat by beat.



Accelerator

Low variability · less balance and reserve.



Brake

Good variability · better balance and reserve.

HRV is one of the best-established non-invasive ways to see the state of the ANS; better variability = better balance and reserve.



Better balance and a sense of reserve, beat by beat.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links supporting ANS balance with better rest, calm and a sense of reserve; HRV is interpreted by your professional. (HRV, ANS biomarker, *Biomedicines* 2023)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

With your specialist

Measuring and interpreting it is your specialist's role. NESA supports, **it does not diagnose.**

What you may notice

- ✓ Better rest
 - ✓ More calm
 - ✓ A greater sense of reserve
 - ✓ Understanding your body better
- It may help; results vary from person to person.

SCIENTIFIC BASIS HRV, ANS biomarker, *Biomedicines* 2023 · HRV & autonomic balance in ageing, *Ageing Res. Rev.* 2024 · HRV neuromodulation, *Auton. Neurosci.* 2026 · ANS vagal mechanism; NESA evidence still preliminary.

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A system that trips less

Vasovagal syncope: dizziness or fainting with heat, pain or nerves.

1 PHASE 1 Do you recognise yourself?

- ✓ Dizziness with heat
- ✓ Fainting with pain or nerves
- ✓ Worse standing for a long time
- ✓ A warning before fainting
- ✓ Slow recovery
- ✓ Fear it will happen

“ Do you feel dizzy or faint with heat, pain or nerves?

“ Does it happen standing for a long time?

3 PHASE 3 The cycle

- 1 Detect the triggers (heat, pain, nerves, standing).
- 2 The ANS responds suddenly.
- 3 Dizziness or fainting → more fear.

🔄 AND IT STARTS AGAIN

2 PHASE 2 What happens in your ANS

Picture a switch that trips suddenly when the system is overloaded. A more balanced system trips less.

⚡ Accelerator

Abrupt response - an autonomic surge that triggers fainting.

🛑 Brake

ANS balance - a system that stays more stable.

Vasovagal syncope is an abrupt autonomic response (a drop in pressure and rate) triggered by certain cues.



Coping better with triggers and the associated stress.

4 PHASE 4 How NESA can help

Non-invasive, painless microcurrents, delivered through electrodes on the hands and feet, help your autonomic nervous system rebalance the accelerator and the brake.

~ Research links supporting ANS balance and calm with coping better with triggers and the associated stress, alongside your plan. (HRV biofeedback & autonomic regulation, 2024)

The electrodes go on the hands and feet, not on the organ: they regulate the whole body's nervous system, which coordinates heart, vessels, lungs, digestion, hormones, immunity and eyes.

5 PHASE 5 With your professional & what you may notice

♥ With your specialist

The work-up, prevention measures and your specialist's plan are the essential basis. NESA supports, it does not replace.

✓ What you may notice

- ✓ Coping better with triggers
- ✓ Less associated stress
- ✓ More calm
- ✓ Better rest

It may help; results vary from person to person.

SCIENTIFIC BASIS · HRV, ANS biomarker; *Biomedicines* 2023 · HRV biofeedback & autonomic regulation, 2024 · HRV neuromodulation, *Auton. Neurosci.* 2026 · ANS vagal mechanism; NESA evidence still preliminary.

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Scientific bibliography

A selection of literature documenting the involvement of the **autonomic nervous system**—vagal tone, heart-rate variability (HRV) and the cholinergic anti-inflammatory reflex—in the symptoms of the conditions addressed. It supports the physiological rationale of the approach; it does not represent a claim of NESA's clinical efficacy for each indication. Ordered by specialty.

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The references support the physiological relationship between the autonomic nervous system and the symptoms described. Use of NESA under professional supervision; it does not replace treatment or medication.



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Everything else follows.***

Non-invasive neuromodulation of the autonomic nervous system. One root,
many clinical expressions.

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