The Biology of Trust – and Beyond

A deepened perspective on presence, perception and safety

By Maria Strömberg

Introduction: When the body doesn't know it is safe

It is an ordinary workday. You sit in front of the computer, focused, still. Outwardly everything appears calm – but inside something quiet is going on: a subtle restlessness, tension in the body, slightly shallow breathing, a sense of not quite being enough, maybe a need to keep control.

What is the body trying to say?

We live in a time when "safety" is talked about a lot – but most often in terms of external conditions. Few people talk about what safety actually *feels* like. What makes us sometimes feel safe even in uncertainty, and at other times anxious, even when everything on paper looks fine?

Here I want to offer a different perspective – or perhaps more accurately, a return. An understanding of safety that is not only biological, but *lived*: where perception, the body and conscious seeing come together in the experience of trust.

The biological ground – what neuroscience shows us

In modern neurobiology, our understanding of safety has deepened through research on the autonomic nervous system (ANS), and in particular through Stephen Porges' polyvagal theory (Porges, 2022). His concept of *neuroception* describes the body's unconscious reading of signals – facial expression, tone of voice, posture – to decide whether we are in a safe or threatening environment.

When our surroundings are perceived as safe, the ventral vagal system is activated, allowing for calm, openness and social engagement. When signals of safety are missing, the sympathetic nervous system (fight/flight) or the dorsal vagal branch (freeze/collapse) takes over.

Many studies in affective neuroscience have confirmed how crucial these signals are for emotional regulation (e.g. Dana, 2018; Fredrickson, 2001). Newer research has also shown that the heart has its own network of neurons – a kind of "mini-brain" that includes sensory neurons, motor neurons, and interneurons – that interacts directly with the brain and influences emotional processing (Karolinska Institutet, 2024). This neural network helps explain why body-close sensations such as touch, breathing or heart rhythm can be a direct gateway into felt safety.

"Every emotion quickens the work of the heart and thus the lungs." – Charles Darwin, *The Expression of the Emotions in Man and Animals* (1872)

Darwin already emphasised that emotions have direct physiological effects. They do not only change our inner state, but concretely alter how heart and breathing function. All of this supports the view that safety cannot be reduced to a cognitive idea – it must be *experienced* in the body.

In classical polyvagal understanding, the ventral state is often described as a calm branch of the parasympathetic system – a kind of "rest-and-digest" mode without activation. In my earlier work (Strömberg, 2025) I have instead described the ventral state as what I call a *living gateway* – a dynamic threshold where both sympathetic movement and parasympathetic rest can be present at the same time. Safety is not stillness; it is the capacity to be in motion without leaving oneself.

From signal to experience – safety as felt sense

Neurobiology shows us what happens in the body – but not how it feels from the inside. For me, safety is not just a *state*, but a *feeling*. It is only when the body *senses* safety that we truly feel safe.

Thoughts, however wise, move in the hypothetical. They try to create safety by imagining it. But safety becomes real only when it is experienced – here and now – in the body. This does not happen through interpretation, but through *anchoring*: in the floor under our feet, the sounds in the room, the movement of the breath.

Real trust does not arise when we try to control reality – but when we can rest in it as it is.

In many Indigenous traditions, perception and knowledge are not separated from feeling – they are one and the same movement. To perceive something – to feel and to know – is not a theoretical act, but a lived experience that saturates the whole body (Abram, 1996; Ingold, 2000).

This insight resonates with what affective neuroscience is now describing: that emotions are not an "add-on" to perception, but its living core. The kind of embodied knowing that many Indigenous cultures call "the wisdom of the body" has received neurobiological support through Antonio Damasio's notion of *somatic markers* – the way the body guides decisions and experience through emotion-laden, interoceptive signals (Damasio, 1999). Others, such as Craig (2009), have highlighted the anterior insula as a key hub where these interoceptive signals are integrated into conscious awareness – which fits this view of safety as something we literally feel in the body.

Art critic Caroline Tisdall writes: *"The traditional role of art has always been to cultivate and deepen our senses. When it comes to the greatest art through the ages and across all places, this has not been the goal in itself: the senses provide access to a transcendent or spiritual experience by achieving a synthesis of physical and spiritual attention. When this possibility of synthesis is lost in a culture, then society itself begins to fall apart"* (Tisdall, 1996, p. 139).

When our senses no longer meet the living world, our sense of coherence also weakens. And without that coherence – no deep trust.

We could say that safety travels in at least three steps:

1. **Biological signals** – the nervous system registers cues of safety or threat (faces, voices, environment).
2. **Sensation** – these signals become bodily felt: warmth, expansion, contraction, tension, softening.
3. **Meaning** – we interpret what we feel: "I am safe / I am not safe / I am alone / I am too much".

The problem is that we often try to change step 3 – the story – without listening to step 2. We tell ourselves "I'm fine, it's okay" while the body quietly says the opposite. This creates an inner split: one part says "I should be calm", another knows we are not.

When the body does not feel seen, heard or held, cognitive reassurance alone rarely helps. The nervous system trusts what it senses, not what we say to ourselves. Safety becomes sustainable when thought and sensation are allowed to meet.

The seeing nervous system – and when the gaze narrows

As polyvagal theory has highlighted, the nervous system does not only listen to what is said – it reads the entire room. Our senses constantly communicate with the ANS. Vision plays a central role: peripheral vision provides an immediate sense of space and context. When we see sky, trees, walls, and depth, the nervous system can relax. It knows where we are.

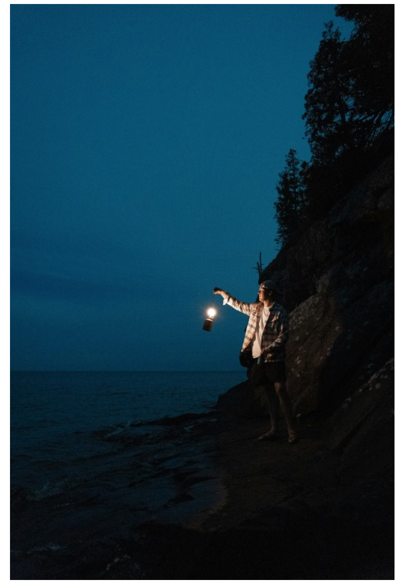
Both research and clinical experience suggest that softer, more panoramic attention is associated with calmer states, whereas narrow, sharply focused attention tends to be associated with vigilance and sympathetic activation (e.g., work on attention systems and vigilance: Posner & Petersen, 1990; Mathews & MacLeod, 2005). But in my experience, this is not just about the eyes – it reflects our whole way of relating to reality.

When we disappear into thought, the eyes stop orienting. The gaze freezes. The body loses contact with the surroundings. Outer seeing fades – and with it the body's ground for feeling safe. The body no longer quite knows where it is.

But it is not the eyes themselves that create safety – it is the whole field of perception. We "see" with the body: through sound, touch, subtle vibration, and smell. This reflects what cognitive scientists call **embodied cognition** – the principle that perception and awareness are not abstract mental processes, but are fundamentally rooted in the body's sensory engagement with the world (Varela, Thompson & Rosch, 1991; Lakoff & Johnson, 1999). We do not simply "see" with our eyes; we perceive through the whole organism's active relationship with its surroundings.

Blind people are not living in constant vigilance. Their nervous systems read the world through other active channels – hearing, touch, vibration – supported by the brain's remarkable capacity for adaptation. What creates unease is not the absence of sight, but the absence of living relation to what is actually present.

Living perception is replaced by a quiet state of readiness – not because something concrete is threatening us, but because the body does not have enough contact with where it is.



I propose the term *search mode* to describe this state: the nervous system is not primarily looking for danger, but for what is missing. When the body does not know where it is, it searches for ground. Search in itself is not a problem – it is a movement. It becomes heavy when it loses its sensory ground and is carried almost only by thought.

In contrast, I call *presence mode* the state in which the same nervous system can rest in what is actually here – here, now, in this body, in this room.

The sensory famine of working life – when environment and tasks disturb safety

In many workplaces, this is exactly what happens. We work in rooms with poor daylight, or with screens that demand narrow focus, in visually monotonous environments with little variation. The nervous system receives very little living feedback – no real movement, no peripheral overview, no smell of weather or sense of the wider world.

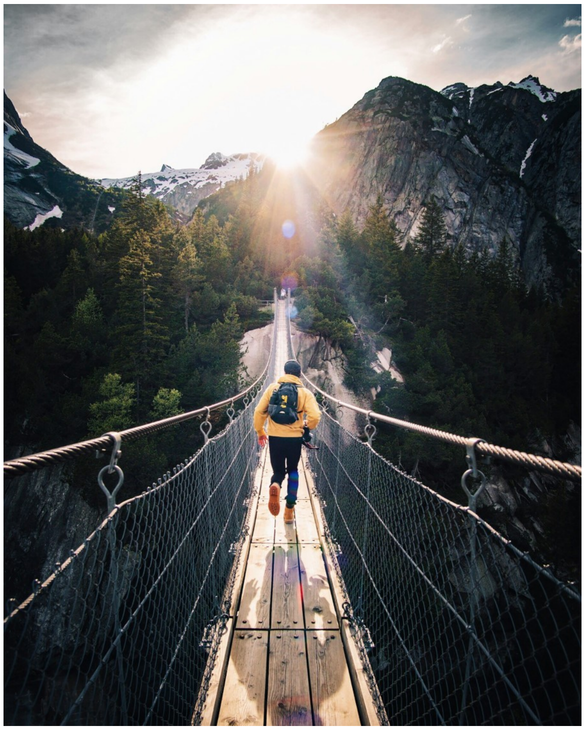
It does not even have to be a windowless room. It is often enough that we are behind walls. Simply not being outdoors changes the nervous system’s ability to feel safe. The broad, peripheral vision that is naturally activated in open landscapes is reduced, and the body loses some of its orientation. When both gaze and body are constrained, our sense of safety diminishes.

It is not only the environment as such – the nature of the tasks matters as well. When the focus lies on cognitively demanding, performance-oriented work, our attention narrows mentally *and* perceptually. The body is forced to shut out the living in order to deliver.

I recall a client who described how, after only five minutes of quiet, with her feet on the floor and her gaze softly resting on the contours of the room, she suddenly felt that she was actually *there* – in her body, in the room.

“It’s as if I’ve never really been here before,” she said. “And yet this is where I’ve always been.”

What she described is something I see often: when the living quality of the room is allowed to return, the body’s state of readiness decreases. It is not always fear that activates our nervous system – sometimes it is simply *lack*: lack of contact, lack of variation, lack of place. When these are missing, the body slides into a low-grade readiness – a quiet vigilance that may not be obvious at first, but wears us down over time.



It is important to note that this does not apply to *all* sympathetic activation. When we are in situations where the body is actively engaged with its surroundings – play, physical work, running in nature – the sympathetic system can be activated *without* us leaving the ventral state. Then an integrated activation occurs: the body is alert *and* safe.

This stands in contrast to the *sensorily isolated* sympathetic activation that arises in sitting, mentally focused and environmentally closed settings – where the body no longer feels where it is. For much of human history, what we today might call "stress" often appeared as a kind of embodied search: tracking animals, looking for food, reading weather and terrain. The body was in search mode, but together **with** the world – eyes, ears, skin, smell and movement all engaged. That kind of seeking can be intense, but it is usually not experienced as the same inner pressure we see today. The strain arises when search happens almost only in the mental body – in the thinking self – while the senses and the wider field of experience are left out. Environmental psychology and neuroergonomics show that environments with low sensory variation increase stress markers and sympathetic activation (Kaplan & Kaplan, 1989; Ulrich, 1991).

This is where many people begin to feel inadequate, scattered or mentally absent. But often it is not the individual that is "wrong" – it is the lack of living stimuli in the environment and the way tasks are structured.

The presence that carries – trust returns in the body

Trust is not something we create from zero – it is something we *return* to when the body gets to experience reality. It does not happen through affirmations or more control on their own, especially when they are used to bypass feeling, but through sensory contact: the periphery of the eyes, the sensations of the skin, the depth of sound and the nearness of smell. Words can support this when they arise from an inner companionship – a sense that some part of me is here with what I feel – rather than as a way to talk myself away from my body.

When we are in touch with this – without pushing or performing – the body can reconnect to something that has always been there. From that, trust grows. Not as an idea, but as a real, physical resting in what is.

Our mental landscape shifts as well. Thoughts become less narrow, more flexible and open – often more creative. When the body feels safe, it can let go of pure survival strategies, and a more curious awareness can emerge. This is in line with research on positive emotions and executive function in safe environments, showing that ventral-regulated states support openness, flexibility and mental wellbeing (Fredrickson, 2001; Panksepp, 2012).

It is not only the environment or the task that shapes how the body responds – but also whether we experience that we have *chosen* it. When we have genuinely chosen an activity, ventral vagal tone often remains present, and the brain's default mode network (our network for inner reflection and self-referencing) can work together with systems for focused attention. An inner space opens where the body can be engaged without feeling trapped.

This *felt autonomy* is not only a mental sense of freedom, but a physiological signal that shapes the entire nervous system. Research shows that autonomy activates reward pathways and reduces stress (Deci & Ryan, 2000). When choice feels coerced, our inner space shrinks, sympathetic activation increases, and access to perception and creativity decreases.

In a ventral state, by contrast – where we are in contact with body, breath and surroundings – the sense of choice is stronger. The experience of self shifts from being a problem to be solved, to a process that is allowed to unfold (Dana, 2018). This gives the nervous system access to a broader, more peripheral way of seeing – both visually and existentially.

Practical applications: How trust can be supported in everyday life

- **In therapy:** Help the client come back to the body – to sensation and feeling *before* analysis. What is heard, felt, smelled? What is alive right now? Practice seeing oneself *here and now*: what is actually present, in this body, in this room?
- **In workplaces:** Create environments with natural light, variation and possibilities for movement. Encourage micro-pauses where the body can orient – ideally outdoors, or at least by a window. Allow a shift between focused and open awareness, and between sitting and moving.
- **For the individual:** Learn that the body is the place where life is felt as living. Practice feeling the body in space – not as a technique, but as daily reconnection: listen, look, breathe, stay. Give yourself opportunities to be in nature, listen to natural sounds, and let the gaze rest in a wider field. It gives the nervous system a chance to remember that it is not alone.

A synthesis: Conscious ANS Navigation

In earlier work I have described a transdisciplinary model I call Conscious ANS Navigation, integrating neurobiology, perception and existential presence (Strömberg, 2025). In this article I develop that perspective further by focusing on how trust grows through the body's relationship to perception and environment, and on why we do not have to create safety from scratch so much as reconnect to it.

Instead of viewing the ventral state as a passive "calm mode", the model describes it as a *living gateway* where both sympathetic movement and parasympathetic rest can be present at the same time. The key is **self-bearing presence** – the capacity to let feelings, sensations and thoughts move through the body while some part of us can see and hold them.

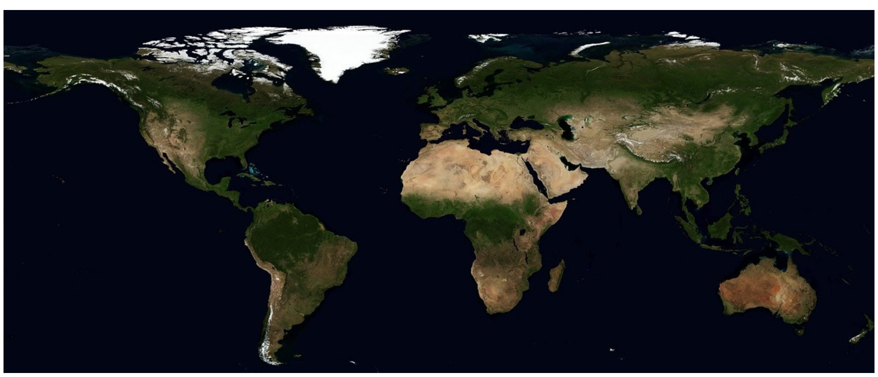
In other work I describe this as a form of **embodied metacognition**: not distance from experience, but an inner adult who can stay with what is felt.

The model starts from the premise that nothing in the nervous system is "wrong" – not even our protections. Fight, flight or collapse are all attempts to carry life, but in a space that has become too narrow. When we reconnect to a larger field of experience, these same movements can soften and integrate.

In practice, Conscious ANS Navigation involves learning to recognize which mode the nervous system is in – search or presence – and developing the capacity to let presence come in and hold whatever is there. This might look like noticing when the breath has become shallow and the gaze narrow (search mode), then gently allowing peripheral vision to soften and the body to feel the ground beneath it, so that more presence can join the experience. The change is not forced through willpower, but invited through sensory reconnection.

Unlike method-driven approaches, the model does not focus on performance, but on *reconnection*: allowing the body to feel itself in relation to the world. In this way, not only safety is strengthened, but also our ability to relate, regulate and recover.

It differs from cognitive behavioural therapy (CBT), which primarily focuses on identifying and changing thought patterns, and from mindfulness-based stress reduction (MBSR), which often emphasises non-reactive observation. In my work, presence is less about watching experience from a distance and more about entering into relationship with it – letting sensations and emotions be felt, named and held. Conscious ANS Navigation builds on a deeper integration of body, perception and autonomic regulation – where presence is not emptiness, but a living field that can hold both movement and stillness.



What I am proposing is not an entirely new theory in itself, but a new way of weaving together what we already know. Research on autonomy, ventral vagal function, interoception and the architecture of consciousness all point to fragments of the same map; this model offers a way of seeing them together, so that the experience of safety is not reduced to neurochemical states or cognitive stories, but seen as something that arises when body, perception and awareness move together. The model's key contributions include reframing ventral presence as a living gateway rather than a passive calm state, distinguishing *search mode* from both threat response and *presence mode*, and proposing that self-bearing presence needs to come before – and not only follow from – attempts at regulation.

Conclusion

What we long for is not more control, but more contact. More real presence – where the body gets to know that it is here. Not as a concept, but as lived experience.

And there, in presence, trust appears – not as something we achieve, but as something that returns.

About the author

Maria Strömberg is a mindfulness teacher, body-based educator, coach and retreat leader with more than fifteen years of experience supporting people's inner development. She is the creator of the model **Conscious ANS Navigation**, which integrates neurobiology, perception and existential presence as a foundation for wellbeing, self -knowledge and relational safety. Maria is based in Sweden, where she offers workshops, trainings and retreats. For more information, email mindfulnesskallan@gmail.com

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