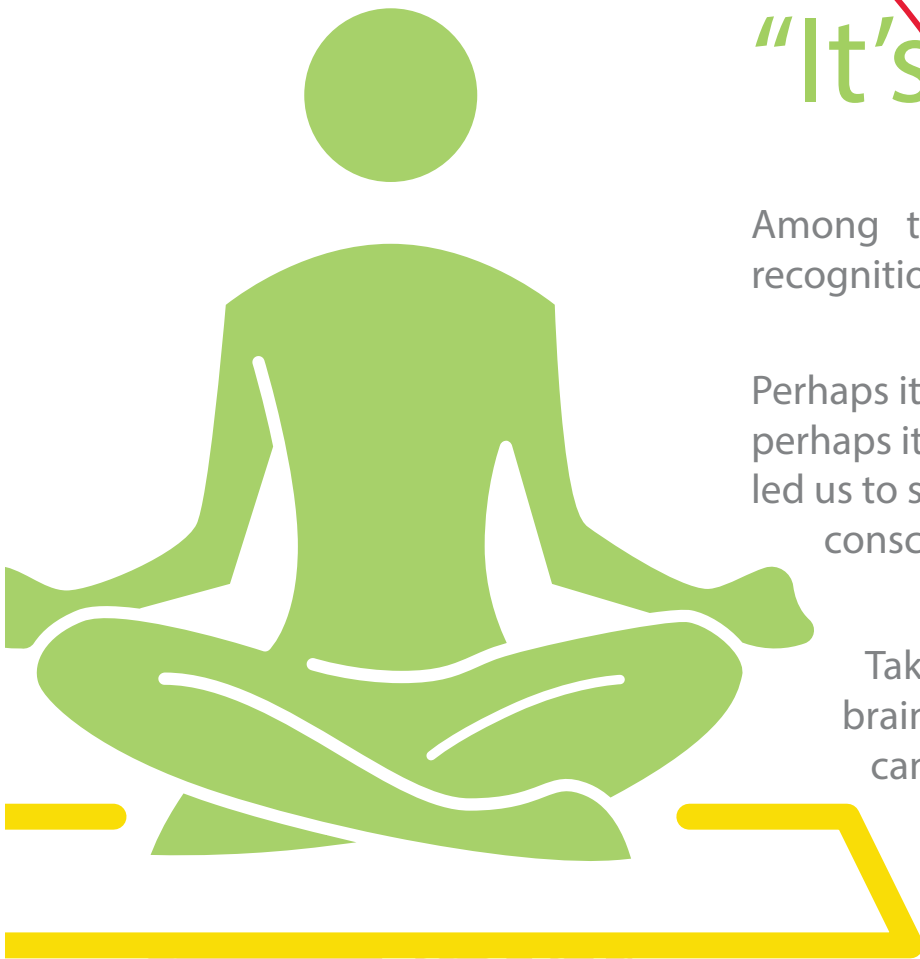


# “It’s <sup>NOT</sup> all in the mind.”

Among this century’s medical and social breakthroughs is the recognition that this statement is a complete fallacy.

Perhaps it’s our new awareness of the effects of ongoing stress, or perhaps it’s the mixed results of behaviorally based therapies that has led us to see there are aspects of our health which are outside of our conscious control.

Taking a fresh look at the way we develop and the way our brains connect with our bodies can give us insights into how we can become our best self.



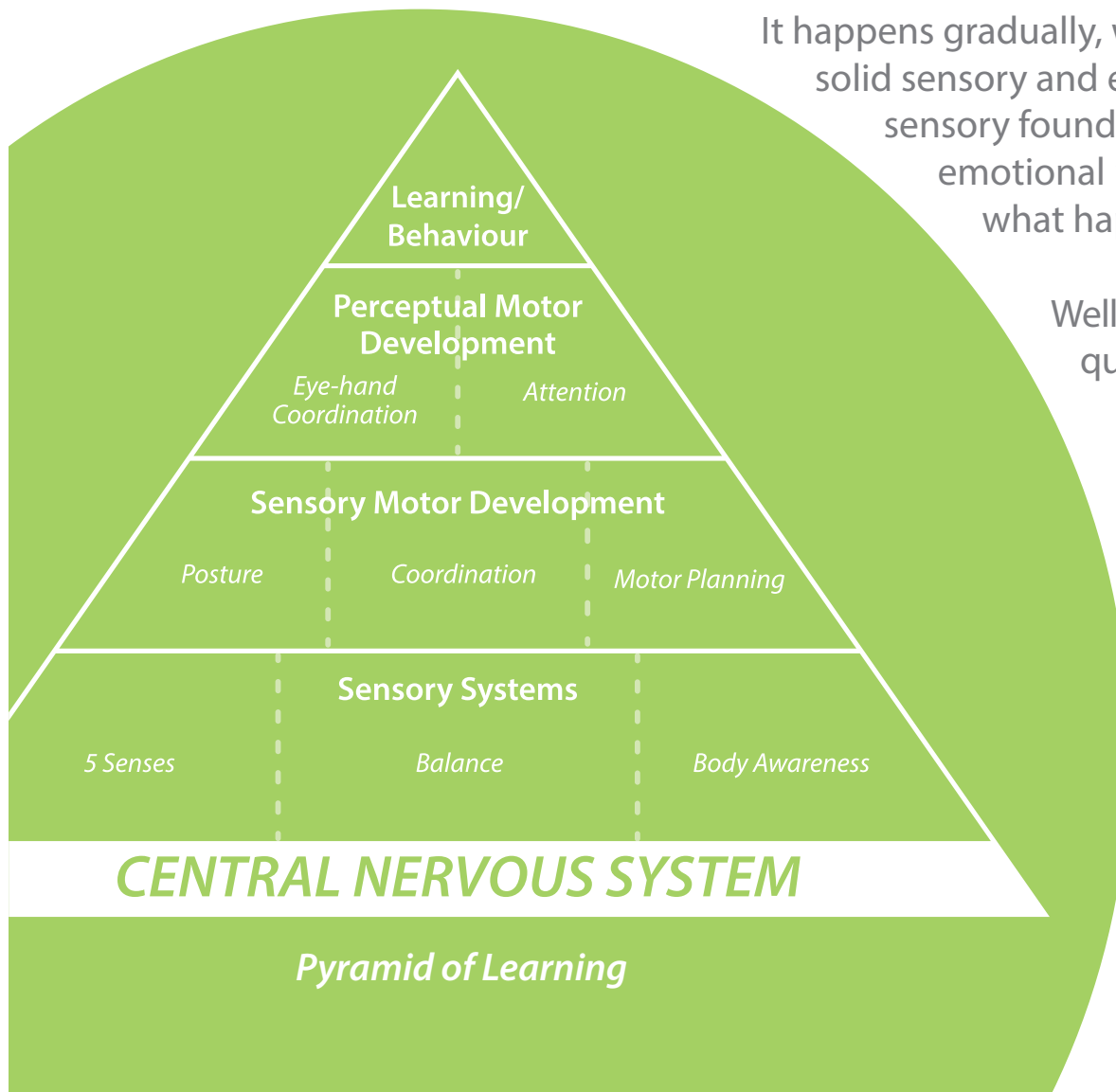
# How does the body-mind develop?

It happens gradually, with higher brain skills developing after a solid sensory and emotional foundation is set. Sometimes the sensory foundation isn't fully developed, sometimes our emotional regulation gets shaken by life's changes – what happens then?

Well, the bottom line is that we don't function quite as well.

*Higher brain functions such as learning, communication, and focus are dependent upon how well we are able to process incoming information at the sensory and emotional levels.*

As a neuroscientist once delicately said, **'garbage in, garbage out.'**



# Desperately seeking homeostasis

A lot is made of our need for more emotional balance these days, and for good reason. Those of us who are otherwise healthy are finding that stress has crept into our life and is disrupting our sleep, our work, and our relationships.

Those of us challenged by learning and developmental difficulties, or mental health issues, are realizing that improvement is dependant on our emotional state.

If we are worried and feeling unsafe our defenses go up, and whatever activity or therapy we are engaged in, becomes ineffective.

Finding emotional balance means developing a nervous system which, like a healthy body, has the flexibility to respond appropriately with action (**'fight or flight'**) or with relaxation (**'rest and restore'**).



# Today's holy grail: Connecting with the vagus nerve

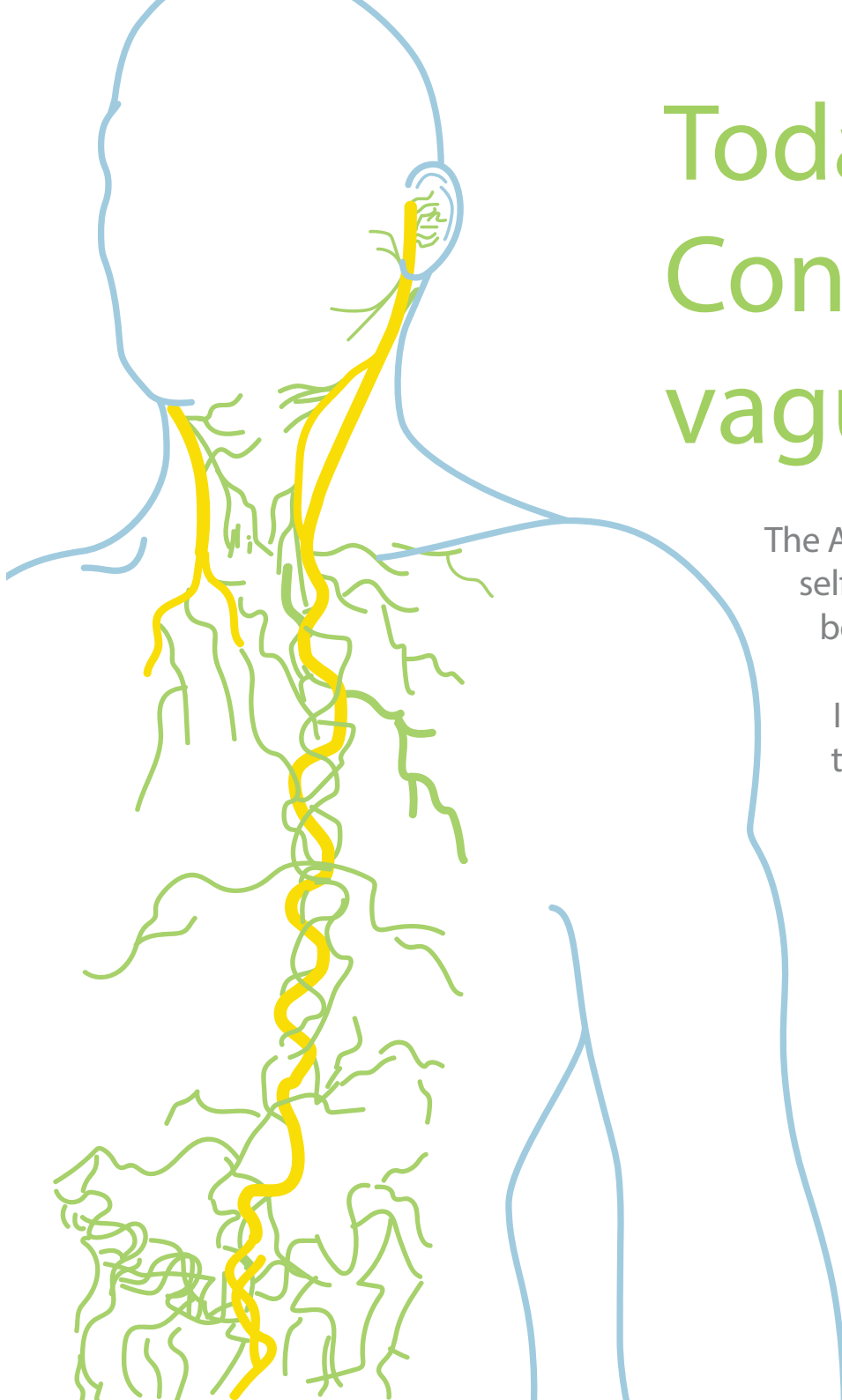
The Autonomic Nervous System (ANS) is at the center of our self-regulating process, influencing important systems in our body, including our heart, respiration rate, and digestion.

It is constantly sending our body signals, getting us ready to react to various situations at all times.

Our ANS is, in large part, governed by a nerve which is hugely important to our overall well-being: the **vagus nerve**.

The **vagus nerve** is the longest cranial nerve in the body - stretching from the brainstem all the way down to the stomach.

*Vagus Nerve*



# Two pathways of the vagus nerve

The vagus nerve is divided into 2 parts - the dorsal and ventral vagus.

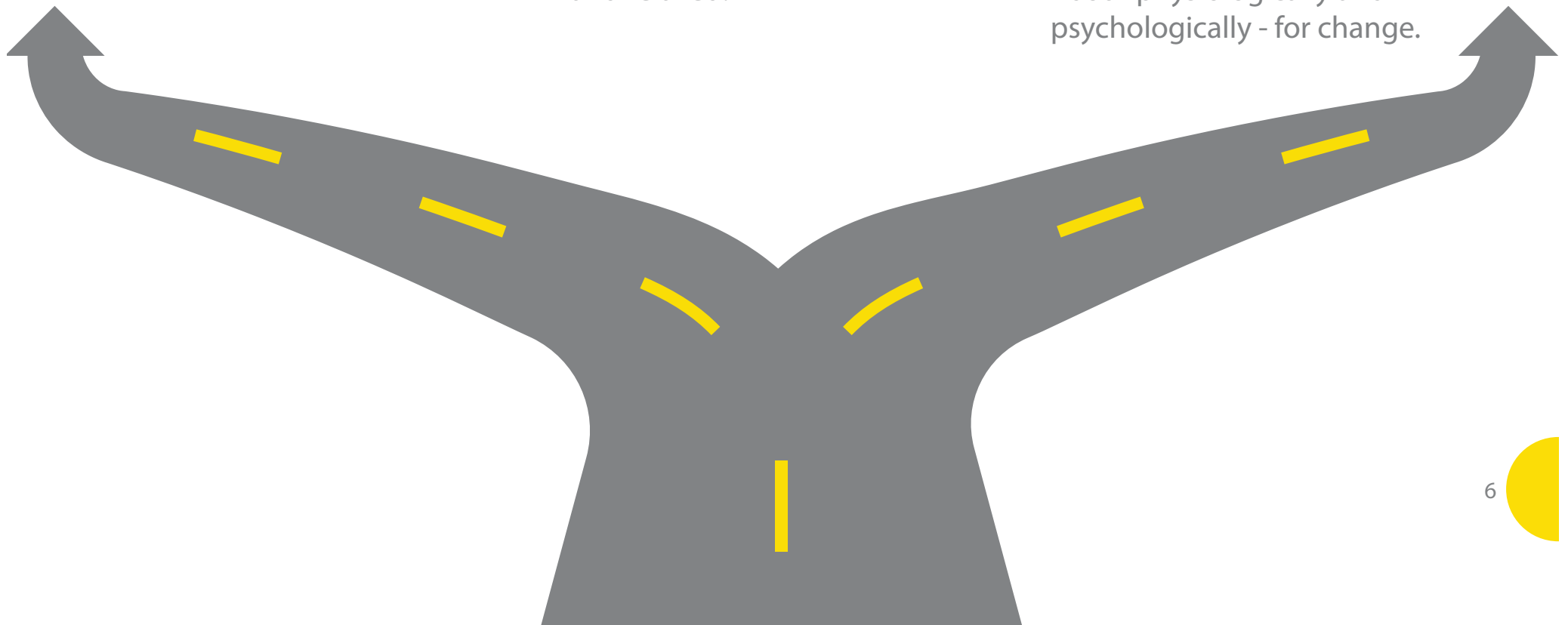
The dorsal vagal pathway responds to cues of extreme danger. An example of the dorsal vagus taking control is stage fright.

We feel immobilized, shut down, and unable to connect. This is an evolutionary adaption for survival, it's built into our nervous system.

The ventral vagal pathway responds to positive cues and supports feelings of being safe and relaxed.

When we are firmly grounded in the ventral vagus, our heart rate is slower, our blood pressure drops and our defenses are down. In this state, we are calm and regulated.

In the therapeutic context, we are 'available' - both physiologically and psychologically - for change.



# Vagal connection to social engagement

The vagus nerve can influence our emotional and physiological state.

This connection is explained by **Dr. Stephen Porges**, whose Polyvagal Theory (PVT) is widely accepted as a neurobehavioral scientific breakthrough.

*Polyvagal Theory explains the connection between stimulation of the ventral vagal system and feelings of safety.*

Feelings of safety allow us to engage with others socially.

We can stimulate the ventral vagus in many ways – through exercise, singing, yoga, meditation, massage, and music.



Integrated with our nervous system are sensory pathways that help us interpret our environment. Like the regulation of emotions, our ability to process sensory input determines our ability to think, learn, and communicate with others.

An individual unable to process sensory information properly can feel isolated and have difficulty sitting, socializing, making friends, and feeling happy in the world.

Back to the pyramid metaphor: the foundation for higher brain functioning isn't as solid as it needs to be. This can happen to any of us, but is particularly prevalent in those with learning and developmental difficulties, including autism, and those with trauma experiences.



# Neuroplasticity

The good news is that our brain and nervous system are plastic. With specific stimulation, we can actually rewire them to become more flexible emotionally and better at processing and responding to our environment.

*We can't necessarily control external situations or obstacles that faces us in any given moment, but we can change our responses to them.*

As we change our responses to external situations, everything gets better: we're sharper, more confident, better able to navigate social situations, and feel happier and more peaceful.



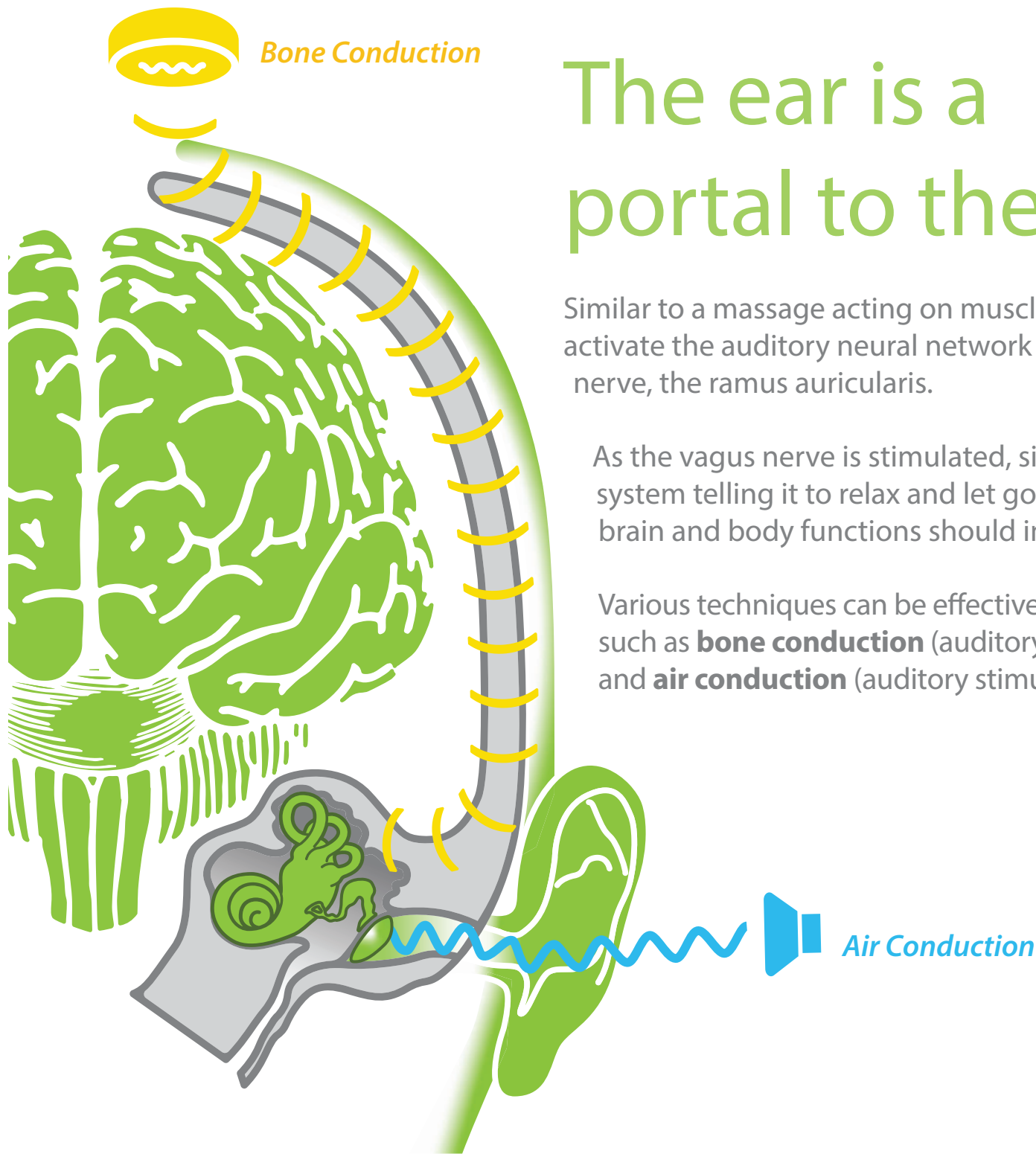


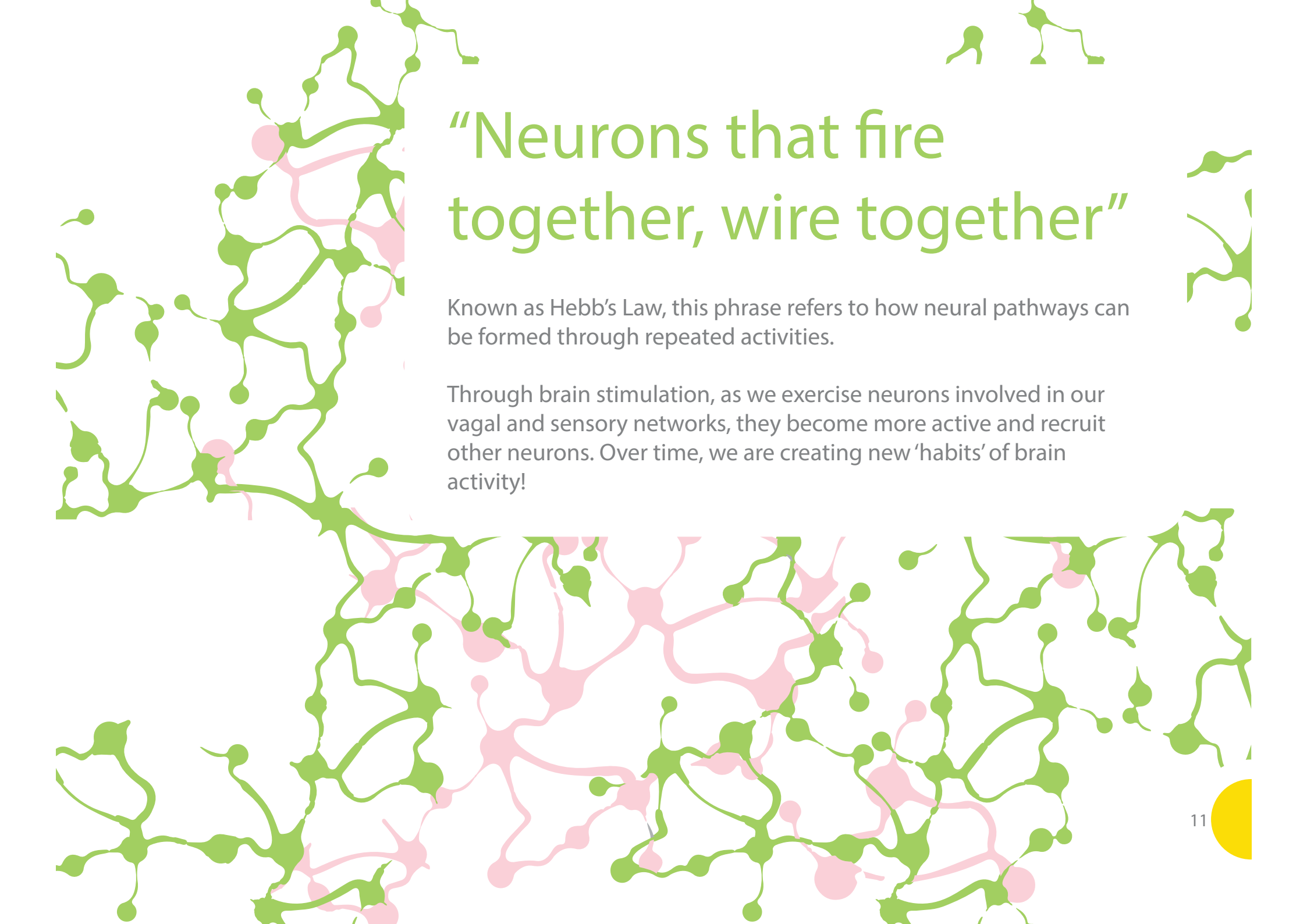
# The ear is a portal to the brain

Similar to a massage acting on muscles of the body, sound vibrations activate the auditory neural network including a branch of the vagus nerve, the ramus auricularis.

As the vagus nerve is stimulated, signals are sent to our nervous system telling it to relax and let go of tension. With relaxation, all brain and body functions should improve.

Various techniques can be effective at stimulating brain activity, such as **bone conduction** (auditory stimulation through the bones) and **air conduction** (auditory stimulation through our ear drums).



The background of the slide is a complex network of stylized neurons. The neurons are represented by green and pink shapes, with green lines forming the axons and dendrites, and pink shapes representing cell bodies or synapses. The network is dense and interconnected, filling most of the slide area.

# “Neurons that fire together, wire together”

Known as Hebb’s Law, this phrase refers to how neural pathways can be formed through repeated activities.

Through brain stimulation, as we exercise neurons involved in our vagal and sensory networks, they become more active and recruit other neurons. Over time, we are creating new ‘habits’ of brain activity!



# Cross training for your brain

Unyte and iLs offer multi-sensory training tools which activate parts of the brain responsible for emotional regulation, cognitive and sensory processing, and balance at the same time.

This cross training approach is validated by over a decade of research significantly driven by **Dr. Ron Minson** and **Dr. Stephen Porges**.

These studies have shown great success with learning and developmental difficulties, attention deficit, head injury and general performance enhancement.

## Why use multisensory training?

- We learn to focus and process sensory information - we're mentally sharper.
- The body becomes regulated - we're calm.
- Our motor and emotional control improves - we're confident.
- Our mood is uplifted - we're socially engaged.
- People enjoy being around us - we're happy in the world.