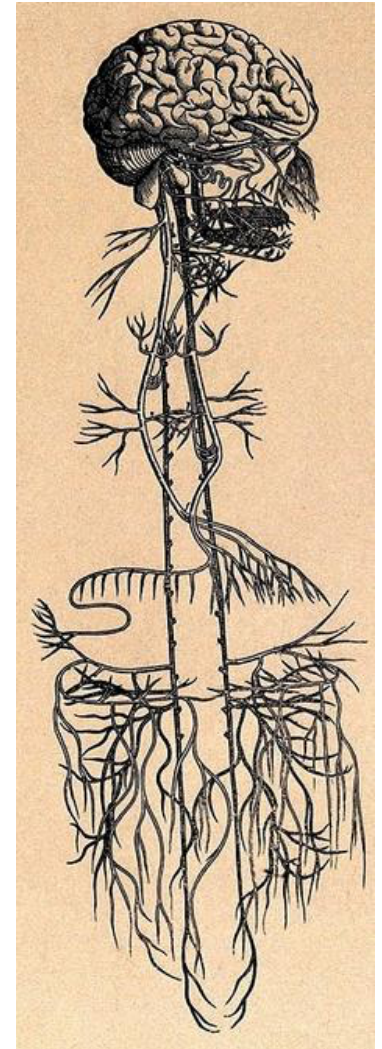


Relax...Re-engage...Return to Regulation
Engaging the Vagal Brake

Vagus is Latin for wander and the vagus nerve is aptly labeled, its name reflecting its many branches and the ways they wander throughout the body. This complex bundle of nerves begins its journey in the brainstem traveling to connect in multiple places in the body including the lungs, the heart, and abdominal organs. This beautiful image (partial image of *The brain, in right profile with the glossopharyngeal and vagus nerves*. Photolithograph, 1940, after a woodcut, 1543. Credit: Wellcome Collection) gives a sense of the many branches of the vagus. Rest with the image for a moment and take in the wonderful complexity of these connections.

One of these pathways forms a connection to the sinoatrial node of the heart — the heart's pacemaker. It is this connection that regulates the rhythms of the heart, slowing the heart rate to a healthy number of beats per minute. Without this regulating influence, the heart would beat dangerously fast. Because of this action, Stephen Porges named this particular ventral vagal pathway the *vagal brake*.

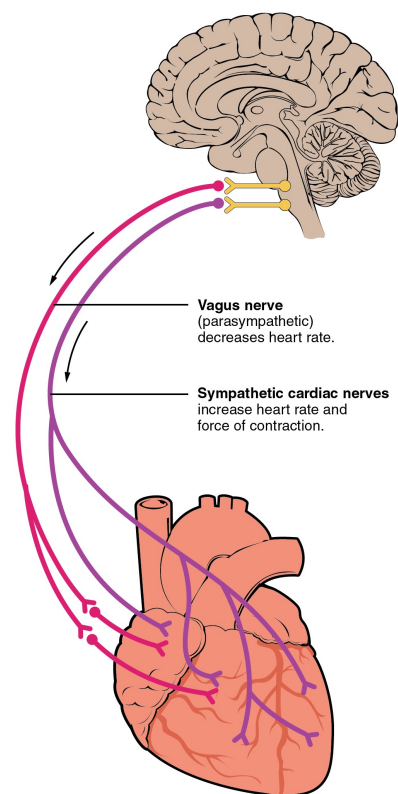
The vagal brake is responsible for speeding up and slowing down heart rate to effectively respond to the needs of the moment. The vagal brake works like the brakes on a bicycle. Imagine you are riding down a hill and you want to go a little faster. You release the brakes a bit



and feel the wheels spin faster. Then, when you want to slow down again, you squeeze the brakes. The vagal pathway to your heart doesn't actually physically disconnect and reconnect the way the brakes on your bicycle do. Instead it becomes more active or less active, relaxing and re-engaging, through the use of electrical signals and neurotransmitters.

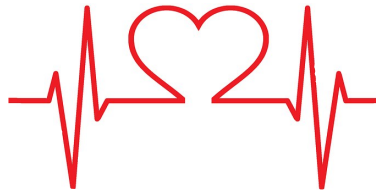
The vagal brake offers a way to efficiently engage the energy of the sympathetic nervous system while keeping the ventral vagal system online and in charge. As the vagal brake begins to relax, the energy flowing through that ventral pathway is reduced a bit and the sympathetic energy that is in the background begins to move into the foreground. Then as the vagal brake re-engages, the process is reversed, sympathetic moving to the background and ventral vagal returning to the foreground. This subtle pattern happens with every breath cycle. On each inhalation, the brake relaxes just a bit allowing a slight speeding up of the heart and then re-engages on the exhalation to bring a return of the slower beat. The vagal brake is pictured in this image by the red pathway while the sympathetic input to the heart is pictured by the purple pathway. Take a moment and play with the image of these two pathways. Imagine the ebb and flow of energy in the red pathway that allows the energy in the purple pathway to emerge and fade. Relax, then re-engage, relax, then re-engage.

With the vagal brake relaxing but not fully releasing, we have access to a range of responses including feeling calm,



engaged, joyful, excited, passionate, playful, attentive, alert, watchful, while still safely under the regulation of the ventral vagal system. The vagal brake allows us to rapidly engage and disengage, to quickly energize and calm in response to the demands of the moment. When working well, it brings flexibility to our responses and a sense of ease to transitions. Without an efficiently functioning vagal brake, we lose our anchor in the ventral vagal state of safety and connection and move into the sympathetic nervous system's protective states of fight and flight.

The vagal brake is an embodied system of regulation that we can intentionally access and exercise. Using movement and imagery we can experiment with engaging, relaxing, and re-engaging the vagal brake and experience the ways this part of the ventral vagal system helps us safely navigate everyday challenges. With ongoing practice, we create more flexibility in our responses and feel the benefits of a resilient autonomic nervous system.



Exercising the Vagal Brake

Movement

- Stand with your feet slightly apart (either side by side or one foot in front of the other). Imagine one foot anchored in ventral and the other placed in your sympathetic system. Shift the balance back and forth between your feet and feel your vagal brake relaxing and re-engaging as the flow of sympathetic energy is regulated. Experiment with losing contact with ventral (lift your foot off the ground) and finding your way back (feel the ground under your foot again). Play with the edges of balance keeping just the toes of your ventral vagal foot in contact with the ground as you lean into your sympathetic system. Imagine moments when more sympathetic mobilizing energy is needed and experiment with adjusting the balance between your feet. Step into the amount of sympathetic energy you need and then step back into ventral as the moment is managed.

Imagery

- Invite an image of your vagal brake that brings to life your sense of regulating the increase and decrease of energy in your ventral vagal pathways. Find an image that gives you the feeling of controlling the dimensions of something (e.g. bicycle brakes, a door, a bridge, a gate, a faucet, the dimmer switch on a light); something you can manipulate and measure the change. For some people a motion is their preferred representation and most of the time when using an image there is also a motion associated with the way the object is controlled. Let your imagination guide you.
- Once you've chosen an image/motion, use it to bring your attention to engaging, relaxing, and re-engaging the brake. See yourself as an active operator of your vagal brake shaping the rise and fall of energy. Bring the image/motion to life — see it, hear it,

feel yourself adjusting it, and feel your energy moving in synchrony with the changing image/motion.

- Now, begin to play with the experience of intentionally exercising your vagal brake. Start with a small challenge, perhaps something that is commonly experienced in your day-to-day life. On a scale of intensity from 1-10, choose something in the 1-3 range. Use your image/motion to visualize relaxing the brake to meet your chosen challenge and re-engaging the brake when the challenge is over. Feel the influence you have over the ways your vagal brake works in service of the successful resolution of the challenge.
- Once you feel confident using your vagal brake image/motion to successfully address small challenges, experiment with a variety of experiences. Notice how your vagal brake relaxes allowing your energy to rise to meet more intense challenges while maintaining the ventral vagal state of safety and then re-engages bringing a return to your ventral vagal starting point.
- As you create skill using your vagal brake as a resource to meet a challenge and maintain regulation, include environmental experiences and relationship stressors in your practice.