

The Embodied Brain—Key Points

1) Our Heart is Actually a Brain

“Far more than a simple pump, as was once believed, the heart is now recognized by scientists as a highly complex system with its own functional ‘brain’.... “

~Roland McCraty, Institute of HeartMath

The heart has a nervous system and neurons of its own. Research in the field of Neurocardiology has shown that the heart can learn, remember, and make decisions separate from the brain in our heads. And research by the HeartMath Institute has shown that the signals from the heart, as conducted through the vagus nerve (see below), precede decision-making in the brain. In other words, the heart thinks first, and thinks faster, influencing the brain in the areas of perception, cognition and emotional processing.

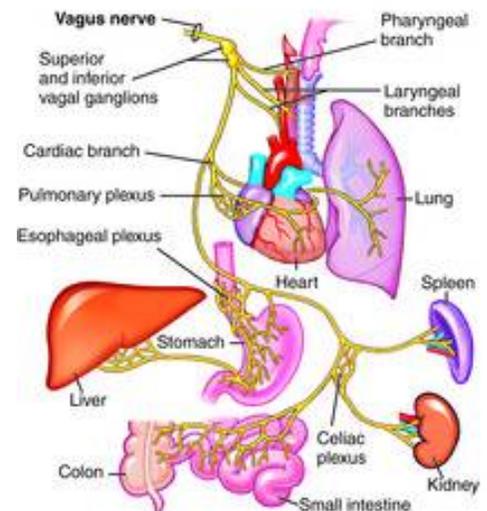
The heart also generates a powerful electromagnetic field – much more powerful than that of the brain. To quote the experts at the HeartMath Institute, “Compared to the electromagnetic field produced by the brain, the heart’s field is about 60 times greater in amplitude, and permeates every cell in the body. The magnetic component is approximately 5000 times stronger than the brain’s magnetic field and can be detected several feet away from the body with sensitive magnetometers.”¹

2) Our Gut is a Sort of Brain, Too

The greatest concentration of serotonin (a key neurotransmitter), which is involved in mood control, depression and aggression, is found in your intestines, not your brain. Studies have found that high doses of probiotics² (which serve to balance the gut flora in positive ways and unlike antidepressants, have no negative side effects) cause mice to face challenges with more perseverance and take more risks than mice not treated with probiotics. In addition, the gut plays a key role in immune function and intuition.

3) The Vagus Nerve is Really Important

The name comes from the medieval Latin word *vagus*, which literally means "wandering" (*vagrant*, *vagabond* and *vague* all come from the same root).³ This nerve “wanders” through our body, connecting to our organs and conveying sensory information to and from the central nervous system (CNS). 80-90% of the fibers in the vagus nerve are *afferent*, which



¹ McCraty et al, *Our Heart has a Mind of its Own*, Institute of Heartmath, www.heartmath.org

² e.g., acidophilus

³ Wikipedia

means they take information back to the CNS. In other words, the vagus nerve is the information superhighway connecting the body to brain, with 80-90% of the traffic flowing up to the brain from our organs and viscera (to the right hemisphere of the brain), and only 10-20% of the information going **from** the brain to the body.

The vagus nerve also controls micro-facial movements and vocal tone (prosody) that work below the level of consciousness to signal others that they are or are not safe.

4) Our Body Takes Things Literally

Our bodies are remarkably literal in their interpretation of the world. (Perhaps this is because the vagus nerve is sending back so much information from the body to the brain.) There are numerous astonishing research studies showing this – a recent one proved that if you literally put people in boxes they think more restrictively and when literally “out of the box” are more creative.⁴ Another showed that people who hold a warm drink see a stranger's personality as warmer than those not holding a drink. Mimicking the phrase "on the one hand, on the other hand" by moving your hands alternately in a lifting motion will generate more ideas than lifting a single hand. And so on. People who sat on hard chairs negotiated harder for a salary increase than those in soft chairs. Donation kettles at the top of an escalator garnered more donations than those at the bottom of the escalator (we associate going “up” with being better people).

5) Our Bodies Predict Events Before They Happen

Many studies have shown that physical responses including heart rate, pupil dilation and brain activity change between one and 10 seconds before people see a scary image (like a snake). In these experiments, frightening pictures were interspersed with neutral ones, so there weren't any clues about which photo would come next. Scientists have no idea how this happens, and it is so hard for mainstream science to believe that it is considered controversial, but the studies have not been adequately debunked.

Conclusion

Our bodies are constantly interpreting our environment. At BEabove, we believe the task of coaches and teachers is to help people become more consciously aware of ourselves as embodied brains. Because the vagus nerve comes into the right hemisphere of the brain, which does not look at things individually, logically, or in a linear manner, we need to develop the ability to interact with this vague (interesting semantic connection there) information so that we can grasp it, understand it, and use it effectively. This is the job of coaching, counseling, and healing.

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⁴ Association for Psychological Science, March, 2012, <http://www.psychologicalscience.org/>