

# Neuroscientists Discover a Unique Link Between Breathing and The Brain



By Anna Hunt | [Waking Times](#)

The relationship between the breath and the brain is very powerful. We know that much. Yet, we've understood very little about the mechanics behind this relationship. Until now. In a [new study](#), neuroscientists were able to identify exactly how breathing changes the brain.

## Breathing and the Brain

Our ability to control the breath is one way we differ from other mammals. Most animals do not alter their breathing. Instead, activities such as running or resting are responsible for changes in breath patterns. Thus, human capacity to alter our breath volitionally, in addition to our ability to suppress thoughts and control emotions, makes our brain

unique.

This extraordinary ability regarding breathing is the foundation for therapies that focus on and regulate the breath. For example, a common technique used during Cognitive Behavioral Therapy is square breathing. This method involves slowing and pausing the breath. Consequently, this exercise helps patient suffering from [anxiety](#) to relax.

Practitioners of qi gong, [yoga](#) and tai chi use similar breath exercises. They utilize the breath to improve physical health, as well as the mind. These practices have helped many people become calmer, healthier and happier. Yet, they offer little insight into what's really happening in the physical body.

## **How Deep Breathing Affects the Brain**

Post-doctoral researcher Dr. Jose Herrero, in collaboration with Dr. Ashesh Mehta, a renowned neurosurgeon at North Shore University Hospital in Long Island, took to exploring our unique ability to control the breath and its effects. Furthermore, they investigated how breathing can help us access and control parts of the brain that are typically inaccessible.

These scientists found that “volitional control and awareness of breathing engage distinct but overlapping brain circuits.” What does this mean? Basically, when we voluntarily control the breath, even if we just focus on the breath, we create additional access and synchronicity between different parts of the brain.

Dr. Herrero and Dr. Mehta's study began by observing patients when they were breathing naturally. Then, they gave their patients a task of clicking a button when a certain image appeared on a computer screen. When they measured respiration during this exercise, the activity ensured that the patients were not focused on their breathing.

Next, the researchers told their patients to speed up the pace of breathing. They also asked the patients to count their breaths. The scientists discovered that during this exercise, the brain changed. Controlled breathing activated different areas of the brain. This included parts involved in both automatic and intentional breathing.

The findings provide neural support for advice individuals have been given for millennia: during times of stress, or when heightened concentration is needed, focusing on one's breathing or doing breathing exercises can indeed change the brain. This has potential application to individuals in a variety of professions that require extreme focus and agility.

## **First-hand Look at the Brain**

What makes this study unique is that it did not use imaging technologies such as the EEG to infer the neural activity. Instead, it involved monitoring brain activity using electrodes implanted in the human brain. This gave the researchers a rare opportunity to look directly inside the brains of their patients.

The study participants were patients undergoing treatment for epilepsy that doctors couldn't control with medication. Thus, neurosurgeons surgically implanted electrodes in these patients' brains to identify the location of seizure onset. These patients were kept in the hospital for days, with electrodes continuously monitoring their brain. Thus, the researchers were able to observe first-hand the relationship between [breathing and the brain](#).

## **Final Thoughts**

For a seasoned yogini like me, hearing that deep breathing alters the mind is nothing new. Personal experience has shown me that breathing can slow down my thoughts and help me relax during moments of overwhelm and stress. It's exciting to see

new research that gives a more tangible look at something that's often very objective and personal. Please share if and how you have benefited from [breathing exercises](#).

### **About the Author**

[Anna Hunt](#) is the founder of [AwarenessJunkie.com](#), an online community paving the way to better health, a balanced life, and personal transformation. She is also the co-editor and staff writer for [WakingTimes.com](#). Anna is a certified Hatha yoga instructor and founder of Atenas Yoga Center. She enjoys raising her three children and being a voice for optimal human health and wellness. Visit her [essential oils store here](#).

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