



TECHNIQUES IN ENERGY MEDICINE

Integrating Energy: The Amazing Brain Body Nexus

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A new study by researchers at Washington University School of Medicine in St. Louis indicates that the idea that the mind and body are inextricably intertwined is not an abstraction. The study demonstrates that parts of the brain that control movement are part of a network in thinking and planning, and control of involuntary bodily functions such as blood pressure and heartbeat and provide a linkage of body and mind within the brain.

The mind refers to the thoughts, feelings, beliefs, and images that we experience. You are physically affected by what goes on in your mind. For example, your heart rate may increase when you experience feelings of anxiety. If you have chronic back pain, you may be more vulnerable to feelings of irritability or frustration. When you experience stress, your body engages in the fight or flight response. Your heart beats faster and you can't catch your breath, and you can barely move because your muscles tighten. When you experience anger, the mind sends the

body a message to flee or fight by sending blood and other chemicals to your muscles. You might clench your fists and or grind your teeth

This explains why anxiety makes people pace back and forth; and why people who exercise regularly report a more positive outlook. Also, the highly active and goal-oriented part of your mind connects to the parts of the brain that control breath and heart rate. If you calm one down, it has feedback effects on the other. People report if you meditate that you calm your body and your mind. If you use breathing exercises, you also calm your body and your mind.

The mind and body are not two separate entities. Physical and emotional health are intertwined in what is known as the mind-body connection. Examples of mind-body connection that positively impact the brain and body are the use of guided imagery, breath work, yoga, and meditation.

The mind-body connection also manifests in the

communication between the brain and the gut. About 9% of serotonin, a primary hormone involved in mood and emotion regulation, is produced in the gastrointestinal tract “the belly brain.” Information travels from the gut to the brain.

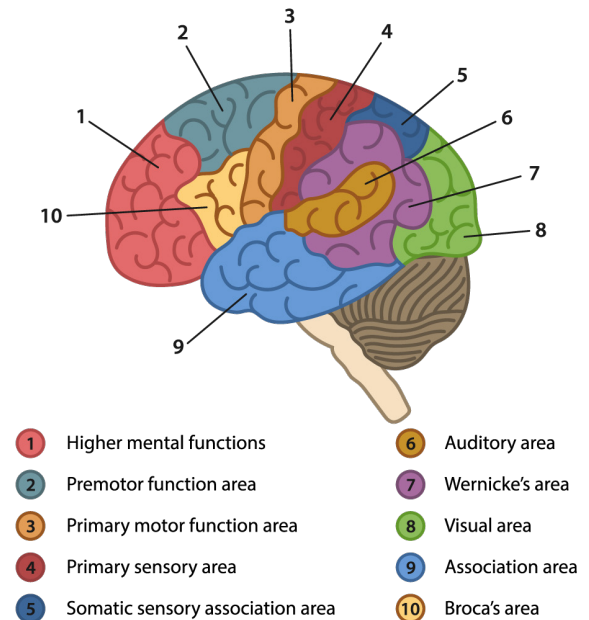
Learning how the brain works you gain a better understanding of why and how your body breaks down and what to look for in your own behavior and symptoms. The brain is the most complex tissue in the human body weighing about three pounds. It is one of our heaviest organs and the most oxygen demanding. It uses up to 30% of the body’s glucose supply to function.

The frontal lobe or cortex is the largest lobe in the brain. It is located directly behind your forehead and stretches between the temples. A healthy frontal lobe allows us to reason, suppress socially unacceptable behavior, govern emotional drive, motivation, planning, activates muscles and fine motor coordination such as handwriting. If the frontal lobe is severely injured, then one’s personality can change and never be the same.

Researchers have discovered that within the frontal lobe or cortex of the brain is a region named the motor cortex and lies within the brain’s cerebral cortex and works with other brain areas and the spinal cord to translate thought into physical motions. The motor cortex is studied for its role in skills acquisition, muscle coordination and integration of sensory information to produce complex motor actions. The motor cortex governs body movement and connects with a network involved in thinking, planning, mental arousal, pain, and control of internal organs as well as functions such as blood pressure and heart rate.

The motor cortex is divided into the primary motor cortex, nonprimary motor cortex, and supplementary motor area (SMA). The primary motor cortex generates neural impulses that pass down to the spinal cord and controls the execution of movement. The nonprimary motor cortex includes preparation for moving. The supplementary motor area (SMA) generates the

Functional areas of the Cerebral Cortex



planning of movement, sequences, and coordination of two sides of the body.

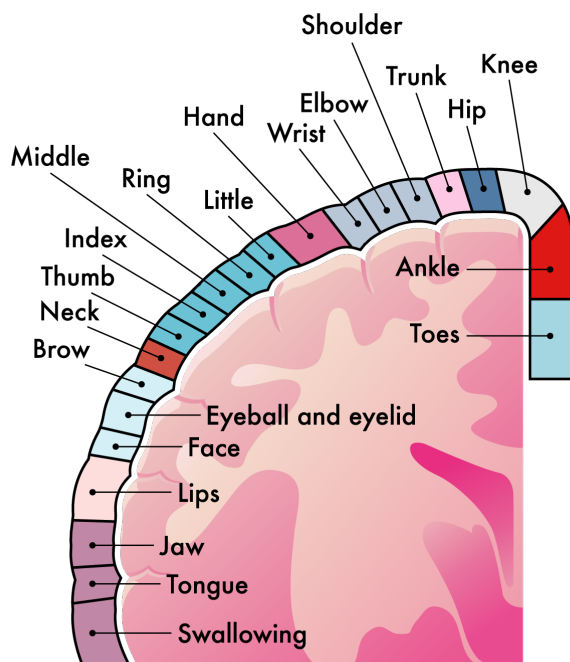
The primary motor cortex is important for initiating motor movements through large nerve cells by way of motor neurons and the axons of these neurons exit the motor cortex carrying information about voluntary movements. These neurons carry information to the spinal cord and then to the brainstem at the base of the brain. The cortex cranial nerves initiate head, neck and face movement. The primary motor cortex sorts and initiates individual movements of many muscle groups.

The primary motor cortex is found in a ridge called the precentral gyrus, which is positioned just in front of the central sulcus. The nonprimary motor cortex is located anterior to the primary motor cortex. The motor cortex is the only motor control center above the spinal cord and directly communicates with most of the other motor control structures such as the spinal cord, basal ganglia, and cerebellum.

Both right and left hemispheres have a motor cortex, with each side controlling muscles on the opposite side of the body (i.e., the left hemisphere controls muscles on the right side).



Motor Cortex Functions



Common causes of dysfunction of the motor cortex are a result of a stroke or traumatic brain injury. Here are some of the symptoms.

- Weakness of one side of the body
- Poor coordination of motor movements and poorer dexterity
- Fine motor skills such as writing are affected
- Involuntary reactions of muscles
- Decreased endurance and muscles may become fatigued more easily and quicker than normal.

The brain has the ability for neuroplasticity, to reorganize and compensate for damaged areas. The brain can change its structure so that parts of the brain that are healthier and take control of muscle movements and replace the motor cortex. Physical and occupational therapies work with individuals with motor cortex damage. This is accomplished with repetitive exercise and activities to activate certain muscle groups.

In conclusion, the mind-body connection is real and powerful and impacts our wellbeing both mentally and physically. If we can learn to harness the power of the mind-body connection in our own lives and in our clients and patients, we can optimize our happiness and health. €

Resources:

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