

The Holistic Truth

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Your Second Brain- Breaking NEWS on the GUT – BRAIN Connection

If you've ever "gone with your gut" to make a decision or felt "butterflies in your stomach" when nervous, you're likely getting signals from an unexpected source: your second brain. Hidden in the walls of the digestive system, this "brain in your gut" is revolutionizing medicine's understanding of the links between digestion, mood, health and even the way you think. Scientists call this little brain the enteric nervous system (ENS). The ENS is two thin layers of more than 100 million nerve cells lining your gastrointestinal tract from esophagus to rectum.



What Does Your Gut's Brain Control?

Unlike the big brain in your skull, the ENS can't balance your checkbook or compose a love note. "Its main role is controlling digestion, from swallowing to the release of enzymes that break down food to the control of blood flow that helps with nutrient absorption to elimination," explains Jay Pasricha, M.D., director of the Johns Hopkins Center for Neurogastroenterology, whose research on the enteric nervous system has garnered international attention. "The enteric nervous system doesn't seem capable of thought as we know it, but it communicates back and forth with our big brain—with profound results."

Neurotransmitters are natural chemical messengers in the nervous system that send signals from one nerve cell across a synapse to another nerve cell or target organ. Serotonin plays a role in sleep, mood, intestinal function, pain control, and inflammation. Dopamine plays a role in cognitive function, memory, learning, and pleasure.

In our bodies, dopamine is released because of rewarding experiences. Certain nutrients and amino acids may help to balance levels of neurotransmitters by providing co-factors that assist in the body's ability to manufacture neurotransmitters.*

The gut has a mind of its own, the "enteric nervous system". Just like the larger brain in the head, researchers say, this system sends and receives impulses, records experiences and respond to emotions. The gut's nerve cells are influenced by the same neurotransmitters so the gut can upset the brain just as the brain can upset the gut.

The gut's brain or the "enteric nervous system" is located in the sheaths of tissue lining the esophagus, stomach, small intestine and colon. Considered a single entity, it is a network of neurons, neurotransmitters and proteins that zap messages between neurons, support cells like those found in the brain proper and a complex circuitry that enables it to act independently, learn, remember and, as the saying goes, produce gut feelings.

The gut's brain is reported to play a major role in human happiness and misery. Many gastrointestinal disorders like colitis and irritable bowel syndrome originate from problems within the gut's brain. In ad-

dition, it is now known that most ulcers are caused by a bacterium not by hidden anger at one's mother.

Brain or GUT?

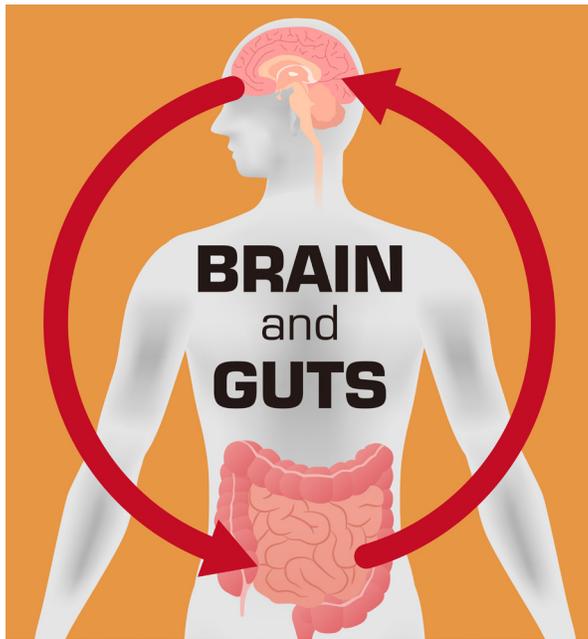
Given the two brains' commonalities, other depression treatments that target the mind can unintentionally influence the gut. The enteric nervous system uses more than 30 neurotransmitters, just like the brain, and in fact, 95 percent of the body's serotonin is found in the bowels. Irritable bowel syndrome which afflicts more than two million Americans also arises in part from too much serotonin in our entrails, and could perhaps be regarded as a "mental illness" of the second brain.

Brain

- 85 Billion neurons
- 100 neurotransmitters
- Produces 50% of all dopamine and 5% of serotonin

Gut

- 500 million neurons
- 40 neurotransmitters identified
- Produces 50% of all dopamine and 95% of serotonin
- It is this brain that could be responsible for your craving under stress for crisps, chocolate and cookies.



GUT to BRAIN Communication

"The system is way too complicated to have evolved only to make sure things move out of your colon," says Emeran Mayer, professor of physiology, psychiatry and biobehavioral sciences at the David Geffen School of Medicine at the University of California, Los Angeles (U.C.L.A.).

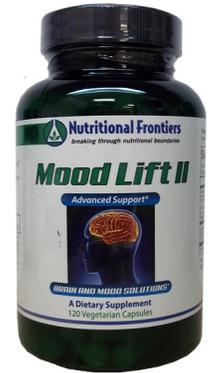
For example, scientists were shocked to learn that about 90 percent of the fibers in the primary visceral nerve, the vagus, carry information from the gut to the brain and not the other way around. "Some of that info is decidedly unpleasant," Gershon says. We are now faced with the possibility of both prevention and treatment of neurological/neuropsychiatric difficulties via proper gut health. On the other hand, stress-reduction and other psychological treatments can help prevent and treat gastrointestinal disorders. This discovery can potentially lead to reduced morbidity, impair-

ment, and chronic dependency on health care resources.

The most empowering aspect to the gut-brain connection is the understanding that many of our daily lifestyle choices play a role in mediating our overall wellness. This whole-body approach to healthcare and wellness continues to show its value in our longevity, well-being, and quality of life: that both physical and mental health go hand-in-hand.

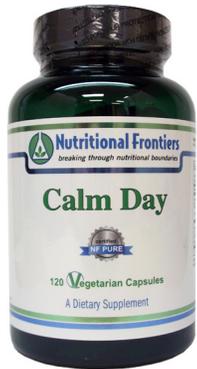
Mood Lift II

The unique combination in Mood Lift provides a formula with activity that differs from anything else. The ginkgo provides an extra benefit by preserving and extending the actions of serotonin and preventing the catabolism of serotonin that is formed from its precursor 5-HTP.



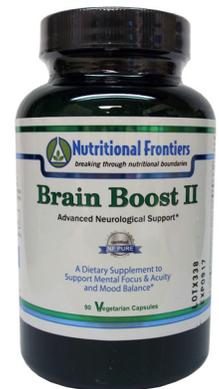
Calm Day

This formula is designed to support the neurotransmitters dopamine and serotonin, with the potential to improve problems with sleep and anxiety.* Neurotransmitters are natural messengers in the nervous system that send signals from one nerve cell across a synapse to another nerve cell or target organ. Serotonin plays a role in sleep, mood, intestinal function, pain control, and inflammation. Dopamine plays a role in cognitive function, memory, learning, and pleasure. In our bodies, dopamine is released as a result of rewarding experiences. Certain nutrients and amino acids may help to balance levels of neurotransmitters by providing co-factors that assist in the body's ability to manufacture neurotransmitters.*



Brain Boost II

supports proper nerve and brain function, circulation, is needed for proper nerve transmission from the brain through the central nervous system, and increases norepinephrine and dopamine which supports learning and memory. Brain Boost II is also designed to help with neurotransmitter production, and is necessary for normal neuron and brain function, memory, mood, alertness, attention span and problem solving.



Sleep Time

The Sleep Time formulation, to be taken 1 hour before bed, is designed to improve problems with sleep.* Sleep Time was formulated to help support the neurotransmitters dopamine and serotonin, which have a role with sleep cycles and anxiety.* Neurotransmitters are natural chemical messengers in the nervous system that send signals from one nerve cell across a synapse to another nerve cell or target organ. Serotonin plays a role in sleep, mood, intestinal function, pain control, and inflammation. Dopamine plays a role in cognitive function, memory, learning, and pleasure. In our bodies, dopamine is released as a result of rewarding experiences. Certain nutrients and amino acids may help to balance levels of neurotransmitters by providing co-factors that assist in the body's ability to manufacture neurotransmitters.*

