

You Have A Second Brain In Your Gut, By A Newly Discovered Neuron Circuit**Dr. Hiral Jadav¹ Dr. Abhijit Patil²**¹Post Graduate Scholar, PG Dept. Of Rachana Sharir,
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Parul Institute of Ayurved, Parul University, Vadodara (Gujrat)**Abstract:**

A primal connection exists between our brain and our gut. We often talk about a “gut feeling” when we meet someone for the first time. We’re told to “trust our gut instinct” when making a difficult decision or that it’s “gut check time” when faced with a situation that tests our nerve and determination. This mind-gut connection is not just metaphorical. Our brain and gut are connected by an extensive network of neurons and a highway of chemicals and hormones that constantly provide feedback about how hungry we are, whether or not we’re experiencing stress, or if we’ve ingested a disease-causing microbe. This information superhighway is called the brain-gut axis and it provides constant updates on the state of affairs at your two ends. That sinking feeling in the pit of your stomach after looking at your post holiday credit card bill is a vivid example of the brain-gut connection at work. You’re stressed and your gut knows it immediately.¹

Keywords: gut, second brain, stomach, connection

Introduction:

The enteric nervous system is often referred to as our body’s second brain. There are hundreds of millions of neurons connecting the brain to the enteric nervous system, the part of the nervous system that is tasked with controlling the gastrointestinal system. This vast web of connections monitors the entire digestive tract from the esophagus to the anus. The enteric nervous system is so extensive that it can operate as an independent entity without input from our central nervous system, although they are in regular communication. While our “second” brain cannot compose a symphony or paint a masterpiece the way the brain in our skull can, it does perform an important role in managing the workings of our inner tube. The network of neurons in the gut is as plentiful and complex as the network of neurons in our spinal cord, which may seem overly complex just to keep track of digestion. Why is our gut the only organ in our body that needs its own “brain”? Is it just to manage the process of digestion? Or could it be that one job of our second brain is to listen in on the trillions of microbes residing in the gut? Operations of the enteric nervous system are overseen by the brain and central nervous system. The central nervous system is in

communication with the gut via the sympathetic and parasympathetic branches of the autonomic nervous system, the involuntary arm of the nervous system that controls heart rate, breathing, and digestion. The autonomic nervous system is tasked with the job of regulating the speed at which food transits through the gut, the secretion of acid in our stomach, and the production of mucus on the intestinal lining. The hypothalamic-pituitary-adrenal axis, or HPA axis, is another mechanism by which the brain can communicate with the gut to help control digestion through the action of hormones. This circuitry of neurons, hormones, and chemical neurotransmitters not only sends messages to the brain about the status of our gut, it allows for the brain to directly impact the gut environment. The rate at which food is being moved and how much mucus is lining the gut both of which can be controlled by the central nervous system have a direct impact on the environmental conditions the macrobiotic experiences.²

How Does The Enteric Nervous System (ENS) Work?

To fully understand how the ENS works, researchers from Flinders University analyzed the large intestines of euthanized mice, each housing more than 400,000 individual neurons. They used high-resolution neuron imaging technology, as well

as electrodes to measure electrical impulses. The researchers found a rhythmic electric pulsing in the rodents' intestines that caused gut contractions, which then moved waste through the intestines and out of the body.

There's Science Behind Gut Feelings-

"This represents a major pattern of neuronal activity in the mammalian peripheral nervous system that has not previously been identified," the study authors noted in the journal *Neuroscience*. This neuronal activity is linked to a larger system called colonic migrating motor complex (CMMC). More commonly known as that rumbling in your gut that occurs when you're not eating, CMMCs move indigestible material like fiber through your body. CMMCs also help shuttle bacteria around to different parts of the bowels, allowing the good bacteria to do their housekeeping and the bad bacteria to vacate the premises, so to speak.

How To Improve Digestion And Keep Your Two Brains Happy

It's normal to have between three bowel movements per day, up to three times per week, and you'll know when you're backed-up. To combat constipation, follow these steps:

Drink plenty of water: Aim for at least half a liter or water each day and double that if you're on the kept diet.

Up your salt intake: Consume 2 to 2 ½ teaspoons of pink Himalayan salt a day.

Supplement with magnesium and potassium: Take 150 to 600 mg of magnesium citrate, and 200 to 800 mg potassium citrate a day.

Conclusion:

What is exciting about these findings on gut motility the electric movement of your second brain is that the gut-brain connection is now more concrete. "Now that we know how the ENS is activated under healthy conditions. We can use this as a blueprint to understand how dysfunctional neurogenic motor patterns may arise along the colon," say the researchers. "Chronic constipation affects a large proportion of the community worldwide, and often arises because of improper colonic transit."

Since your primary brain's neurotransmitters or feel-good chemicals like serotonin are synthesized

in the gut, it's clearer how backed-up bowels affect your mood. While your two brains are entirely distinct, they are both wired electrically. So constipation a slowing of the bowel movements signals deregulation in your gut, which affects your neurotransmitter levels. So the key to your happiness? It may be in keeping the electrical circuits of both brains moving.

Toning up your digestive system will keep both brains healthy, happy, and in sync. This way, waste will pass out of your body efficiently and your gut will make those chemicals like serotonin that keep you feeling good.³

New Gut Understanding Equals New Treatment Opportunities-

This new understanding of the ENS-CNS connection helps explain the effectiveness of IBS and bowel-disorder treatments such as antidepressants and mind-body therapies like cognitive behavioral therapy (CBT) and medical hypnotherapy. Our two brains 'talk' to each other, so therapies that help one may help the other, In a way, gastroenterologists are like counselors looking for ways to soothe the second brain. Gastroenterologists may prescribe certain antidepressants for IBS, for example—not because they think the problem is all in a patient's head, but because these medications calm symptoms in some cases by acting on nerve cells in the gut. Psychological interventions like CBT may also help to "improve communications" between the big brain and the brain in our gut.⁴

References-

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