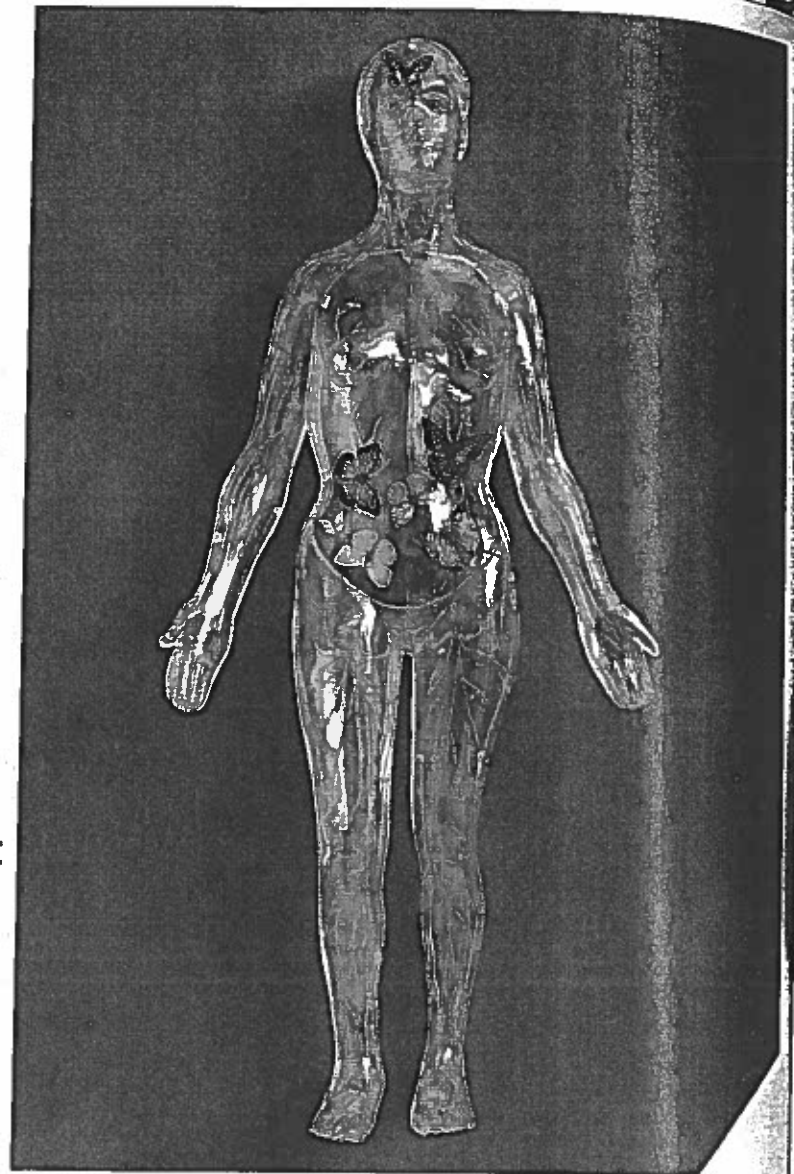


Your Other Brain

“Gut feeling” isn’t just an expression: A network of nerves in your belly is in constant communication with your gray matter. Here’s how researchers are using this link to treat chronic stomach woes. Kathleen McAuliffe reports



Kevin Olden, M.D., a professor of medicine and psychiatry at the University of South Alabama School of Medicine in Mobile, has studied the mind/body aspects of digestive diseases for nearly two decades, focusing on the relationship between gut function and stress. *More* asked him to tell us what he’s learned about the so-called “brain in the gut.”

Q

Let me get this straight: There’s a brain in my stomach?

A: “People are surprised when they learn about the belly brain, but everyday expressions such as ‘go with your gut’ or being ‘sick to your stomach’ reflect an awareness that the gut has its own emotions and views.

“I suspect so-called gut intuition is most finely developed in people who say the GI system is the first place they experience stress. While the gut may be their weakness, it may also give such people an advantage by providing an early warning about the things they need to change in their lives. Gut feelings are a very definite form of information.”→

Q: What exactly is this belly brain?

A: "Its technical name is the enteric nervous system, but it is often referred to as the 'little brain.' Only it's not so little: This dense connection of nerves runs the entire length of the digestive system, from your esophagus and stomach to the small and large intestine. It's estimated that the enteric system contains over 100 million neurons. That's more than make up the spinal cord."

Q: Why do we need a second brain?

A: "A brain in the gut is critical, or it would not have survived all these years of evolution. The gut is one of the most ancient, primitive parts of the body. Even worms have guts. While it's a very basic organ, digestion—even in simple organisms—is complicated. Evidently, a brain in the gut was required to oversee the process, because it evolved early on. The enteric nervous system can mostly function alone, without instructions from the brain. For all we know, the need to regulate the absorption of nutrients may even precede thinking. And just as the big brain became more complex over time, so too did the little brain."

"The big and little brains maintain intimate communication thanks to nerve pathways that run from the GI tract to the head. The two brains also share many of the same neurotransmitters and chemical-receptor sites, which may explain why their responses frequently seem to parallel each other. Shared receptors may also explain why drugs that act on the brain are prone to triggering side effects in the stomach. Some opiate painkillers and antidepressants in the tricyclic family, for example, can cause constipation."

Q: In the past, stomach troubles were often dismissed as psychosomatic. Is this changing with greater knowledge of the role of the enteric nervous system?

A: "It is. Two very common gastric disturbances that fit this category are chronic indigestion, or what doctors call dyspepsia [a feeling of nausea or discomfort in the upper stomach recurring for at least three months] and irritable bowel syndrome [IBS], which is characterized by chronic cramping, bloating, diarrhea or constipation. These are not trivial complaints. Jointly, these conditions account for more than half the workload of gastroenterologists: About one quarter of the population is affected by chronic indigestion, and IBS is believed to affect another 20 percent."

"The fact that it's hard to trace these disorders to any physical cause and that they are often hard to treat has led to speculation that stress or some other psychological problem may contribute to them. That's particularly true of IBS, which predominantly affects midlife women and often goes hand in hand with anxiety, depression or trauma—studies have suggested a high rate of IBS among women who had been sexually abused."

"But there's a danger in assuming that this kind of gastric disorder is all in the head. It could be that we just haven't figured out the physical abnormality to blame. For example, very new research

NEW MIND/BODY TREATMENTS FOR YOUR STOMACH TROUBLES

The brain/belly link has opened up new avenues for therapies to improve gastric and digestive disorders. How could you spell relief? Perhaps with:

■ **SEROTONIN BLOCKERS** You may know serotonin as the feel-good brain chemical that Prozac and other selective serotonin reuptake inhibitors (SSRI) antidepressants elevate, but about 95 percent of the serotonin made by the body is actually found in the gut, where it helps the intestine contract to propel food along. Serotonin is also involved in the perception of pain. Based on that finding, alosetron (Lotronex) was developed to treat IBS. This drug represents a major advance in treating the kind of IBS with the main symptoms of diarrhea and cramping. [Lotronex was withdrawn from the market in 2000 because it was associated with some deaths. It has since been returned to the market on a more restricted basis.] A newer drug, tegaserod (Zelnorm), helps increase gut activity, and is very helpful in treating the kind of IBS characterized by constipation and bloating. Studies show that 60 percent of IBS sufferers get better on these compounds. Another drug, Cilansetron, may be coming to market soon. It is designed to be especially effective in cases of IBS with diarrhea. These compounds represent a major treatment advance over antispasmodics, stool softeners and other medicines long relied on to treat IBS.

■ **ANTIDEPRESSANTS** At very low doses, both the older tricyclics and SSRIs, such as Prozac, alleviate symptoms in about 30 percent of IBS sufferers. Sufferers of chronic indigestion may also find relief with

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suggests IBS may be caused by altered activity of the neurotransmitter serotonin in the gut.

"Of course, this does not rule out the possibility that feelings may adversely affect digestion or the gut. The bottom line is, stress exacerbates virtually all illnesses, and we don't know if it plays a bigger role in gastric woes than other disorders. My thinking is that psychological problems influence the severity of both chronic indigestion and IBS, but don't cause either condition."

"SO-CALLED GUT INTUITION IS MOST FINELY DEVELOPED IN PEOPLE WHO SAY THE GI SYSTEM IS THE FIRST PLACE THEY EXPERIENCE STRESS... GUT FEELINGS ARE A VERY DEFINITE FORM OF INFORMATION."

Q: Are women more affected by these stomach ills? Is it connected to our greater vulnerability to depression?

A: "Chronic indigestion does not dramatically affect one sex more than another. IBS, on the other hand, disproportionately affects women—by a factor of at least two to one. Similarly, depression is that much more common in women. Depression may not cause IBS, but rather the reverse: Being in gastric pain all the time may, understandably, make you vulnerable to depression."

Q: Could better understanding of the brain in the gut improve the treatment of obesity?

A: "Possibly. What comes to mind is the stomach pacemaker—a device similar to a cardiac pacemaker, only it's implanted in the stomach. The device is an electrical-pulse generator that is attached to the stomach wall by wires. When it's turned on, you usually don't feel anything. It seems to dampen appetite by somehow altering messages between the little brain and the brain up top. There have been anecdotal accounts of obese patients losing significant amounts of weight using the device. In my experience, the stomach pacemaker can be useful for people with diabetes-induced nerve damage to the stomach—a not uncommon condition, which can cause chronic vomiting and severe weight loss. I've used it on such patients, many of whom had failed all other treatments, and found that the electrical stimulation can promote more normal gut contractions, enabling them to hold down food. But it won't work for everyone, and trial studies are still ongoing." **M**

antidepressants. The standard treatment is acid blockers such as Prilosec (a so-called proton-pump inhibitor), but they don't work for everyone. Now, Zelnorm is also being studied in people troubled by chronic indigestion; preliminary results look promising.

■ **HYPNOSIS** According to studies by Peter James Whorwell, M.D., of the University of Manchester, UK, hypnosis as a tool to induce a deep sense of relaxation consistently performs better than drugs or placebo treatments, in which patients receive attention and emotional support without hypnosis. Hypnotherapy patients typically show a 50 percent reduction in IBS severity and a dramatic reduction in depression and anxiety. Whorwell's team has also recently demonstrated that hypnotherapy is helpful for chronic indigestion. Results of hypnotherapy persist: When followed anywhere from ten months to several years later, the group that received a single course of hypnotherapy still has far fewer symptoms and requires less medication and visits to the doctor than the other groups.

To find a licensed practitioner, check out www.asch.net. Hypnotherapy costs about \$100 per session and usually requires 7-12 visits to help resolve these stomach conditions.

■ **COGNITIVE THERAPY** Talk therapy produces results roughly equivalent to hypnotherapy for the treatment of chronic gastric disturbances, such as IBS or indigestion. Patients with these problems often feel hopeless and helpless, adding to their stress and making their symptoms worse. In therapy, patients are taught how to replace catastrophic thoughts with a more reasonable interpretation.

Most patients can expect to experience improvement in 12-20 sessions. Cognitive therapy costs about \$125 per visit. To find a cognitive therapist near you, call the American Psychological Association at 800-964-2000.

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