



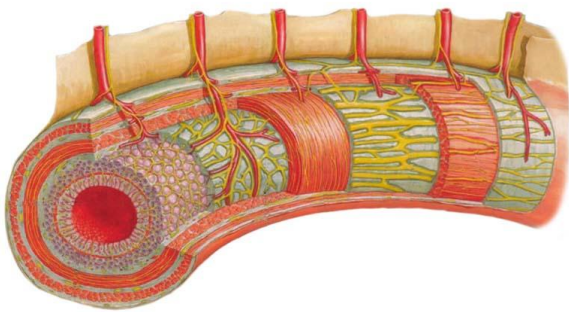
Your Gut is Wiser than You Think . . .

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New research shows that we have two brains, not only the one we know in the head - but also one in the gut. The gut may become depressed or develop a manic-depressive psychosis. This exciting knowledge about the relationship between the nervous and digestive systems opens new possibilities for supplementing classic reflexology with specific attention to the nervous system when dealing with digestive problems.

Why do we talk about having “butterflies in my stomach” before a performance or an exam? Why does bad digestion often lead to nightmares? Why are MDs beginning to administer anti-depressive medications for stomach-intestinal illnesses?

Until very recently it has been generally accepted that the nervous system is divided into two parts: the central nervous system (brain and spinal cord) and the peripheral nervous system (cranial nerves and spinal nerves and their branches). Newer research shows that yet another component should be added, namely the “gut brain” or more precisely “the enteric nervous system”. We have two brains - the head brain and the gut, or abdominal, brain. The two brains are connected like Siamese twins, when one is irritated, so is the other.



*Figure 1: Schematic view of the layers in the stomach-intestinal walls.
The nerves are colored yellow.*

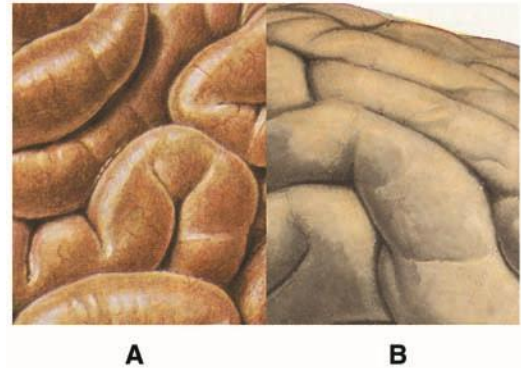
Research supports alternative knowledge

This knowledge actually is not so new to alternative practitioners, who have known for a long time how important it is to include the digestive system when dealing with a variety of problems - some even suggesting that all regeneration is initiated in the digestive tract. But it is exciting that this knowledge now is supported by research. A completely new research field - neurogastroenterology - has been born. The prolific development of this field is driven primarily by money supplied by the pharmaceutical industry, which naturally sees great opportunities in the treatment of stomach-intestinal illnesses with new types of nerve medicines, but the connections that have been discovered can nonetheless be very useful in a reflexology session.

Some gut brain philosophy

That there are close connections between the digestive and nervous systems has been expressed in our language for centuries. We talk about “digesting knowledge”. One can be “hungry for knowledge”, and one can even be “saturated with information”. We also talk about “spiritual food” and about “feeding the brain”. On the psychological plane we have expressions like “digesting one’s feelings”, “I have to chew on that for a bit”, or “I trust my gut.” If we look at the brain and the stomach from a morphological point of view, we also can see the strong similarity, which Hanne Marquardt and others talk about, between the convolutions of the brain and those of the small intestines.

Figure 2: Shape similarities between intestinal folds (A) and brain convolutions (B)



The gut brain and the vagus nerve walls, where it constitutes two layers: one between the two layers of the intestinal wall, and the other one right below the mucous membrane. It follows the entire digestive tract from the esophagus to the anus (Fig 1). It is common knowledge that the activity of the digestive system is directed by the autonomous nervous system, and that the intestinal walls contain nerve cells that coordinate the peristaltic movements of the intestines. We also know that the intestines in and of themselves can create peristaltic movements in brain dead patients or in patients who after an accident have lost the nerve connection between intestines and brain.

But it is only within the last decade that we have come to realize how inclusive this system really is. We have known for a long time that the vagus nerve (the most important parasympathetic nerve that innervates digestion) contains approximately 1000 single nerve fibers, but when recently trying to “count” the nerve cells in the intestinal system, it was discovered that there are over 100 million. That’s more than what we have in the entire spinal cord! If the sympathetic nervous system and the vagus nerve are directing the digestive processes, for what purpose are those hundreds of thousands of additional nerves?

A depressed intestinal tract

The knowledge that up till now has been collected about the gut brain or “the little brain” shows a picture of an independently working system. It contains a complex network of nerve cells, receptors, auxiliary cells, and neurotransmitters, which in many ways resembles the cranial brain in its construction. The gut brain supervises and directs all break-down and absorption of food, but it has many other functions.

The American researcher Michael D. Gershon has been studying the appearance of neurotransmitters in the digestive tract, and he discovered that the tract contains vast quantities of serotonin. We used to think this material was found only in the brain, but it has now been shown that 95 % of all serotonin in the body actually is found in the nervous system of the digestive tract! Serotonin is needed, amongst other things, for maintaining a normal psychological balance and appears to be involved in depressions. This is why today anti-depressives are often prescribed for abdominal illnesses. We know now that the dozens of neurotransmitters and hormones found in the brain and the spinal cord also exist in the intestines.

Gut dreams

An interesting connection can be observed in sleep studies. It is well known that the brain function during sleep happens in cycles of approximately 90 minutes. During sleep, when the brain doesn't receive any sense stimulus, we produce slow brain waves interrupted by periods of rapid eye movements (REM sleep). Exactly the same thing happens in the intestines when there is no food to digest: the intestinal muscles make slow contractions interrupted by quick muscle movements occurring at 90 minute intervals. It is quite obvious that the two brains affect each other during sleep. It is quite common for people, with a variety of intestinal problems, to have sleep disturbances.

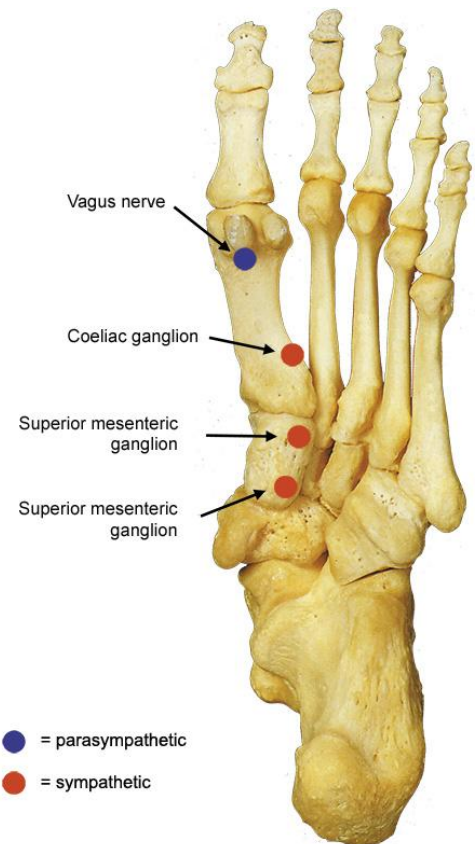
How do you balance the gut brain?

All reflexologists work with digestive problems. A research project in Denmark from 1993 shows that digestive problems are the second most common ailment we encounter as reflexologists, exceeded only by joint/muscle problems. Because of the placement of the enteric nervous system in the abdominal walls we automatically affect it when working on the classic reflexes of the digestive system, but with our new knowledge we have gained a few more possibilities for understanding and using the connections between digestion and the rest of the body.

Balancing via the nervous system: Nerve Reflexology

All organs are governed by the nervous system, so it is only obvious to supplement the classical organ reflexes with reflex points that specifically affect the nervous supply of the organs. This is where Nerve Reflexology comes in (see box below) Here are some examples from Nerve Reflexology for your personal experimentation:

Figure 3: Nerve points for communication between head brain and gut brain via the sympathetic and parasympathetic nervous systems.



The parasympathetic connection is treated via nerve reflex points for the vagus nerve. The sympathetic connections to the abdominal brain can be reached via the celiac ganglion and the mesenteric ganglia (superior and inferior). These are the so-called pre-vertebral ganglia, which are wide spreadings of sympathetic nerve fibers that spin themselves around the big arteries in the abdominal cavity and follow them into the organs. As always with Nerve Reflexology, a specific treatment technique with static pressure is applied for a maximum of 15 seconds.

About Nerve Reflexology

This method developed in the 1960's by German Walther Froneberg and his daughter Ellen is a natural extension of the classical reflexology of Eunice Ingham and (in Europe) Hanne Marquardt. Specific nerve reflex points all located on the periosteum of the foot skeleton are worked with a very accurate technique. When the nerves absorb the impulse they react immediately and the clients experience instant responses in muscles, organs, etc.

New research results that uncover more of the secrets of the enteric nervous system are continuing to be published, so this most certainly won't be the last we hear about our "other brain". Think gut brain the next time you work on the reflexes of the digestive system.

Dorthe Krogsgaard and Peter Lund Frandsen . . .

Both experienced reflexologists present a series of continuing education workshops through their Touchpoint Institute are returning to the North West in April 2011. Dorthe and Peter are international lecturers and authors of a number of articles and educational manuals on various aspects of reflexology.

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Association for Nerve Reflexology: www.mnt-nr.com

Workshops and more info: www.touchpoint.dk

Facts about the gut brain

- **Contains 100 million nerve cells**
- **Contains auxiliary cells (astrocyt type??), which otherwise are found only in the cranial brain**
- **Has receptors for mechanical movements and chemicals**
- **Contains neurotransmitters also found in the cranial brain**
- **Functions independently**
- **Communicates with the cranial brain via the autonomic nervous system**
- **Is affected by nerve medicine**
- **Can develop a "depression" or a "manic-depressive psychosis"**