



Your Gut

I want to discuss the importance of and implications for good gut health. The gut is the literal and figurative center of our health. The prestigious journal Science calls the gut, “the inner tube of life”. There are a number of remarkable roles that the gut plays in your overall health. Here are just a few of the main jobs:

- Breaks down foods
- Lets in the good stuff
- Keeps out the bad stuff
- Makes stuff
- Protects us

All in a days work; the gut breaks down and digests your food while absorbing the nutrients you need such as amino acids, vitamins and minerals, fats and sugars. In addition, while letting in these nutrients essential for life, it blocks or neutralizes all the toxins and chemicals that you ingest and absorb in daily living. The bacteria that live in your gut (about three pounds worth containing five hundred different species) produce vitamins and health-giving molecules that make up the gut eco-system. Approximately 70% of your immune system is located in the gut and 95% of the body’s serotonin is produced by the gut nerve cells and every class of neurotransmitters found in the brain is found in the gut. In fact, Dr. Michael Gershon, of Columbia University, has called the gut, “the second brain”, because it has its own nervous system and many neurotransmitters like the brain. The gut must function seamlessly for you to be properly nourished, to have a balanced immune system and to adequately detoxify.

Every cell in your body communicates with every other cell. There is always a lot of talking going on between your brain, immune system, gut, and hormones. It is through this “psycho-neuro-endocrine-immune system” that your gut and your immune system talk to your brain. The mind of the “gut” talks to your brain every day. One example of this is when you are aware of signals for hunger and elimination. In addition, it is now being discovered that there is actually a bidirectional conversation going on in which the gut speaks to the brain and the brain speaks to the gut. The gut brain actually comes from the same embryonic tissue as the “brain” brain. And, it is still connected via the autonomic nervous system. Nearly everyone has experienced “butterflies” in the stomach or had diarrhea under acute stress. Also, you can have a “nervous” stomach because of your thoughts and feelings and external events. Clearly, communication goes back and forth. Think of it as two independent, but interdependent businesses that must coordinate and communicate, but can act independently.

Why are millions of people today experiencing gut problems? Why are acid blocking drugs ranked in the top selling category of America’s \$252 billion dollar drug market? Three of these drugs used to treat reflux – Nexium, Protonix and Prevacid—are in the top twenty best selling drugs and account for \$12.1 billion in sales annually.

The answer is that we are not very kind to our gut. We eat a diet that is low in fiber and nutrients and rich in sugar, additives, and chemicals which changes the ecosystem of

our gut. We live under chronic stress and are exposed to chemicals and toxins such as mercury which all damage the intestinal barrier and normal gut function. In addition, our culture is a pill popping culture which has a pill for everything. Among these, we push antibiotics, anti-inflammatories, aspirin, steroids, and acid-blocking medications that all disrupt the gut's ability to stay in balance and do its job. All in all, we live in dangerous digestive times.

The implications for this imbalance are far reaching. For example, an article in the Journal of the American Medical Association by Dr. Lin explains a new way of thinking about irritable bowel and the psychological symptoms seen in irritable bowel patients. According to Dr. Henry, bacterial mischief in the small intestine (from bacteria that migrate up from the large intestine into a normally sterile territory) triggers an immune and nervous system response that sends messages back to the brain, which lead to insomnia, anxiety, depression, and impaired cognitive function. The gut immune system "speaks" to the brain, sending messages of inflammation, which ultimately increases stress hormones like cortisol and changes neurotransmitter levels. Your gut is talking to your brain and when these bacteria are involved, the communication isn't good. This is one of the major ways your gut sends signals of ill health to your brain that can manifest themselves as any type of the aforementioned brain related problems as well as many other illnesses. It demonstrates the intimate dance between your gut and your brain. Fix the gut and mood, behavior and cognition can all improve.

All the factors that cause imbalances in the gut damage the delicate intestinal lining which in turn sets the inflammatory processes in motion in the brain and the body. Damage to this delicate barrier creates a leaky gut (known in medical terms as increased intestinal permeability). Because of this damage, you cannot digest food properly. Now, there are partially digested food particles from normally innocuous foods "leaking" into your bloodstream through the leaky gut. The body reacts by increasing the immune response and generating inflammation. This is essentially how you create antibodies and develop allergies to common foods. It is also what can make you sick and fat, toxic and inflamed, depressed and anxious, forgetful and foggy.

If you want to eliminate molecules that poison your brain – if you want to eliminate the possibility of "autointoxication" – if you want to eliminate the inflammation in your gut that is setting your brain on fire, the solution is simple: eliminate the dietary and environmental factors that are traumatizing your gut and feed it the food and nutrients that it needs so you can live in harmony with it.

Some of the nutraceuticals that are good for the gut include prebiotics, probiotics and L-Glutamine.

In the next Health Advisory, I will discuss inflammation and its effects on your body.

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