

## **Digestion, Absorption, and the Unglamorous Intestines**

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Intestinal function has an indisputable lack of glamour, and seems reason enough for most people to never give the importance of intestinal health a second thought. This is unfortunate and needs to change. The reality is that healthy intestinal function is critically important to overall health.

Common sense dictates that good health requires good nutritional habits, proper digestion and absorption. Proper nutrition is essential to helping us prevent disease and illness. The foods you eat act not only as the fuel for your body but provide the building blocks that construct you. What you eat plays an important role in determining both your immediate and your long-term health. Digestion is the mechanical and chemical breakdown of the food that you eat. Then there is absorption, which is the process of bringing the nutrients from your GI (gastrointestinal) tract into the rest of your body's tissues. Even though you may eat healthy foods, maybe even organic foods, you may not always get the maximum benefit from them. Why? Because the body can utilize only what it can absorb.

Your GI tract is a "tube" that starts with your mouth, includes the throat, esophagus, stomach, small intestine, large intestine (colon), rectum, and ends at the anus. All in all, the total length of this intestinal plumbing approaches thirty feet! Protruding from the inside wall of the intestine are finger-like structures called villi, with additional extensions from the villi called microvilli. Together they increase the intestinal absorptive capacity by 30 and 600 fold respectively. This increases the absorptive surface area to the size of a tennis court!

Certain of our habits have contributed to the deterioration of this absorptive surface in an alarming percentage of the population. These habits include the wide spread consumption of a diet high in refined simple sugars and fat, the use of alcohol, antacids, pain relievers and antibiotics among others. More recently research is confirming that certain foods can also destroy the villi and microvilli in certain individuals, specifically gluten containing foods. These are all assaults to the GI tube resulting in damage and inflammation to the tissue which then cannot perform its job of absorption. This is where the expression "you are what you absorb" can be better understood. Without proper absorption, the building blocks necessary for health are missing, and eventually there is the expression of disease.

Now the following will probably be new information to you. Think of this analogy: you have an "outer skin" that protects your blood and organs from penetration of harmful organisms. Unless you cut yourself or break the integrity of the skin – such as with a syringe - your *insides* are protected. Well you also have an "inner skin". That inner skin is the GI tube just mentioned and it serves as a physical barrier, called the "mucosal barrier". It is important to remember one odd fact: the inside of this GI tube is still considered the outside of the body. No misprint here. The food sitting there in your intestines is still considered outside the body. Why? Because it hasn't been absorbed into the bloodstream yet and therefore it is not part of you.

As the internal condition of the intestine becomes compromised, its role as physical barrier becomes compromised too and there is increased permeability- also known as leaky gut syndrome. Having leaky gut is like having a screen door with large holes in it allowing pests to get into your home. With leaky gut, the lining of your intestine becomes overly permeable and molecules that were not intended to cross into your blood stream, enter, or leak in. This leads to a great deal of immune stress as your body tries to handle all of these uninvited guests.

Leaky gut is linked to many the following conditions: IBS- Irritable Bowel Syndrome, Crohn's Disease, Chronic Colitis, Candida Albicans, Esophageal Reflux, and Malabsorption Syndrome. Also linked are chronic allergies, hepatitis, weight gain, skin disorders such as psoriasis, dermatitis, and acne, headaches, arthritis, depression, Fibromyalgia, Chronic fatigue syndrome, autoimmune disorders, and even cancer. And many of these are experienced today in epidemic proportions.

Many are not aware that the “mucosal barrier” also serves as an immunological barrier, meaning it houses part of your immune system. Some say up to 70%. This immunological barrier is known as your “mucosal immunity”. There are specialized immune cells that line the mucosal barrier, called immunocytes. They produce sIgA (secretory IgA) which are “soldiers” that protect you in the event of invasion. Secretory IgA prevents the uptake into the rest of your body of viruses, bacteria and toxins by facilitating their transport out of the body. But a deficiency of sIgA, due to deterioration or inflammatory conditions of the intestine, leaves the door wide open for pathogens such as parasites, bacteria, viruses, yeast/fungus to take hold. This can also lead to a leaky gut condition and the same issues mentioned above. A tell-tale sign of low sIgA is an increase in food and other allergies.

The view of your mucosal barrier and mucosal immunity as a living, breathing, active, vital system is probably not something you're going to hear about in conversation. As you've now learned, it has many critical and dynamic biologic functions. When facing digestive disorders taking HCL (hydrochloric acid), digestive enzymes or other items such as antacids, laxatives and the like are not getting to the root of the problem but only serve to mask underlying issues.

The bottom line is — the health of the GI tract is fundamental to your overall health. Its effect on your hormone/endocrine system and detoxification system are worthy of another article.

Wouldn't it be nice to know if your screen door has holes? If you are absorbing your nutrients? If all those supplements you take are being utilized by your body? Today there exist very sophisticated markers that measure these areas. You can enjoy super health, and even regain your health and energy by taking action to restore the integrity to your "inner skin"!

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