

## Optimal Digestion: Health From the Inside-out

There is an adage around money that states, "It's not what you make, it's what you keep." With digestion there is a slight permutation of this saying that states, "It's not what you eat it's what you absorb". So often we focus entirely on what we put inside of our mouths and completely forget about the process of how we break down and assimilate food. The two most important structures that allow for efficient digestion are your digestive enzymes and your gut flora. This article will explore the importance of both with some tips on how to optimize the function of these life-giving entities.

In the process of food breakdown there are 20 key digestive enzymes involved. These enzymes have evolved over thousands of years to most efficiently breakdown the different types of fats, carbohydrates, and proteins that you consume on a daily basis. As food choices have become more processed, refined, and chemically modified the burden on the digestive enzymes has increased significantly. This is part of the reason why so many individuals suffer with digestive discomfort and become malnourished along with being obese. An enzyme is similar to a spark that starts an engine and is not consumed in the reaction that it creates. An average meal would require about six months to breakdown if not for these enzymes in your body which reduce the breakdown of your meal to somewhere between 2 and 6 hours depending on how much fat is a part of the intake. Enzymes have a sweet spot where they work most effectively and efficiently and it is governed by temperature and pH. The pH in your body is governed by the intricate balance between acid and alkaline chemicals. Your stomach requires a pH that is strongly acidic to optimize these enzymes as well as maintain a sterile environment from any microbes you might ingest. HCL is the main acid secreted by the stomach. As you age the amount of HCL produced by your stomach decreases which creates a more alkaline environment in your stomach. Thus, it's important for many individuals to take additional HCl to optimize their enzyme's ability to catalyze food.

After your meal has been broken down in your stomach it travels to the small intestine where it is immediately greeted by bile from the liver and gall bladder as well as pancreatic enzymes. This all takes place in the initial foot of the small intestine called the duodenum. This prepares the fats in your food for assimilation and continues to breakdown the proteins and complex sugars. You start to see huge amounts of bacteria in this part of the small intestine as the body has to really start breaking molecules down and assimilating them into the lymph and bloodstream. This 20 foot inner tube of your life is coated by a slippery mucosal membrane that has protective and metabolic properties. This membrane allows for the easy passage of food, absorption of the final breakdown products, and releases the largest amounts of immunoglobulins (part of your immune response) of anywhere in your body. If this membrane becomes weak and permeable a whole slew of problems ensues in the body and is known as Leaky Gut.

Your gut flora is partly responsible for maintaining the integrity of your gut lining and communicates with the cells of the wall to equip them with the correct immune response to detect invaders and poisons. There is a very elaborate communication system between the surface receptors of the cells of your gut wall and the gut flora that keep you alive. This is an area of study that is garnering more attention. These two structures work collectively to strengthen and refine your acquired immune response so that you can detect bad microbes early and effectively. This communication also insures that the immune response is minimal enough so as to avoid an autoimmune response in the body.

The digested food mass then reaches the ileocecal valve which is the juncture between the small and large intestine and is the location where almost all colorectal cancers begin. This is because the valve is a sphincter that is prone to constriction so blockages and subsequent toxicity arises as a result. The large intestine contains more gut flora and bacteria than all of the other areas of the body combined. Trillions of bacteria reside here and pulverize food down to a pulp while the body extracts large amounts of water from this area as it prepares waste to be deposited out

through the anus. Complex carbohydrates are fermented in this region of the digestive tract as well.

Your gut flora are essential to your long-term health as they are responsible for maintaining a patent membrane that keeps your intestines from becoming infected, they produce broad spectrum antibiotics that keep bad bacteria, viruses, and fungi from proliferating, and they convert toxins and cancerous enzymes to benign byproducts. In a vitalistic sense they could be called man's best friend.

One of the most important pursuits you can embark upon is to rebuild a healthy and resilient reserve of gut flora. Integrate more fermented and unpasteurized foods into your diet. It's important to repeatedly inoculate your digestive tract with resilient, beneficial gut flora as this is the best way to maintain the appropriate balance between good and bad microbes.

Here are a few tips to assist you in optimizing your digestive health:

-Increase intake of fermented foods: sauerkraut, miso, tamari, kimchi, kefir. These need to be unpasteurized products. A tablespoon each meal over time will inoculate your belly with probiotics.

-Relax belly before eating. Try not to eat when you are cold or rushing. Attempt to eat with as little distraction around as possible. Relaxing the mind stimulates the vagus nerve which is **the** main parasympathetic nerve in the body.

-Eat several small-medium sized meals a day- caloric restriction is the #1 predictor of longevity in a culture. Eat smaller portions. Nutrient dense foods are the solution. Super foods. Less total protein overall but more proteins containing the eight essential amino acids.

Be sure to consult a health care provider that practices healthy living and advocates the same for their patients. Much of optimizing digestion comes down to the appropriate amounts of certain things and the timing of when those things are put into action.

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