

## Love Your Poop

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**Bottom Line at the Top:** The large mass of bacteria in stool is called the gut microbiome. It contributes to a healthy immune system, makes essential vitamins and amino acids, influences body weight and disease states and helps to inactivate toxins.

Stool is basically bacteria, water, undigested fiber and small amounts of other nutrients. Even if you don't eat much, bacteria will multiply and make stool. The human microbiome may consist of a few or many hundreds of different bacterial species.

The more bacterial diversity, the better. Surgical patients with a greater variety of gut bacterial types suffer from fewer infections and heal better. A healthy gut microbiome stimulates and regulates a healthy host immune system. Low diversity is associated with infections, autoimmune disease, in which a person's immune system inflames one or more body parts, and possibly even cancer.

Stool bacteria make vitamins B12, K and biotin, all essential for health, which we absorb through the gut. Vegans, consuming only plant foods which are devoid of B12, can maintain a reasonable vitamin B12 status as long as the gut microbiome is healthy. Killing off stool bacteria with antibiotics transiently eliminates this vitamin source. Frequent courses of antibiotics can completely change one's bacterial population, bowel habits and health.

Stool bacteria exist in a symbiotic relationship with their human home. We use each other to stay healthy. Bacteria multiply by feeding off undigested food for energy and old intestinal cells that slough off, using them to make new amino acids (the

building blocks of protein) and reproduce. Then bacteria die and their amino acids may be absorbed to nourish their human.

Some bacteria break down toxins to use for food. In this way, they help to detoxify the human host. Eliminating stool bacteria with laxative abuse and colonic 'cleanses' doesn't detoxify the body, it hobbles the body's own mechanism of detoxifying.

Our gut bacteria may also help to control our weight. A variety of experiments in mice show that transplanting stool bacteria from obese individuals into non-obese individuals causes the recipient to gain weight, while bacteria from lean donors does not. This has also occurred in humans who received a stool transplant for severe colitis.

Undigestible vegetable fiber passes into the colon and is a preferred food for types of bacteria that do not promote obesity. There are two main families of bacteria in human stool, Firmicutes and Bacteroides. Firmicutes, in the course of their normal metabolism, produce more mass that can be absorbed into the human body than do Bacteroides. That absorbed mass is a source of energy, in addition to what calories are eaten, which might promote weight gain. Firmicutes also produce acetate, which stimulates the stomach to make an appetite-boosting hormone and makes the body less sensitive to insulin, increasing the risk of diabetes.

It's interesting that Lactobacillus species, the most commonly consumed probiotics, are Firmicutes bacteria. In recommending Lactobacillus, we may be promoting obesity and diabetes.

Yes, poop smells and it's yucky, but that doesn't mean cleansing the body of it is a good thing. We should eat lots of vegetables to feed our bacteria and avoid laxatives and too many antibiotics to keep them healthy.