Gut Microbiome The Forgotten Organ

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The human gut is known as the “forgotten organ” inside the body filled with trillions of microbes, the genes of microorganisms that help break down food by digesting things we do not digest efficiently. Microbes also produce useful substances that nourish our intestines and travel to other organs in the body including the brain. The microbiome was not even scientifically studied until the last 15 years and there has been an explosion of information on how trillions of bacteria and their genes are an important part of our nutritional health.

From birth, there is a constant stream of microbes entering and leaving our bodies. During breast-feeding, there is a family of carbohydrates provided to the infant that help to regulate the microbiome. After weaning, the microbiome becomes more diverse. According to the Genetic Science Learning Center at the University of Utah, by the age of 3, a toddler’s microbiome profile of about 40 trillion bacteria is similar to what he or she will have as an adult—but as seniors, the number of microbiome species decreases. This could be one reason the very young and the very old are more vulnerable to disease.

Each bacterium has its own genetic makeup; its genes are simple strands of DNA that can be exchanged rapidly with other gut bacteria. Throughout the day, the microbiome and its genes

change their activity in response to external factors, especially consuming and digesting food. Recent research reveals there are more cells that help with immunity than we could have ever imagined. About 70% of your immune system is located around your gastrointestinal tract—basically, where your insides meet the outside world. In order to process the foods that come through, you need a healthy biome — good bacteria. The bacteria that you have in your gut and on your body are dependent on your genetics, diet, lifestyle, and the genetics of the bacteria. Your body attracts good bacteria and repels the bad kind.

How You Affect Your Microbiome

About 40% of all the genes regulating the breakdown and distribution of nutrients vary their activity during the day and night. When your body enters sleep mode at night, it activates the processes used to survive starvation. When you wake up in the morning, there are measurable levels of ketone bodies in the air you breathe out. Ketone bodies are formed from fat and allow humans to survive up to six months with adequate hydration, vitamins, and minerals on no food. This adaptation is so essential for humans that it is initiated as soon as there is no food intake, which happens when you are asleep. This is how “breakfast” got its name; you are breaking the fast during sleep. It is also why breakfast is the most important high-protein meal of the day.

The processes regulating the turning on and off of genes is called epigenetics—it happens in response to many environmental factors, including light, food, temperature, exercise, vitamins, minerals, bacteria, and even social interaction.

Our bodies are amazing on their own, but when we make a concentrated effort to impart balanced nutrition and a healthy active lifestyle, we can become even better versions of ourselves.