Microbiome And Its Effect On Health

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Microorganisms are an essential part of animal and plant life as they help in the survival of all life forms. A human being's body is full of trillions of viruses, fungi, and bacteria collectively identified as microbiomes. These microbiomes vary as some bacteria are responsible for causing diseases while others are essential for a person's heart, immune system, and weight, among other health aspects. The core objective of this paper is to offer concise information on the importance of the microbiome to an individual's health while explaining what it encompasses. (National Institutes of Health Common Fund, n.d.)

Microbes can be defined as the trillions of viruses, fungi, and bacteria, as well as microscopic living elements found in a human being's body. These microbes can be located inside a living thing's intestines and the skin. Those microbes located in the intestine are found in a "pocket" identified as the cecum, which is located in the large intestine. These microbes in the large intestine are often identified as the gut microbiome. Scientists argue that the number of bacterial cells in a human being's body is higher than that of human cells. It is estimated that a human being's body encompasses roughly 50 trillion bacterial cells and 40 trillion human cells, thus making bacterial cells abundant. Moreover, there are up to a thousand species of bacteria located in a human being's gut microbiome, and each of these species plays a varying role in a person's body. Most of these bacteria are vital for a person's health, though others are responsible for causing diseases.

How They Affect The Body

For millions of years, humans have evolved and learned to live with microbes in them without any problems. As humans evolve, so do microbes, and they learn to play their precise role in the human body. A human being cannot survive without the gut microbiome, and this shows just how important they are to the well-being of an individual. The gut microbiome begins operating and playing its role the moment a child is born. A child gets exposed to microbes the moment he/she passes through the birth canal. Research suggests that a baby might come into contact with various microbes while in the womb.

The more a child grows, so does his/her gut microbiome as it begins to diversify. This simply means that it begins containing numerous types of microbial species. According to DDDDD, higher microbiome diversity means healthy living, and the food an individual consumes highly affects the diversity of one's gut bacteria. As an individual's microbiome grows, it affects the body in a number of ways, such as;

Controlling the immune system: The gut microbiome helps control how the immune system operates as it communicates with the immune cells. By doing so, it is capable of controlling how your body will

respond to various infections.

Controlling brain health: Recent studies argue that the gut microbiome is capable of affecting the central nervous system and thus controls how the brain operates and functions.

Digesting breast milk: One of the bacteria that begins in babies' intestines is identified as bifid bacteria. These bacteria are responsible for digesting healthy sugar found in breast milk as it helps in a child's growth and development.

Processing fiber: Particular bacteria are responsible for digesting fiber, thus the production of fatty acids necessary for gut health. Fiber is necessary for a human's general health as it prevents weight gain and heart disease and reduces the risks of cancer.

There are a number of ways that the microbiome affects the body's functions, thus promoting the general wellness of an individual. The gut microbiome is responsible for affecting the body since birth and throughout a person's life as it oversees the digestion of food and fiber, among other bodily processes. Moreover, the gut microbiome is responsible for affecting an individual's weight. Despite bacteria being important and helping in promoting an individual's health, possessing many unhealthy microbes can result in diseases. Additionally, a person can end up gaining weight due to gut dysbiosis, a situation where there is a disproportion of healthy and unhealthy microbes. D argues that microbiomes are not genetic as they are entirely different in the case of identical twins, where one is obese and the other is healthy. It is believed that microbiome dysbiosis plays a vital role in weight gain, and with the help of probiotics, an individual can lose weight.

Microbiomes are known to affect gut health and may result in intestinal diseases such as IBD (Inflammatory bowel disease) or even IBS (irritable bowel Syndrome). The bloating and abdominal pains individuals with IBS experience are often caused by gut dysbiosis, which is a result of the production of gas and other chemicals by the microbes. However, particular healthy bacteria in the microbiome can assist in improving gut health. For instance, bifid bacteria and lactobacilli are found in yogurt and help seal gaps between intestinal cells and prevent leaky gut syndrome. These species also help prevent disease-causing bacteria from getting stuck to the intestinal wall, thus helping reduce intestinal diseases such as IBS. (Lynch & Pedersen, 2016)

The gut microbiome is known to help in promoting heart health. Health experts argue that the gut microbiome is responsible for promoting excellent HDL cholesterol and triglycerides. However, unhealthy species present in the gut microbiome can result in heart disease through the production of TMAO (trimethylamine N-oxide), which is a chemical responsible for blocking arteries, resulting in stroke or heart attacks. Various bacteria present in the microbiome are responsible for converting choline and L-carnitine to TMAO, thus increasing the potential risks of heart disease. However, other bacteria, such as Lactobacilli, can help in reducing cholesterol, thus reducing the risks of heart disease.

Improving Gut Microbiome

There exist various ways an individual can employ to increase his/her gut microbiome. They include;

Eating a wide range of foods: Doing so results in a diverse microbiome, which, according to health experts, is an indicator of excellent gut health. For instance, foods such as beans, legumes, and fruits that contain fiber are essential as they help promote the development of healthy bifid bacteria.

Eating prebiotic foods: Prebiotics are a form of fiber that helps stimulate the growth of healthy bacteria and include foods such as bananas, oats, and apples, among others.

Reducing the ingestion of artificial sweeteners: A study shows that artificial sweeteners such as aspartame are responsible for increasing blood sugar, thus resulting in the growth and production of unhealthy bacteria such as Enterobacteriaceae that may harm the gut.

Ingesting fermented foods: Fermented foods such as kefir and yogurt contain healthy bacteria that help reduce bacteria that may cause diseases within the gut.

Using antibiotics when necessary: Antibiotics are known to kill numerous bad and good bacteria present in the gut microbiome, which may result in weight gain or even antibiotic resistance. Thus, physicians advise people to take antibiotics only when necessary and not for pleasure.

Breastfeeding the child for up to six months: Breastfeeding is necessary for the advancement of the gut microbiome. Children who have been breastfed for nearly six months possess more bifid bacteria than those who have been bottle-fed.

From the discussion above, it's clear that the gut microbiome comprises trillions of bacteria and other microbes that help in the general wellness of an individual. Diseases and other disorders often erupt when there is an imbalance of unhealthy and healthy microbes. Thus, it is necessary for every individual to help in the growth of healthy microbes in the gut to prevent complications such as heart attacks and heart diseases. (Clark et al., 2018)

References

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