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Therapeutic Drugs by Gut Bacteria

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Description

The term gut bacteria is chosen over the ancient word flora since the latter fails to account for the various nonbacterial components (such as archea, viruses, and fungi) that are now found to be common gut residents. The gut microbiome is a naturally occurring community of hundreds of distinct bacteria species that have a role in human health and disease. Bacterial species composition varies greatly between persons and has previously been linked to a variety of illnesses, including obesity, immunological response, and mental health. The human microbiome is made up of 100 trillion bacteria, viruses, and fungi, with the majority of them living in the human gut. The microbiome is important for protecting against pathogenic microbes, producing short-chain fatty acids as a source of energy, vitamin synthesis, fat storage, and central nervous system modulation. The first line of defence against bacterial infections is to use antibiotics.

Proton pump inhibitors, metformin, selective serotonin reuptake inhibitors, and laxatives are all medicines that affect the makeup and function of the gut microbiota. PPIs have been shown to alter specific taxa in the human gut microbiota, including increases in the abundance of *Enterococcaceae, Streptococcaceae, Firmicutes, and Lactobacillus*, as well as decreases in the abundance of Bacteroides and *Clostridium cluster IV,* resulting in a decrease in gut microbiota diversity. Metformin affects the gut microbiota composition by promoting the growth of some bacteria, such as *Akkermansia muciniphila, Escherichia spp*., *or Lactobacillus*, while decreasing the levels of others, such as Intestini bacter, according to several human and animal research. Hundreds of different bacteria species live in the human intestine in natural ecosystems.

Metformin has been illustrated to act through AMP-Activated Protein Kinase (AMPK)-dependent and AMPK-independent pathways, as well as reduction of mitochondrial respiration and possibly inhibition of mitochondrial glycerophosphate dehydrogenase. Metformin has been found to affect the microbiome during the first 24 hours of treatment, and that changes in the gut microbiome may be linked to the metformin-induced immunological response. Metformin works by lowering the quantity of sugar released into bloodstream by liver. It also improves body's insulin sensitivity. Insulin is a hormone that regulates the amount of sugar in the body. Bacterial species diversity varies greatly between persons and has previously been linked to a variety of illnesses, including obesity, immunological response, and mental health. Begin by eating a well-balanced diet rich in fibrous foods such as fruits, vegetables, and whole grains. A "western" diet strong in fat and sugar and low in fibre can kill specific gut bacteria, resulting in a less diversified microbiota. The two most frequent first-line antibiotics are amoxillin-clavulanate (Augmentin) and rifaxamin (Xifaxan). Other antibiotics, such as clindamycin, may be considered depending on the situation.

The following are some techniques to boost the gut bacteria. Eat a diverse range of foods ,Eat lots of vegetables, legumes, beans, and fruit, Eat fermented foods, Eat prebiotic foods, Eat whole grains, Eat a plant-based diet, Eat foods rich in polyphenols.