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The gut microbiome is characterized as living microorganisms, including bacteria and viruses, and genetic material found within the gastrointestinal (GI) tract. These microorganisms aid in the digestion and absorption of nutrients in food, and play an active role in the digestive process. However, recent evidence suggests that the gut microbiome is not only helpful in the digestion of food, but also could be linked to mental health and personality.

The gut-brain relationship begins in early development with factors including birthing and infant feeding method, exposure to stress, environment, diet, medications, stage of lifecycle, andcomorbid diseases.[1] During this time period, the gut microbiome is developing and forming. Significant evidence suggesting that the relationship between these factors and conditions during development can have an impact on inflammatory bowel disease and colitis diagnoses later in life have been evident for many years.

In recent years, the gut microbiome has become a point of interest for many scientists and physicians alike, but for a new reason. Research is no longer solely based on conditions within the gut, but on the person as a whole. With modern technology, the gut has been able to be studied in new ways and the complex organization of microorganisms seen for the first time. Through new research, it is becoming more evident that the gut microbiome does more than process nutrients and waste from food. Now, there is significant evidence and research suggesting that bacteria, including commensal, probiotic, and pathogenic bacteria in the gastrointestinal (GI) tract can activate neural pathwaysand central nervous system (CNS) signaling systems.[2] Therefore, the gut is no longer solely responsible for the digestive process, and instead has the ability to affect the human brain —and personality.

Early studies have shown that the development of the gut microbiome with in the GI systemafter birth can alter brain function and regulate complex behaviors. Disruptions of this development can also lead to problems within the central nervous system later.[3] In addition to innate personality and cognitive function, studies on mice also suggest that dieting, or changesin diet, affect the make-up of the gut microbiome in less than a single day and can also affectgene expression within the microbiome.[4]

Now, evidence suggesting a further relationship between the gut and the brain have risen, andrecent interest in the body's microbiome has renewed scrutiny of gut bacteria; it's possible thatbacterial imbalance alters the body's metabolism of dopamine and other molecules that maycontribute to depression.[5]

While significant studies on humans have yet to be released, the relationship between the gut and the brain is evident, and growing in popularity among the scientific field. However, this provides evidence behind the growing notion of the mind-body connection, and new evidence isconsistently being released about this once-unknown connection.

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