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Gut microbes that cause depression

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Recent research has shown that gut microbes can also cause depression. Using bioinformatics analysis, researchers were able to identify certain groups of bacteria, which were either positively or negatively correlated with mental health. Certain members of the Clostridia and Coprococcus group were consistently found in low numbers in people suffering from depression. Some other species were able to produce molecules that interact with the human nervous system. These microbes produce molecules that signal gut cells to produce serotonin and dopamine which are usually found in abnormally low levels in depressed people. Communication between the gut microbiome and the central nervous system occurs in a bidirectional fashion referred to as the gut-brain axis. The gut is directly connected to the hypothalamus and limbic system that regulates emotions through the vagus nerve. Any change in the gut microbiome will therefore affect emotions. A decrease in the number of certain species of the Clostridia group results in a decreased amount of histamine, an antidepressant. Hence, they fail to stimulate the vagus nerve in the intestine, which would otherwise have sent signals to the brain to increase the production of mood-boosting neurotransmitters, such as dopamine and serotonin. However, gut microbiome-related depression can potentially be overcome by taking probiotic supplements that boost the gut microbiome, thereby replenishing the lost microbial species.

Keywords: Gut microbes, Clostridia, Depression, Neurotransmitters, Serotonin, Dopamine, Coprococcus

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