

Abstract

Human Gut Microbiota, Gut–Brain Axis and the Role of Diet [†]

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Abstract: Human intestinal microbiota comprises bacteria, viruses, fungi, yeasts and bacteriophages. The human microbiota has a fundamental role in host physiology and pathology. This community starts to develop at birth and continues for two to three years, until it reaches a stable composition. It, however, continues to be influenced by different environmental and lifestyle factors throughout the host's lifespan. It has now become apparent that human gut microbiota plays a fundamental role in human health and physiology. Increasing evidence in last ten years has shown that intestinal bacteria can affect the central nervous system and behavior. The nervous system and the gastrointestinal tract are connected through a bidirectional network of signaling pathways called the gut–brain axis, which consists of multiple mechanisms including the vagus nerve, the immune system and bacterial metabolites and products. Diet is one of the major factors involved in shaping the composition of human gut microbiota. One of the emerging areas of research is whether and how diet can affect the nervous system via its effect on gut microbiota. The majority of studies have employed animal models to advance our understanding of the role of nutritional interventions on the microbiota–gut–brain axis and its potential benefits for mental health. Although animal studies have shown great promise, evidence from human clinical studies is still limited.

Keywords: gut-brain axis; microbiome; diet



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