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Effect of Carbohydrates on the Gut Microbiome

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ABSTRACT

The microbiome within the gut is directly linked to biological processes within a person, influencing factors such as metabolism, signaling pathways, and available nutrients. Long term dieting is known to alter ecological conditions within the gut, allowing certain types of microbes to flourish. Therefore, the overall health of an individual is ultimately influenced by shifts in the microbial community state caused by persistent dieting. This study investigates the connection between diet and the microbiome and draws an understanding of how common carbohydrates in food can affect bacterial composition. Using KBase software, anaerobic bacterial growth was investigated for bacteria subject to a defined media with distinct sugars. Common bacteria found in young children were studied as microbiome development begins post-partum. The results show that only certain carbohydrates have a crucial impact on bacterial growth while others are inert. In future studies, it is recommended that co-cultures of bacteria are studied in the sugar additive media to determine relative abundance and how different bacterial strains can dominate one another.

KEYWORDS

Microbiome, carbohydrates, anaerobic, bacteria, gut