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Fructose and sugar substitutes alter gut microbiota

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(HealthDay)—High consumption of fructose, artificial sweeteners, and sugar alcohols affect host-gastrointestinal microbe interactions and may contribute to the development of metabolic disorders and obesity, according to research published in the September issue of *Obesity Reviews*.

Amanda N. Payne, Ph.D., of the Institute of Food, Nutrition, and Health in Zurich, and colleagues performed a comprehensive review of the literature to study how host-microbe interactions may contribute to metabolic disorders and obesity.

The researchers found that the reduced diversity in the fructose- and

substitute sugar-laden Western diet caused a loss of diversity in the gastrointestinal tract microflora, leading to the establishment of a "Western" gut microbiome. The adaptive metabolism generated additional metabolic activity for the host, which may have altered energy regulation and gut transit times, triggering enhancement of dietary energy extraction. These differences may be sensed by the immune system, leading to intestinal inflammation which later manifests as endotoxemia.

"The combination of these processes can undoubtedly contribute to development of many metabolic disorders associated with obesity," the authors write. "In conclusion, we suggest obesity treatment and prevention could be effectively achieved by promoting intestinal homeostasis through reintroduction of a balanced and diverse diet."

More information: Abstract
Full Text (subscription or payment may be required)

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