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Food Addiction, High-Glycemic-Index Carbohydrates, and Obesity.

Lennerz B¹, Lennerz JK².

Author information

Abstract

BACKGROUND: Treatment success in obesity remains low, and recently food addiction has been delineated as an underlying etiologic factor with therapeutic relevance. Specifically, current treatment focuses on reduced food intake and increase of physical activity, whereas interventions for addiction encompass behavioral therapy, abstinence, and environmental interventions such as taxation, restrictions on advertising, and regulation of school menus.

CONTENT: Here, we reviewed the pertinent literature on food addiction with a specific focus on the role of high-glycemic-index carbohydrates in triggering addictive symptoms. Three lines of evidence support the concept of food addiction: (a) behavioral responses to certain foods are similar to substances of abuse; (b) food intake regulation and addiction rely on similar neurobiological circuits; (c) individuals suffering from obesity or addiction show similar neurochemical- and brain activation patterns. High-glycemic-index carbohydrates elicit a rapid shift in blood glucose and insulin levels, akin to the pharmacokinetics of addictive substances. Similar to drugs of abuse, glucose and insulin signal to the mesolimbic system to modify dopamine concentration. Sugar elicits addiction-like craving, and self-reported problem foods are rich in high-glycemic-index carbohydrates. These properties make high-glycemic-index carbohydrates plausible triggers for food addiction.

SUMMARY: We argue that food addiction is a plausible etiological factor contributing to the heterogeneous condition and phenotype of obesity. In at least a subset of vulnerable individuals, high-glycemic-index carbohydrates trigger addiction-like neurochemical and behavioral responses.

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