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## Food Environment and Craving for Sweets: How Relevant is it for Obesity Epidemic?

**Helena Doria Ribeiro de Andrade Previato<sup>1\*</sup> and Jorge Herman Behrens<sup>2</sup>**<sup>1</sup>PhD Candidate in Food and Nutrition, Department of Food and Nutrition, School of Food Engineering, University of Campinas, Brazil<sup>2</sup>Assistant Professor, Department of Food and Nutrition, School of Food Engineering, University of Campinas, Brazil**\*Corresponding author:** Helena Doria Ribeiro de Andrade Previato, Department of Food and Nutrition, School of Food Engineering, University of Campinas, 80 Monteiro Lobato St, Brazil, E-mail: [helenapreviato@hotmail.com](mailto:helenapreviato@hotmail.com)

Food environment is an important determinant of eating behavior. In the past, the main motivations for our ancestors to eat were energy restoration and nutritional requirements. Actually, there are other psychological, emotional and socioeconomic reasons that should be considered in the development of human food habits. External factors such as food availability and palatability are important stimulus for eating pattern in a palatable food-abundant environment. Besides environmental influences, internal processes also modulate food intake through physiological requirements to maintain energy homeostasis. Thus, internal and external factors are not dissociable and interact in the complex process of human food choice.

However, hedonic hunger-characterized by eating for pleasure-has been playing a major role in food consumption rather than nutritional needs. Palatable foods, often high in sugar, fat and calories, are associated to pleasure and physiological interactions. But, if this kind of food is consumed in excess or in substitution for meals, it may contribute to overweight. Studies show that obese individuals prefer highly palatable foods instead of fruits and vegetables. Consequently, positive energy balance-energy consumption greater than the expenditure-causes weight gain. Thus, physical inactivity associated to a hyper caloric dietary pattern and genetic inheritance may contribute to the obesity epidemic in children, adolescents and adults.

Another issue to be addressed is that high sugar intake can lead to craving for sweets, which, in turn, may further increase the consumption of such foods. Craving for sweets is defined as a strong desire for this specific kind of food. It represents an intense motivational state of consuming pleasure-producing foods or substances as sugar related to hedonic behavior. Craving is physiologically mediated by the activation of the opioid system, which produces a sensation of pleasure and motivates the intense desire for sweets even in absence of physiological hunger. Thus,

craving may be secondary to food exposure and food memories. The main craved foods are chocolate, desserts, confectionary and ice cream. Chocolate is the most craved one, being very common the terms *chocoloholic* or *chocolate addiction* to describe this preference and behavior.

In this scenario a question arises: is craving for sweets influenced by the food environment created by food availability and palatability?

Decades ago, access to sweet foods like chocolates, candies, confectionary, snacks, ice cream and high sugar drinks was limited, especially in developing countries. Nowadays, one can find a huge variety of these products at a low cost everywhere, from supermarkets to vending machines strategically available in schools, work places, shopping malls and transport hubs. Therefore, food environment with abundance of palatable foods may increase craving for sweets and contribute for obesogenic pattern which is characterized not only by high caloric intake, but also by meal omission and low consumption of fruits and vegetables.

To eat palatable foods for pleasure is not the real problem, but, overeat just for hedonism mainly in the absence of homeostatic hunger. Moreover, the excess of energy intake related to bigger portions and/or excess of snacks may gradually lead to weight gain and overweight. Thus, the challenge is to balance pleasure and nutrition in choices that are tasty and nutritionally benefic for the health, based on variety, quantity, proportionality and pleasantness.

To prevent the increase of the obesity epidemic worldwide, measures are needed to reduce caloric intake and sedentary lifestyle, without depriving people of the sensory pleasure provided by food. In this line, it is essential to observe the food environment to propose motivational strategies through public health campaigns and government policy for healthier eating habits, besides encouraging the practice of physical activity. More than just eating what they like, people should be aware that better food choices impart pleasure, well-being and health.

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