Hedonic Hunger and Obesity

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INTRODUCTION

One of the most basic needs in human life is nutrition. Today, people no longer consume nutrients only when they are needed physiologically (Berthoud, 2011). Now people want to consume food because of the pleasure of eating the food itself, rather than hunger and energy needs. This situation is explained by hedonism. According to hedonism, the meaning of life lies in pleasure. The pleasure that occurs when a person consumes the food they enjoy increases their eating behavior (Lowe & Levine, 2005).

Hedonic hunger obstructs homeostatic pathways when energy in the body is higher than normal, increasing the person's desire to eat food with good flavor (Lutter & Nestler, 2009). Homeostatic hunger is a condition in which the pleasure from eating increases, regardless of the taste of food, in order to eliminate energy deficits as a result of the negative energy balance that occurs after the person's energy stores are depleted (Aliasghari et al., 2019).

Enjoying food can stimulate "non-homoeostatic" eating and therefore potentially contribute to obesity (Mela, 2006). Obesity involves genetic and environmental interactions. It is also a serious and chronic disease. It can lead to various serious disorders, especially for the cardiovascular and endocrine systems. The increasing prevalence of obesity globally is reportedly associated with increased eating behavior and pleasure from eating. In addition to the interactions between hunger and taste, the response to perceived pleasure and nutrient cues also affects which food an individual chooses. This indirectly regulates appetite control (Lowe & Butryn, 2007). These changes in energy balance cause differentiation of the weight of the individual. With these differences in energy intake, the availability of high-energy foods in all areas, abnormally large portions and abundance leads to the emergence of hedonic factors and naturally hedonic hunger. These obstruct internal homeostatic systems causing a person's body weight balance to deteriorate (Mela, 2006).

The aim of this review is to explain the concepts of hedonic and homeostatic hunger, to address the formation of feelings of hunger and satiety in humans, and to examine the relationship between these conditions with obesity, which is a major health problem in the modern age.

BACKGROUND

Formation of Hunger and Satiety Sensations

Hunger and appetite are different concepts. While hunger is a physiological condition that occurs when the individual does not get the nutrients they need, appetite is a psychological condition (Carola et al., 1990). Ghrelin, identified in studies conducted by Kojima and colleagues in the stomach of mice in 1999, is located in the oxyntic mucosa of the stomach. It also contains 28 amino acids (Kojima et al., 1999).

The feeling of satiety is the occurrence of signals indicating intake of the amount of nutrients the individual needs, and then the end of the nutrient intake. Satiety and fullness are two important concepts that should not be confused with each other. Fullness means a complete cessation of food intake, while satiety describes the time from the end of nutrient intake to the occurrence of a feeling of hunger that manifests itself sometime later (Carola et al., 1990).

Peptides Regulating Food Taking

Peptides that regulate food intake are divided into orexigenic and anorexigenic peptides according to their effects on human eating behavior (Hagan et al., 2000). When the feeling of hunger manifests itself in a person, orexigenic peptides come into play and stimulate food intake. Anorexigenic peptides are peptides that stop food intake when the person does not need energy, i.e. when the feeling of satiation occurs (Li et al., 2003).

Peptides That Inhibit Food Consumption

Leptin

Leptin contains 167 amino acids. Leptin is a structured hormone (Zhang et al., 1994). It is responsible for controlling the amount of body fat in humans. It is also a protein that controls the homeostasis of energy expenditure. Leptin is synthesized in the main adipose tissue in the body (Wilding et al., 2002).

Leptin can be found freely in the blood and is dependent on a protein. In various studies, it was observed that leptin in serum of obese individuals is largely in free form (Brabant et al., 2000).

Corticotropin Releasing Factor (CRF)

CRF is a hypothalamic neuropeptide with destructive properties. CRF also plays an important role in energy balance (Hagan et al., 2000).

CRF acts on the sympathetic nervous system and increases its effect. Thus, it stimulates energy expenditure and lipolysis by providing body heat from fat (Gultekin et al., 2004).

α - melanocyte stimulating hormone (α-MSH)

The melanocortin hormone receptor is expressed in many regions of the hypothalamus. Appetite suppression is also provided through MC3 and MC4 receptors. Due to excess expression, deficiency in the MC4 receptor or any changes (mutations) that may occur in the receptor result in obesity (Parker, 2010).

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