

## **From Pleasure to Pathology: Understanding the Neural Basis of Food Addiction in the Context of Obesity**

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### **Abstract**

As rates of severe obesity continue to rise globally, intense efforts are required both from the scientific community, physicians and health policy makers to better understand the mechanisms, prevent and treat obesity in order to stop the upcoming pandemic. Obesity is known to significantly reduce life expectancy and overall quality of life, thus becoming a leading cause of preventable deaths. This article focuses on the relationship between obesity and food addiction, the main neural mechanisms, brain regions, genes, hormones and neurotransmitters involved and on the similarities between food addiction and substance abuse. The definition of obesity is based on the body mass index (BMI). A BMI of 30 or higher is classified as obese. Obesity is not solely a result of overeating, but has multifactorial causes, thus, prevention being extremely difficult. The concept of food addiction implies extreme cravings, lack of self-control, and overeating, especially involving tasty foods. The addiction concept is supported both by clinical-behavioural research and neurobiological research. These studies demonstrate similarities between binge eating and drug addiction, including cravings, loss of control, excessive intake, tolerance, withdrawal, and distress/dysfunction. Although generally food addiction is thought to be distinct from obesity, most studies identify that a significant percentage of individuals with food addiction are obese. Our aim was to emphasize the need to better understand the neurological basis of obesity and addiction, and its implications for research, treatment, and public health initiatives. Understanding the neural mechanisms underlying food addiction can inform future healthcare policies and interventions aimed at addressing the global obesity epidemic.

**Key words:** obesity, food addiction, eating disorder, behaviour, bariatric surgery