

The neurobiology of food intake in an obesogenic environment.

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Abstract

The objective of this non-systematic review of the literature is to highlight some of the neural systems and pathways that are affected by the various intake-promoting aspects of the modern food environment and explore potential modes of interaction between core systems such as hypothalamus and brainstem primarily receptive to internal signals of fuel availability and forebrain areas such as the cortex, amygdala and meso-corticolimbic dopamine system, primarily processing external signals. **The modern lifestyle with its drastic changes in the way we eat and move puts pressure on the homeostatic system responsible for the regulation of body weight, which has led to an increase in overweight and obesity.** The power of food cues targeting susceptible emotions and cognitive brain functions, particularly of children and adolescents, is increasingly exploited by modern neuromarketing tools. **Increased intake of energy-dense foods high in fat and sugar is not only adding more energy, but may also corrupt neural functions of brain systems involved in nutrient sensing as well as in hedonic, motivational and cognitive processing.** It is concluded that only long-term prospective studies in human subjects and animal models with the capacity to demonstrate sustained over-eating and development of obesity are necessary to identify the critical environmental factors as well as the underlying neural systems involved. Insights from these studies and from modern neuromarketing research should be increasingly used to promote consumption of healthy foods.