Satiation, satiety and the effects on obesity

Obesity has been affecting the lives of many individuals around the world. A person is considered to be obese when they have excessive body fat. The person’s body mass index (BMI) is either 30 or more. This can happen when the person consumes more calories than what is burned. Here I will review the hormones that signal satiation and satiety. Satiation is what signals the body to know when it is satisfied and to stop eating. Satiety is the feeling of fullness and suppression of hunger after a meal. While examining the roles it plays on obesity. Finally determining ways this can be prevent or at foreseen.

1. Physiological mechanisms of satiation and satiety

There are many gut hormones that’s play a role in satiation and satiety such as Cholecystokinin, glucagon-like peptide 1 and leptin. Theses hormones focus on the food intake regulation (Huang & Raybould, 2020)

Blood-borne mediated hormonal pathway and the vagal afferent neuron mediated paracrine pathway are two known pathways from PNS to CNS (Huang & Raybould, 2020)

1. Obesity genes and satiety

There are mutations in the leptin receptor gene Melanocortin 4 receptor (MC4R), and proopiomelanocortin gene that cause obesity and excessive eating. There is a disconnection on when the body feels satisfied (Llewellyn et al. 2014).

FTO studies in humans and rodents have shown FTO plays a role in food intake or energy expenditure (Zhao et al. 2014).

There is a difference in dopamine signaling in obese and normal weight individuals. Obese individuals tend to have a slower dopamine transport leading to overeating (Brandt et al. 2019).

1. Therapy’s and drug pathways

Sibutramine was approved in 1997 in the US, original this drug was thought to help with obesity but instead it has shown to cause heart related death (Yadav et al. 2021).

Weight loss drug target norepinephrine and dopamine transmitters (Brandt et al. 2019).

Dietary fiber is shown to promote satiety signals, which can help with preventing weight gain and excessive food intake (Ye, Arumugam, Haugabrooks, Williamson, & Hendrich, 2015)

Conclusion:

Obesity is not something that can be resolved overnight. There are many pathways and mutations that can lead to obesity. Drugs for appetite suppression have been developed and removed off the market. Instead, we should understand how satiation and satiety play a role in can help for future studies.

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