

Oxytocin: a potential promoter of unhealthy eating habits

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Introduction

Food is a vastly cultural and religion driven commodity depending on additional factors such as availability, production as well as environmental factors. Years of consumption of a homogenous kind of food can lead to genetic and epigenetic changes which allow individuals to respond differently to the food they consume. It is safe to assume that good nutrition is good for everybody but how a particular diet affects an individual also depends on individual genetic factors and the internal milieu of our bodies. Same food might cause unwanted physical changes in a person but might not have the same effect on the other person. Same food may also affect two different individuals differently nutritionally. One factor which has profound implications on food consumption is the hormone oxytocin which works primarily through the gut-brain-axis to affect eating habits.

The gut brain microbiota axis

The gut brain axis is a multidirectional communication system linking the emotional and cognitive centers of the brain with the human gut and its microbiota.¹ Insights into the gut-brain relationship has revealed a vast network of nerves that not only ensure the proper functioning of gestational organs but also has varying effects on the human brain. The brain and the gut are connected by a single long running nerve called the vagus nerve.² The Gut-Brain axis is often referred to as the gut-brain-microbiota axis due to the influential impact of the gut microbes in the digestive and cognitive processes of the human body. There has been compelling evidence that this relationship can be exploited to treat certain medical conditions that arise from the brain such as Parkinson's disease by altering the diet.³

Oxytocin

Oxytocin is a hormone and neurotransmitter produced by the paraventricular hypothalamic nucleus and released by the posterior pituitary. This hormone is responsible for the feelings of maternal bonding, kinship and love. This hormone is also responsible for reducing food intake in both human and animal models and can prove to be a potential treatment of obesity. In rat models it is proven that pharmacological injection of oxytocin into the brain can reduce food intake and the administration of an oxytocin receptor antagonist has just the opposite effect.^{4,5} In addition to this move devoid of oxytocin receptors show increased food intake related behaviors during the nocturnal cycle.⁶ Peripheral administration of oxytocin hormone does not assist the perceived levels of hunger or satiate hunger in a food deprivation discrimination in rats, in spite of reducing intake in both food restricted and non-restricted states.⁷

Low oxytocin levels have often been linked to conditions such as autism, depression and bigger appetite for oxygen rich foods. This suggests that there is more to eating habits than hunger. Low oxygen levels can arise from a number of conditions such as improper development of the hypothalamus, lack in the number of oxygen receptors or genetic conditions.

Conclusion

An individual is not solely responsible for their consumption habits. Looking down on an individual or blaming them for their food habits is an unnecessary and illogical response to unhealthy eating habits and can often have adverse effects. If a person is suffering through unhealthy eating habits it is necessary to consult a doctor and proceed with a thorough investigation before adhering to extreme measures. It is evident that further research in the area is mandatory but it is also necessary for individuals to be familiar with the existing literature on the topic both doctors and patients alike.

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None.

Conflicts of interest

The authors declare no conflicts of interest regarding the research and findings presented.

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