



# Food Reward

FOOD REWARD

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When eating is motivated by pleasure, rather than hunger, endogenous rewarding chemical signals are activated which can lead to overeating.

Hedonic hunger refers to the desire to eat for pleasure, and to enjoy the taste, rather than to restore the body's energy needs. For example, desiring and eating a piece of cake even after a satiating meal is consumption driven by pleasure and not by energy deprivation. The physiological process underlying hedonic eating is not fully understood, but it is likely that endogenous substances regulating reward mechanisms like the hormone ghrelin and chemical compounds such as 2-arachidonoylglycerol (2-AG) are involved.

In another study, researcher defined liking as the pleasantness of taste of food in the mouth, and food reward as the momentary value of a food to the individual at the time of ingestion.

Liking and food reward were measured, respectively, by ratings of the pleasantness of the taste of a mouthful, and ratings of desire to eat a portion, of the food in question. Food intake reduced liking and reward value more for the eaten food than uneaten foods. The results were ambiguous as to whether this food-specific decline in reward value ('sensory-specific satiety') involved a decrease in 'wanting' in addition to the decrease in liking.



## ► Palatable Food and Reward System ◀

The changes in eating patterns that have occurred in recent decades are an important cause of obesity. Food intake and energy expenditure are controlled by a complex neural system involving the hypothalamic centers and peripheral satiety system (gastrointestinal and pancreatic hormones). Highly palatable and caloric food disrupts appetite regulation; however, palatable foods induce pleasure and reward. Excessive consumption of palatable energy-dense food can lead to a profound state of reward hyposensitivity that is similar to that of drug abuse that can lead to the development of compulsive-like eating. In one animal study was shown Highly palatable foods activate the reward system to affect feeding behavior.



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Liking is essentially a hedonic reaction to the pleasure of a reward (e.g., the palatability of food).

### ➤ Reward pathway ◀

Natural rewards such as food, water, sex, and nurturing allow the organism to feel pleasure when eating, drinking, procreating, and being nurtured. Such pleasurable feelings reinforce the behavior so that it will be repeated. Each of these behaviors is required for the survival of the species. there is a pathway in the brain that is responsible for rewarding behaviors.

In broad terms, reward is believed to comprise distinguishable psychological components known as liking and wanting.



Wanting is an explicit and implicit motivational component of reward.

In one study, researchers used a dietary manipulation (acute tyrosine-phenylalanine depletion) to induce short-term decreases in levels of the neurotransmitter, dopamine, and they measured the resultant effects on appetite, food reward and intake (Hardman et al., 2012).

Results indicated that the depletion had a selective effect on appetite ratings (an index of the motivational value of food) in the absence of any effect on liking for food. These findings support the theory that dopamine mediates wanting, and that this is a distinct neural mechanism relative to systems that underlie liking.