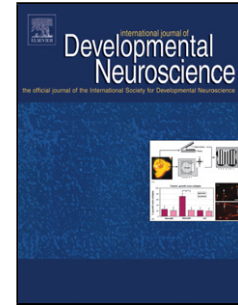


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Characterizing ingestive behavior through licking microstructure: Underlying neurobiology and its use in the study of obesity in animal models

Running head: Licks, evaluation, motivation and obesity

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Highlights

- Analyses of licking microstructure provides the opportunity to uncover specific behaviors involved in the ingestion of a fluid
- This review describes the use of these measures to characterize ingestive and learned factors controlling the acceptance and avoidance of food
- The neurobiological systems controlling alterations in licking microstructure are described
- The use of these analyses in the study of obesity in animals is also discussed

Abstract

Ingestive behavior is controlled by multiple distinct peripheral and central physiological mechanisms that ultimately determine whether a particular food should be accepted or avoided. As rodents consume a fluid they display stereotyped rhythmic tongue movements, and by analyzing the temporal distribution of pauses of licking, it is possible through analyses of licking microstructure to uncover dissociable evaluative and motivational variables that contribute to ingestive behavior. The mean number of licks occurring within each burst of licking (burst and cluster size) reflects the palatability of the consumed solution, whereas the frequency of initiating novel bouts of licking behavior (burst and cluster number) is dependent upon the degree of gastrointestinal inhibition that accrues through continued fluid ingestion. This review describes the analysis of these measures within a context of the behavioral variables that come to influence the acceptance or avoidance of a fluid, and the neurobiological mechanisms that

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