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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 45(45)

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Publication Date

2023

Peer reviewed

The representational dynamics of food in the human brain

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Abstract

The human brain can quickly organise visually perceived objects into categories. Although previous research has focussed on object and category representations in the brain, it is still unclear how one category of ecological importance, food, is represented in the brain. Here, we used time-resolved multivariate analyses of electroencephalography data to investigate the time-course of food representations in the brain. Our results show that the brain distinguishes between food and non-food items from approximately 84 ms onwards. The neural signal also contained information about the naturalness, the level of transformation, as well as the perceived caloric content of food. In addition, the recorded brain activity predicted the behavioural responses of different groups of participants who participated in one of two tasks: a naturalness food categorisation task and an odd-item-out task on 3 presented food items. Together, our results contribute to our understanding of how the human brain processes visually presented food.