
Cognitive and emotional underpinnings of eating: A consumer neuroscience approach

Simone Chiarelli, Chiara Casiraghi, Alessandro Fici, Marco Bilucaglia, Federica Piccoli, Margherita Zito, Vincenzo Russo

Abstract

Food evokes emotions and memories, and taste is considered a construct of the brain rather than an inherent property of food. Therefore, to understand our eating experiences in depth, we must delve into their cognitive and neurophysiological foundations. This study investigates the cognitive and emotional mechanisms underlying the eating experience, aiming at unraveling these dynamics at different eating stages (sight, taste, and savouring). Using neuroscientific techniques (electroencephalography, heart rate, and skin conductance) as well as self-report measures (SAM), we explored the emotional and cognitive correlates of eating. 31 healthy participants (18 males, 18 females) aged 25-55 years were asked to consume four pasta dishes with different flavors (tomato, pesto, ragù, and plain pasta as benchmark). Our results shed light on how neurophysiological variables can help delineate the cognitive processes associated with each distinct phase of eating. In particular, heightened cognitive engagement was registered during plate viewing and tasting, memorization peaked during the tasting phase, while emotional involvement was highest during the tasting and savouring phase. However, neurophysiological metrics did not reveal differences in pasta flavour, which instead emerge when emotions are self-reported. Finally, correlations between neurophysiological indicators and self-reported emotions suggest a connection between memorization during the concluding savouring phase and self-reported emotions. These findings underscore the importance of integrating neuroscientific and self-report measures to fully understand the complex interplay between cognitive, sensory, and emotional processes during the eating experience. Furthermore, by delineating sequential cognitive processes at different stages of eating, this research provides valuable insights into understanding the dynamics associated with food consumption.