

New research questions how fat influences flavor perception

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A joint study carried out by The University of Nottingham and the multinational food company Unilever has found for the first time that fat in food can reduce activity in several areas of the brain which are responsible for processing taste, aroma and reward.

The research, now available in the Springer journal *Chemosensory Perception*, provides the [food industry](#) with better understanding of how in the future it might be able to make healthier, less [fatty food](#) products without negatively affecting their overall taste and enjoyment. Unveiled in 2010, Unilever's [Sustainable Living](#) Plan sets out its ambition to help hundreds of millions of people improve their diet around the world within a decade.

This fascinating three-year study investigated how the brains of a group of participants in their 20s would respond to changes in the [fat content](#) of four different fruit emulsions they tasted while under an [MRI scanner](#). All four samples were of the same thickness and sweetness, but one contained flavour with no fat, while the other three contained fat with different flavour release properties.

The research found that the areas of the participants' brains which are responsible for the perception of flavour — such as the somatosensory cortices and the anterior, mid & posterior insula — were significantly more activated when the non-fatty sample was tested compared to the fatty emulsions despite having the same flavour perception. It is important to note that increased activation in these [brain](#) areas does not

necessarily result in increased perception of flavour or reward.

Dr Joanne Hort, Associate Professor in Sensory Science at The University of Nottingham said: "This is the first brain study to assess the effect of fat on the processing of flavour perception and it raises questions as to why fat emulsions suppress the cortical response in brain areas linked to the processing of flavour and reward. It also remains to be determined what the implications of this suppressive effect are on feelings of hunger, satiety and reward."

Unilever food scientist Johanneke Busch, based at the company's Research & Development laboratories in Vlaardingen, Netherlands added: "There is more to people's enjoyment of food than the product's flavour — like its mouthfeel, its texture and whether it satisfies hunger, so this is a very important building block for us to better understand how to innovate and manufacture healthier [food products](#) which people want to buy."

More information: Eldeghaidy S et al (2012). Does fat alter the cortical response to flavour? is published in *Chemosensory Perception*; 10.1007/s12078-012-9130-z

Provided by University of Nottingham

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