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Investigating the influence of different mouth behaviour on expectations of satiation and satiety

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Sensory perceptions are not only impacted by the initial properties of food, but also by the oral processing of individuals. The differences in oral processing strategies used by individuals may have different impacts on sensory perceptions, which in turn, drives consumer expectations.

The aim of the present study was to determine the influence of different mouth behaviours on liking and expected satiation/satiety.

Eight yoghurt samples, based on DOE, with identical composition, varying in textural properties, were used in the study. In a consumer test, 101 subjects were asked to taste each sample and rate liking, expected satiation/satiety before describing them using CATA questions. The subjects were also classified by mouth behaviour (MB) using the JBMB™ tool, which sorts people in four groups. In this test we identified subjects belonging to three groups only: chewer, smoother and cruncher.

ANOVA with product, MB group as fixed effects was used, indicating that the samples were significantly different in liking, expected satiation/satiety. Besides, MB group markedly affected expected satiety perception. The relative importance of the DOE variables was characterized. Apart from consistency, chewers rated expected satiety mainly based on particle-size, whereas smoothers focused flavour-intensity.

Penalty Lift analysis was applied to find the drivers of liking, expected satiation/satiety. Both flavour and texture attributes had influences on liking; in particular, flavour mostly affected chewer and smoother ratings, whereas texture had more influence for crunchers. Regarding drivers of expected satiation/satiety, only texture attributes led to an increase in these expectations.

In parallel, TCATA was used to capture the sequence of sensory perceptions with a trained panel, pointing out that texture attributes were the most important for sample classifications. This work will discuss perceptual differences in consumers with different MB, as well as the relation with the dynamic sensory perception.