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Can oral processing behaviour explain the satiating capacity of yogurts with small texture differences?

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Increasing concerns regarding obesity requires a better understanding of factors underpinning food intake. It is well-documented that solid foods are consumed in lower amounts than liquid or semi-solid foods due to longer oral exposure time and lower eating rates. It remains unknown how small texture variations within a product category influence eating behaviour and satiation. This study aims to determine relationships between oral processing behaviour and satiation of yogurts differing in texture. Six iso-caloric combinations of yogurt (thin/thick) with added granola pieces (small/medium/large) were used. Oral processing parameters were quantified by video recording consumers (n=103) eating yogurt ad libitum. Appetite and liking were also quantified.

Texture variations between yogurts were relatively small, but perceivable. Both yogurt viscosity and granola size significantly affected oral processing behavior and intake. A 2-fold decrease in yogurt viscosity was sufficient to increase eating rate, number of spoons, swallows and intake. Large granola pieces (12mm) had the highest sip size and intake, while medium granola (6mm) had the lowest eating rate and highest number of chews. Small granola (<2mm) had the lowest eating duration, number of chews, oral exposure time, sip size and highest eating rate, number of spoons and inter-spoon interval. The lowest intake was observed for thick yogurt with small granola pieces. This impact of texture properties on satiation cannot be fully explained by product liking, oral exposure time and eating rate. The appearance of this yogurt might have elicited higher expected satiating capacity, as the combination of thick yogurt matrix with small granola pieces resulted in a denser product. We conclude that small but perceivable variations in texture properties of yogurt (variation of 2-fold in yogurt viscosity and 6-fold in granola size) are sufficient to change oral processing behaviour and intake. The satiating capacity can therefore be modulated without changing drastically product identity.