IMPACT OF **ORAL PROCESSING BEHAVIOUR** ON **SENSORY PERCEPTION** OF ICE CREAMS DIFFERING IN HARDNESS

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INTRODUCTION

Food oral processing is a dynamic process that plays an important role in sensory perception, and is influenced by the texture properties of food. However, the effect of oral processing behaviour on sensory perception of ice cream is often overlooked. Therefore, the **aim** of this work was to understand the impact of oral processing behaviour on sensory perception of ice creams varying in hardness.

MATERIALS AND METHODS

22 panellists evaluated ice creams with three different levels of hardness (low, medium, high) using Temporal Dominance of Sensations (TDS).

In order to determine the effect of oral processing behaviour on sensory perception, subjects were instructed to apply three oral processing protocols (chewing, melting and free oral processing) while performing TDS assessment.

Table 1. Consumption time per oral behaviour and ice cream

Ice cream	Oral behavior	Consumption time (seconds)
Low hardness	Chewing	14.6 ± 1.7
Medium hardness	Chewing	18.3 ± 1.7
High hardness	Chewing	19.3 ± 1.7
Low hardness	Melting	28.5 ± 1.7
Medium hardness	Melting	35.0 ± 1.7
High hardness	Melting	41.2 ± 1.7
Low hardness	Free	18.8 ± 1.7
Medium hardness	Free	21.3 ± 1.7
High hardness	Free	26.3 ± 1.7

RESULTS

Consumption time was significantly ($p<0.05$) affected by oral processing protocol and ice cream hardness (table 1).

For all ice creams consumed under different oral processing conditions, texture attributes such smoothness, coldness and firmness were the dominant sensations from the beginning of the consumption time up to 70% of the total consumption time (figure 1).

At later stages, taste and aroma attributes were the dominant sensations. With an increment of hardness, coldness perception increased whereas aroma perception was delayed and sweetness dominance decreased. Additionally, smoothness sensation was perceived for longer time during melting protocol than during the chewing one.

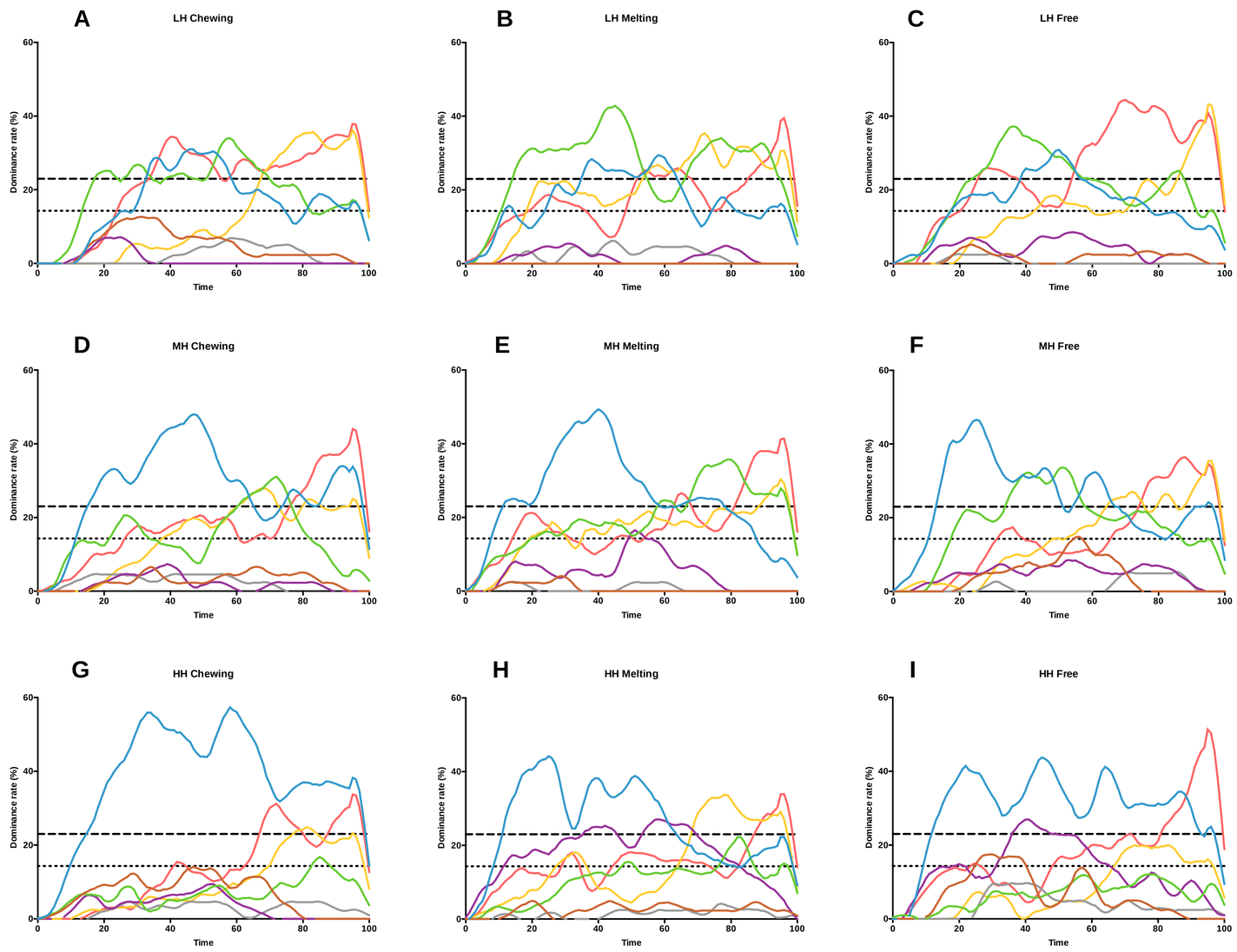

Figure 1. TDS curves per oral behaviour and ice cream hardness
LH=Low hardness, MH=Medium hardness, HH=High hardness

CONCLUSION

We conclude that both hardness and the type of oral processing behaviour influence consumption time and dominance of sensation during ice cream intake.

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