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

Monica Aguayo-Mendoza^{1,2}, Marion Doyennette³, Sara Martins³, Ann-Marie Williamson⁴, Markus Stieger^{1,2}

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 behaviour on sensory oral processing perception often of ice cream İS overlooked. Therefore, the **aim** of this work was to understand the impact of oral behaviour processing sensory on perception of ice creams varying in hardness.

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).

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.

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.

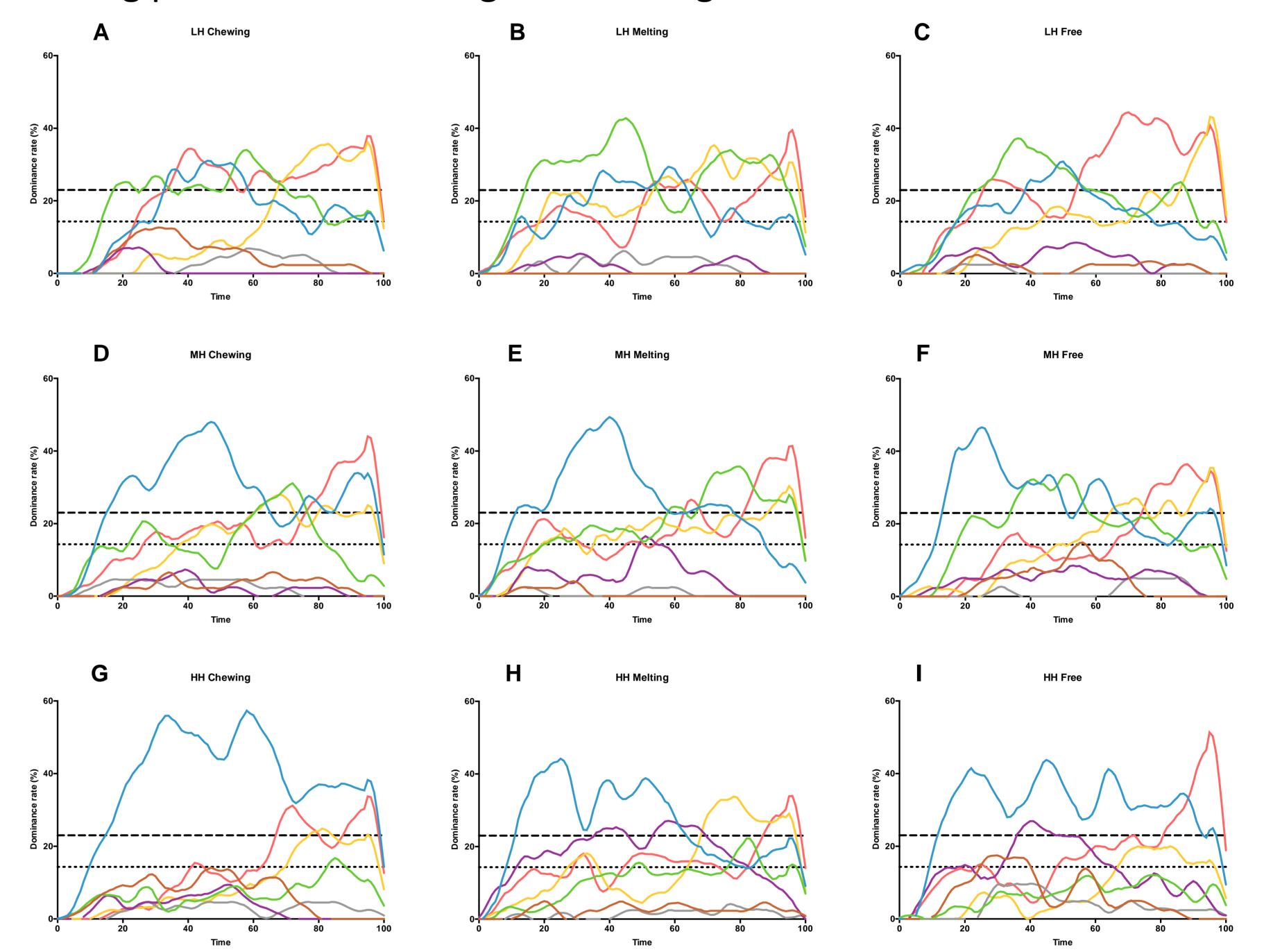


Table 1. Consumption time per oral behaviour and ice cream

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

Free

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

- Coldness Chewiness Smoothness Firmness Iciness

CONCLUSION

We conclude that both hardness and the type of oral processing behaviour influence consumption time and dominance of sensation

during ice cream intake.

TIFOOD NUTRITION

High hardness



26.3 ± 1.7

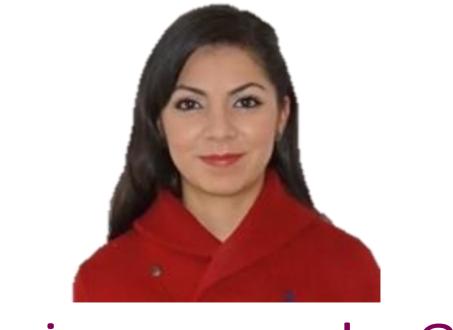


1 TI Food and Nutrition
P.O.Box 557
6700 AN Wageningen
The Netherlands
T+31 317 485 383

2 Wageningen UR P.O.Box 17 6700 AA Wageningen The Netherlands T+31 317 485 218

3 Unilever R&D Vlaardingen The Netherlands

4 Unilever R&D Colworth United Kingdom



Monica.aguayomendoza@wur.nl

In the face of today's challenge to make the healthy choice the easy choice, it is vital for the food industry and research organizations to pool knowledge and resources for multidisciplinary research. TI Food and Nutrition is a unique public/private partnership that generates vision on scientific breakthroughs in food and nutrition, resulting in development of innovative products and technologies that respond to consumer demands for safe, tasty and healthy foods.