

Evolutionary tendencies: The potential role of a high-calorie bias in food spatial memory on eating behaviour

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Strategic Communication

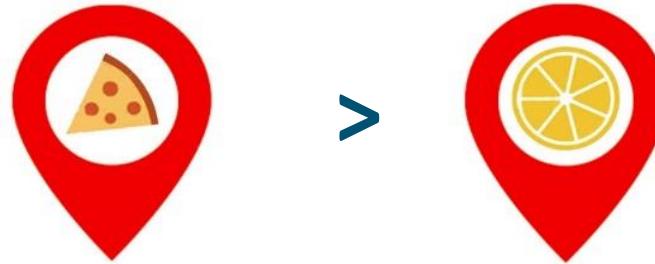






Introduction

- High-calorie spatial memory bias:



- Maintain a positive energy balance during periods of food shortage

Primary Research Aim

“Demonstrate the existence of a bias in spatial (location) memory for high-calorie foods”

H_1 : Individuals display a **greater** overall accuracy in spatial memory for **high-calorie foods** – regardless of subjective evaluations or personal familiarity with foods.

Methods: Study Design

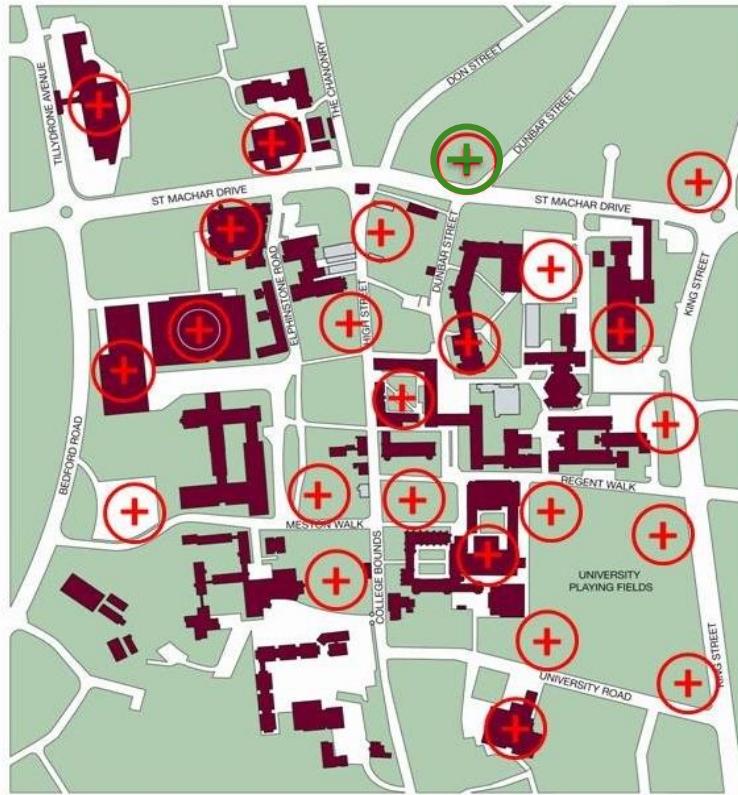
- 88 participants
 - 68% Female
 - Age 23.7 ± 2.7
 - BMI 22.5 ± 2.2
- 2 (*Caloric Density: High vs Low*) \times 2 (*Taste: Sweet vs Savoury*) crossover
 - Spatial memory task in 4 conditions (Allan & Allan, 2013)
- Standardized images from *Food Pics* database (Blechert *et al.*, 2014)

	Sweet	Savoury
High-calorie		
Low-calorie		

Methods: Spatial Memory Task (Encoding)



12 food items per condition
(e.g. *High-calorie--Sweet*)



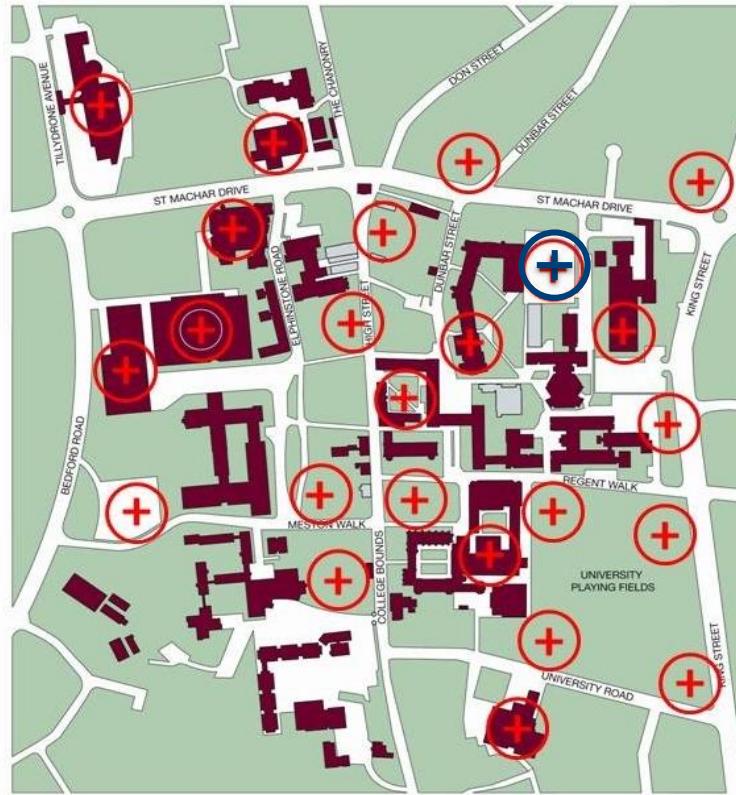
Desirability

Familiarity

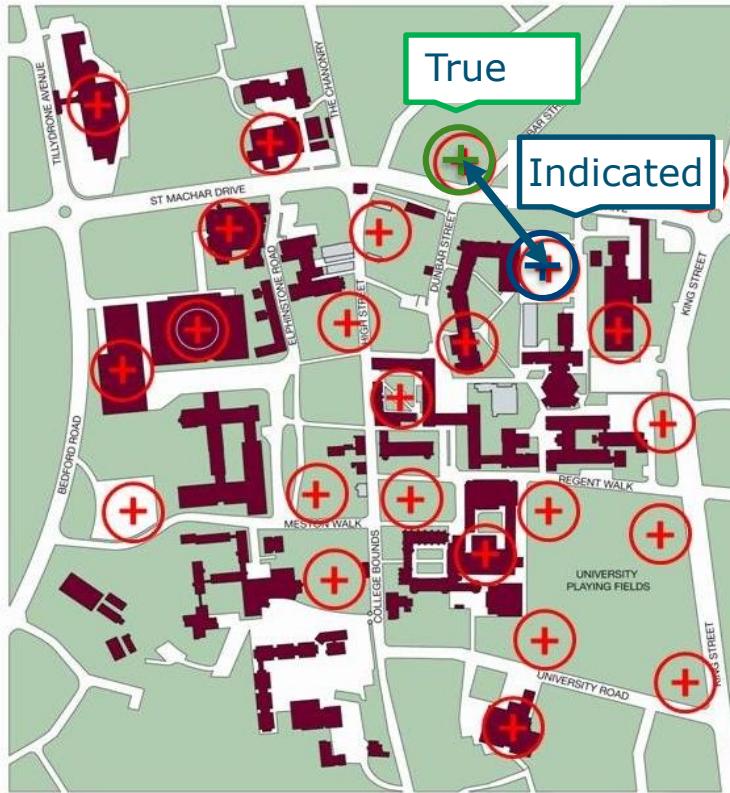
Methods: Spatial Memory Task (Recall)



12 (randomly-presented)
food items



Methods: Spatial Memory Accuracy



“Pointing Error”: Distance (D) between true and indicated food stall location.

*Lower D = higher spatial memory accuracy

Results Study 1: Bias(es) in Human Food Spatial Memory

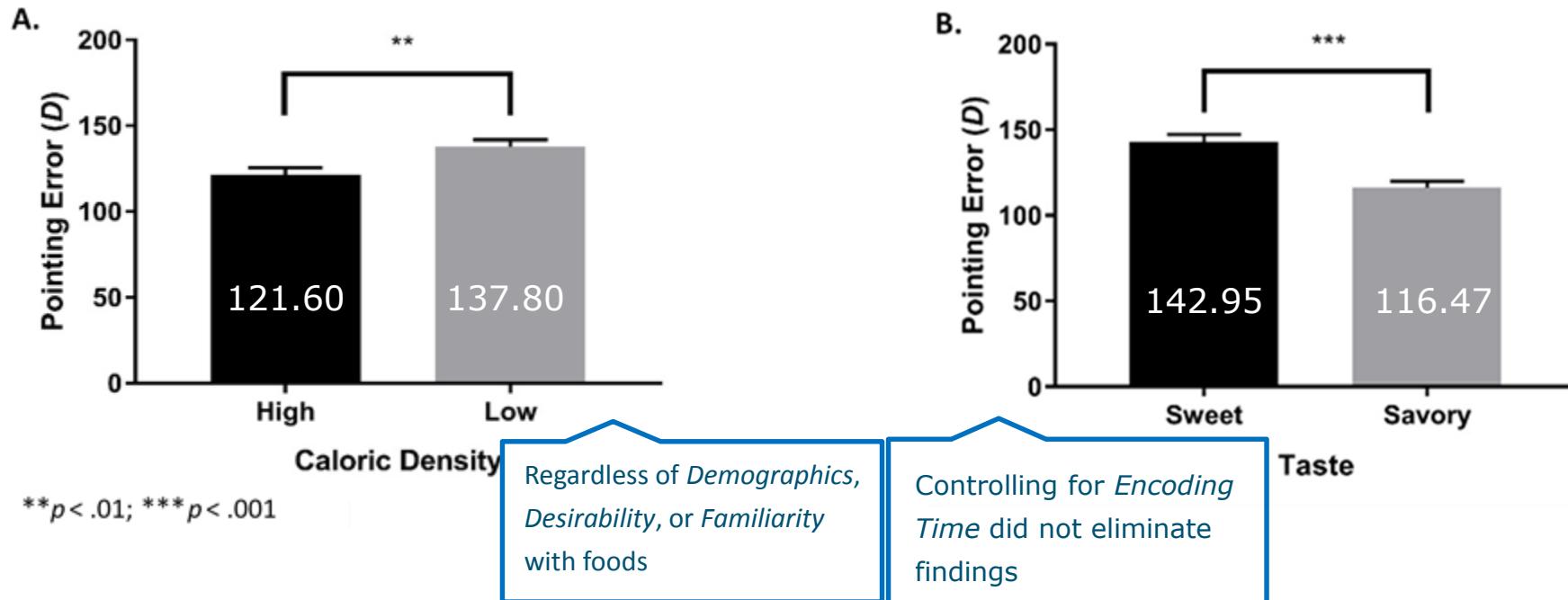


Figure 1. Spatial memory accuracy (mean \pm SE) in pixels (D) between true and indicated food locations. A lower D value denotes a greater associated spatial memory accuracy.

Results: Desirability

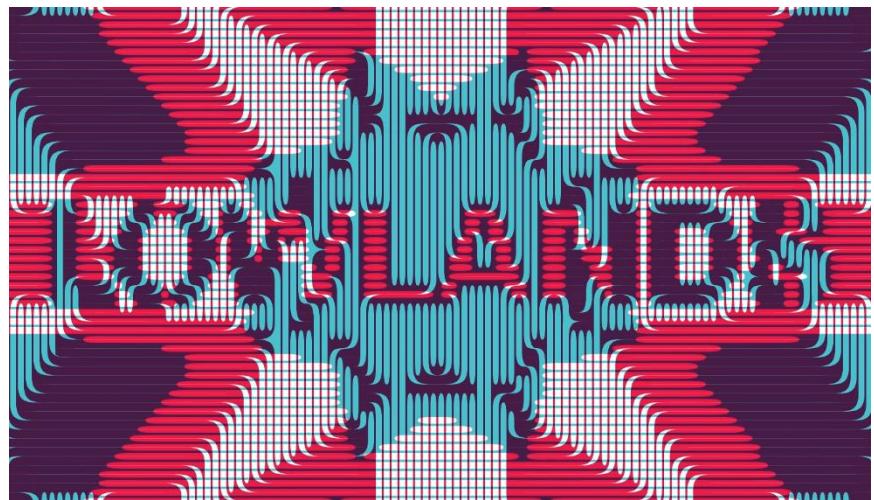
- A higher rated *Desirability* corresponded to a lower “pointing error”

[$\beta = -.45$ ($SE = .11$); $F(1,4124) = 17.809, p < .001$]

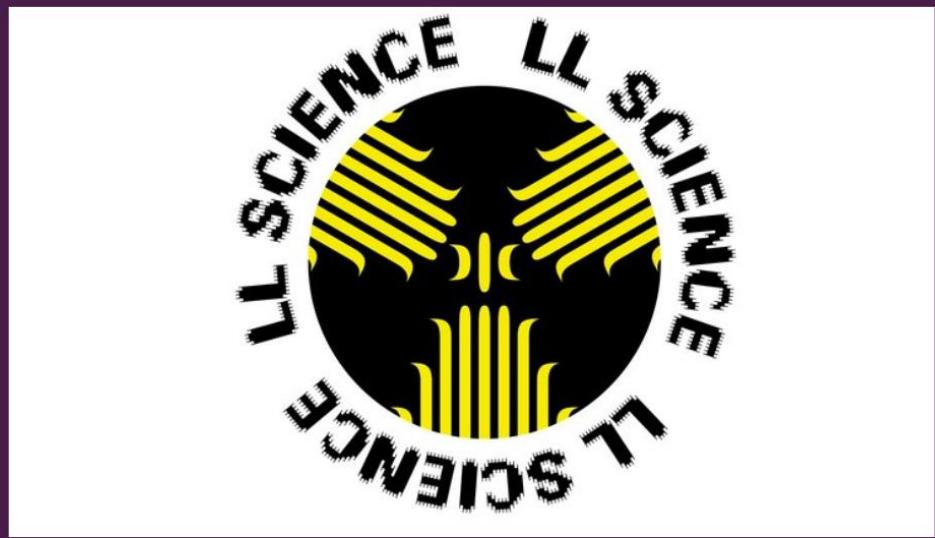
Additional motivational
component of food
spatial memory

Conclusions & Future Research

- *High-calorie and savoury-taste biases in human food spatial memory*
 - Independent of demographics, subjective evaluations, and familiarity with foods
 - (Partially) automatic in nature
- *Desirability* an “explicit” predictor of food spatial memory accuracy
 - Both “automatic” implicit and explicit processes shape food spatial memory and eating behaviour
- More research needed!



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Wageningen University & Research - Kies jij dezelfde voeding als je voorouders?



Thank you for listening!

Any questions?

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