University of BRISTOL

Mind over platter: What can psychology tell us about consumer behaviour?

Jeff Brunstrom

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Product innovation is challenging

- Novel ingredients
- Reformulation to meet changing guidelines/legislation
- Innovation to meet requirements of target populations
- Satiety and weight loss

- Consumer behaviour

The ‘what’ and the ‘why’

NBU 101
NUTRITION AND BEHAVIOUR UNIT

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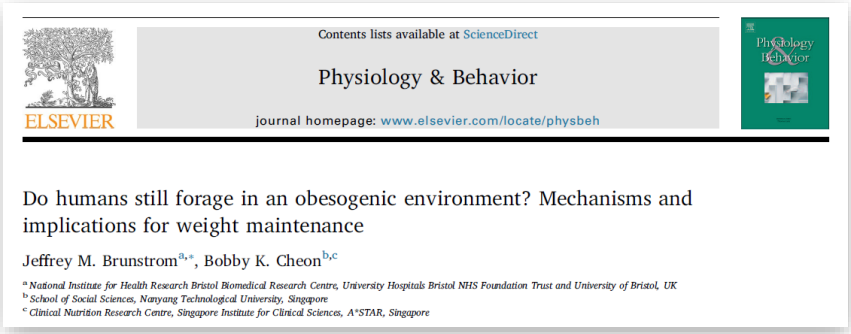
What have we learned?

Sustained changes in behaviour



Contents lists available at ScienceDirect

Physiology & Behavior

journal homepage: www.elsevier.com/locate/physbeh

Do humans still forage in an obesogenic environment? Mechanisms and implications for weight maintenance

Jeffrey M. Brunstrom[a,*], Bobby K. Cheon[b,c]

[a] National Institute for Health Research Bristol Biomedical Research Centre, University Hospitals Bristol NHS Foundation Trust and University of Bristol, UK
[b] School of Social Sciences, Nanyang Technological University, Singapore
[c] Clinical Nutrition Research Centre, Singapore Institute for Clinical Sciences, A*STAR, Singapore

Variety, colour, segmentation

Labelling

Appetite control

Food reward

Portion size

Sensory characteristics

The challenge for psychologists…

“To generate fundamental research and then show application to real-world problems”

Eating topography ✓

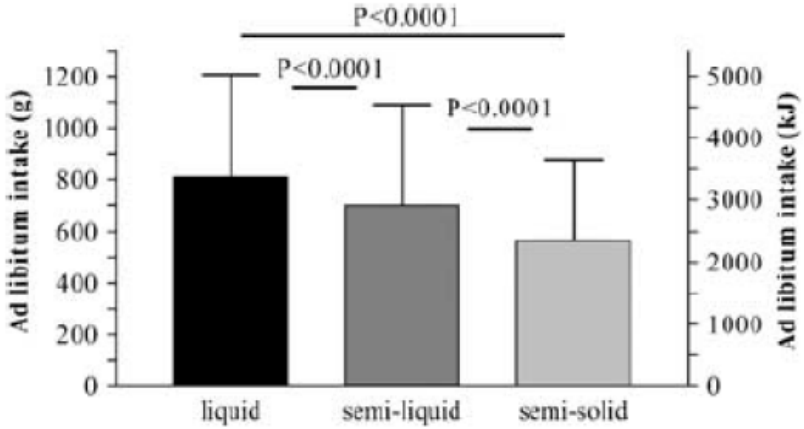
Food choice ✓

Memory ✓

Dietary learning

Eating topography

Horace Fletcher (1849-1919)

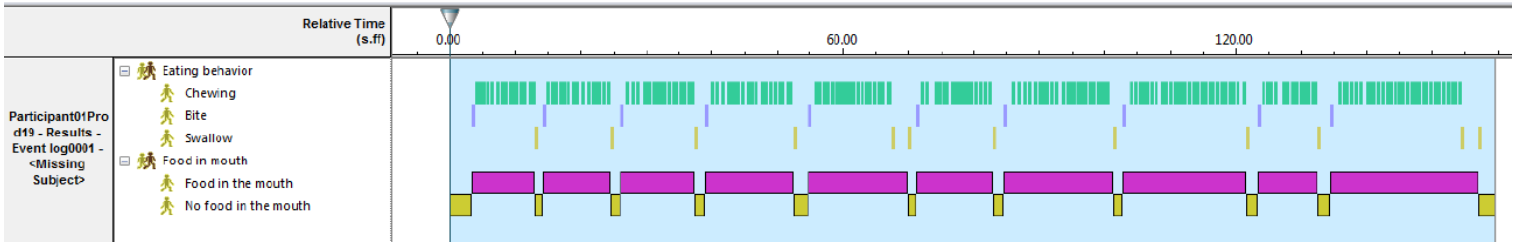


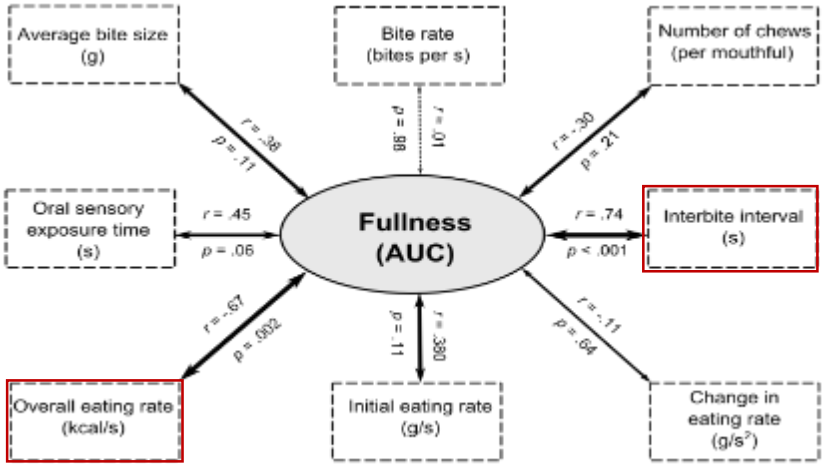
International Journal of Obesity (2008) 32, 676–683

The effect of viscosity on *ad libitum* food intake

N Zijlstra[1,2], M Mars[1,2], RA de Wijk[1,3], MS Westerterp-Plantenga[1,4] and C de Graaf[1,2]

Eating topography and satiety





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Food choice

Self-Control in Decision-Making Involves Modulation of the vmPFC Valuation System

Todd A. Hare,[1]* Colin F. Camerer,[1,2] Antonio Rangel[1,2]

Every day, individuals make dozens of choices between an alternative with higher overall value and a more tempting but ultimately inferior option. Optimal decision-making requires self-control. We propose two hypotheses about the neurobiology of self-control: (i) Goal-directed decisions have their basis in a common value signal encoded in ventromedial prefrontal cortex (vmPFC), and (ii) exercising self-control involves the modulation of this value signal by dorsolateral prefrontal cortex (DLPFC). We used functional magnetic resonance imaging to monitor brain activity while dieters engaged in real decisions about food consumption. Activity in vmPFC was correlated with goal values regardless of the amount of self-control. It incorporated both taste and health in self-controllers but only taste in non–self-controllers. Activity in DLPFC increased when subjects exercised self-control and correlated with activity in vmPFC.

Science 01 May 2009: Vol. 324, Issue 5927, pp. 646-648

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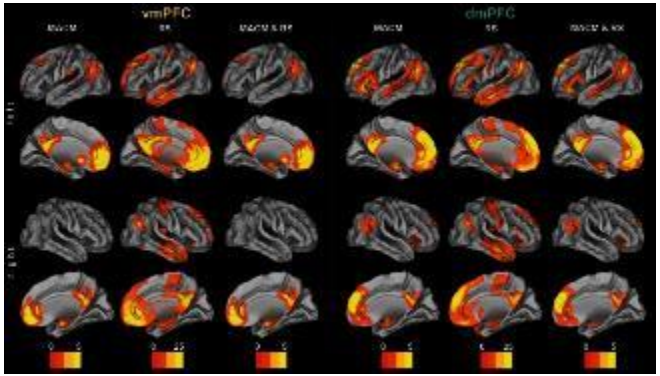

Expected satiety

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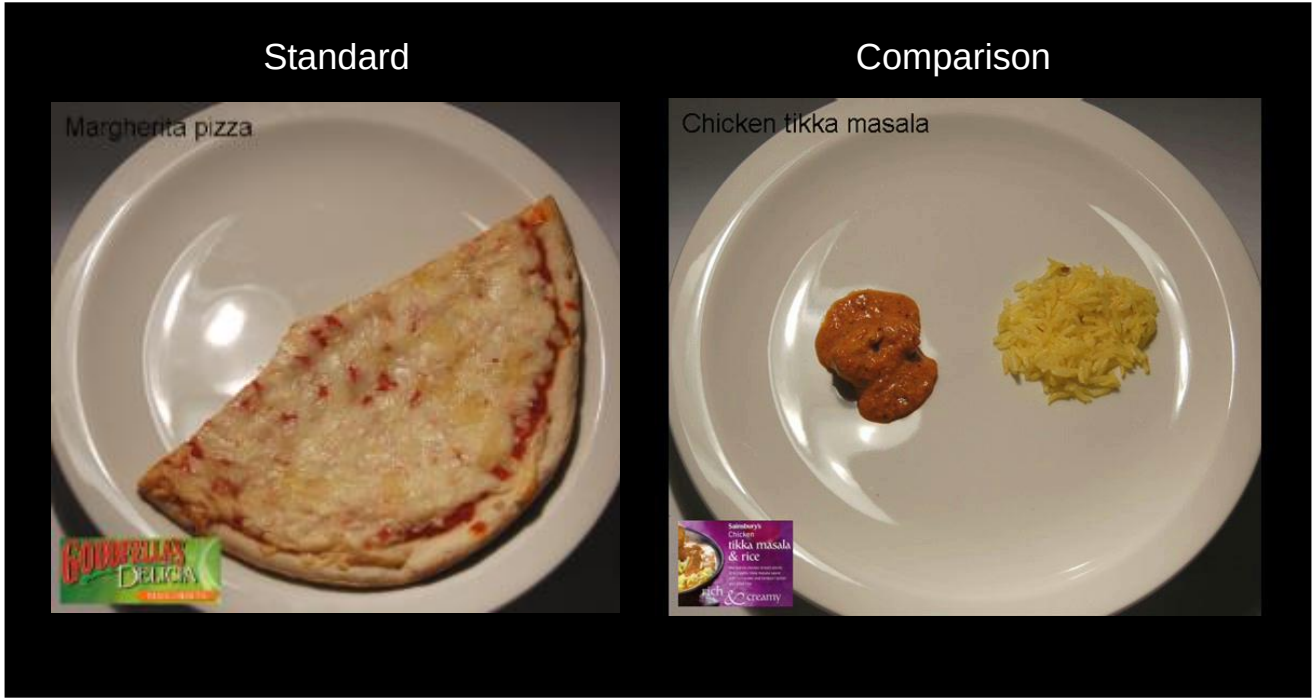
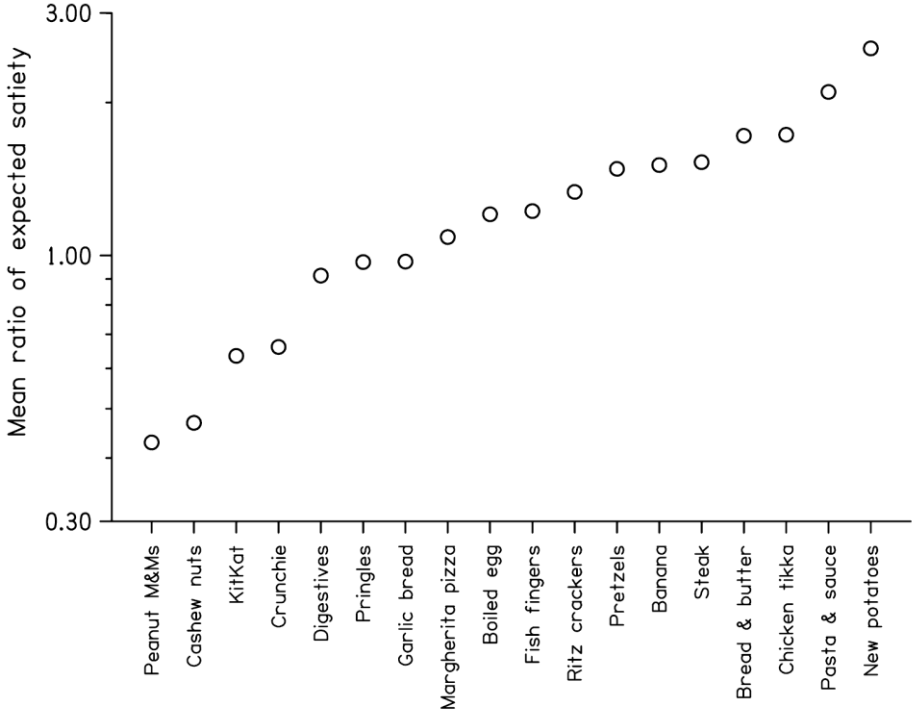
BBSRC bioscience for the future

DRINC • DIET AND HEALTH RESEARCH INDUSTRY CLUB

Expected satiety



Expected satiety




Measuring 'expected satiety' in a range of common foods using a method of constant stimuli

Jeffrey M. Brunstrom *, Nicholas C. Shakesheff, Nicholas E. Scott Samuel

Appetite

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Expected satiety

Appetite 59 (2012) 933–938

Contents lists available at SciVerse ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

Computer-based assessments of expected satiety predict behavioural measures of portion-size selection and food intake ☆

Laura L. Wilkinson *, Elanor C. Hinton, Stephanie H. Fay, Danielle Ferriday, Peter J. Rogers, Jeffrey M. Brunstrom

Nutrition and Behaviour Unit, School of Experimental Psychology, University of Bristol, 12a Priory Road, Bristol BS8 1TU, UK

How Many Calories Are on Our Plate? Expected Fullness, Not Liking, Determines Meal-size Selection

Jeffrey M. Brunstrom[1] and Peter J. Rogers[1]

Obesity (2008) **17**, 1884–1890.

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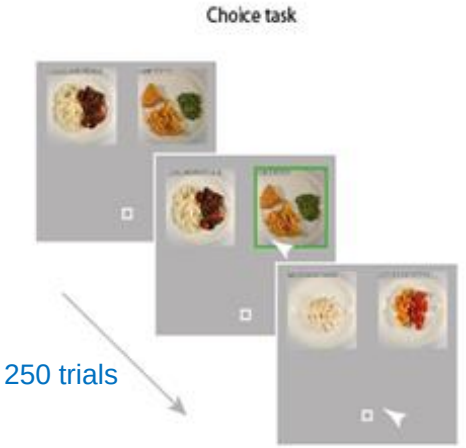
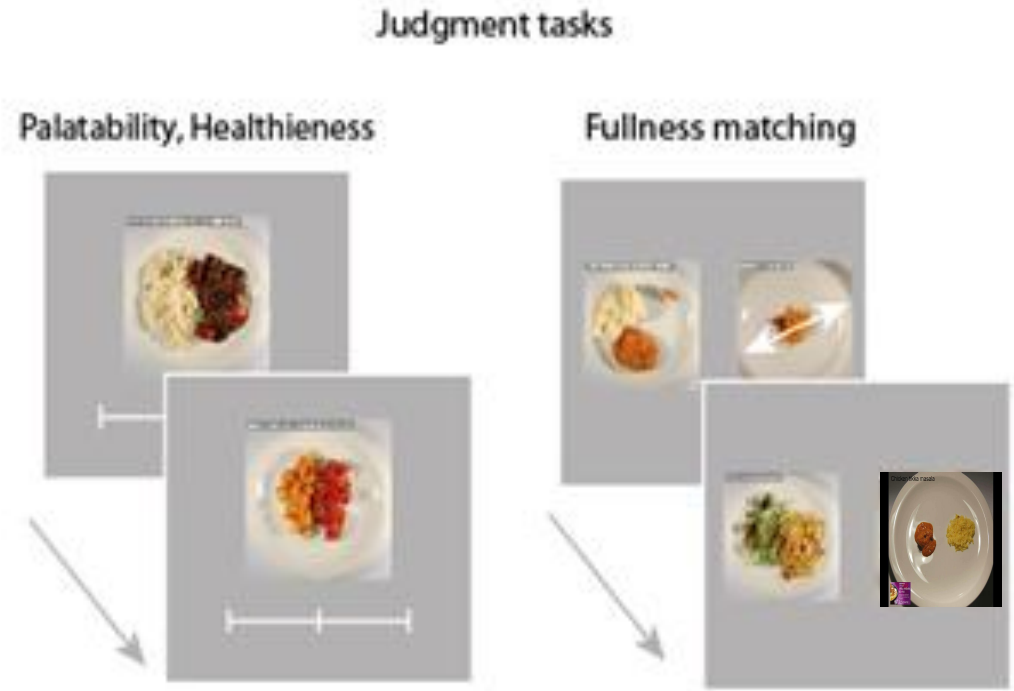
Food choice architecture - drawing on expertise in human decision making

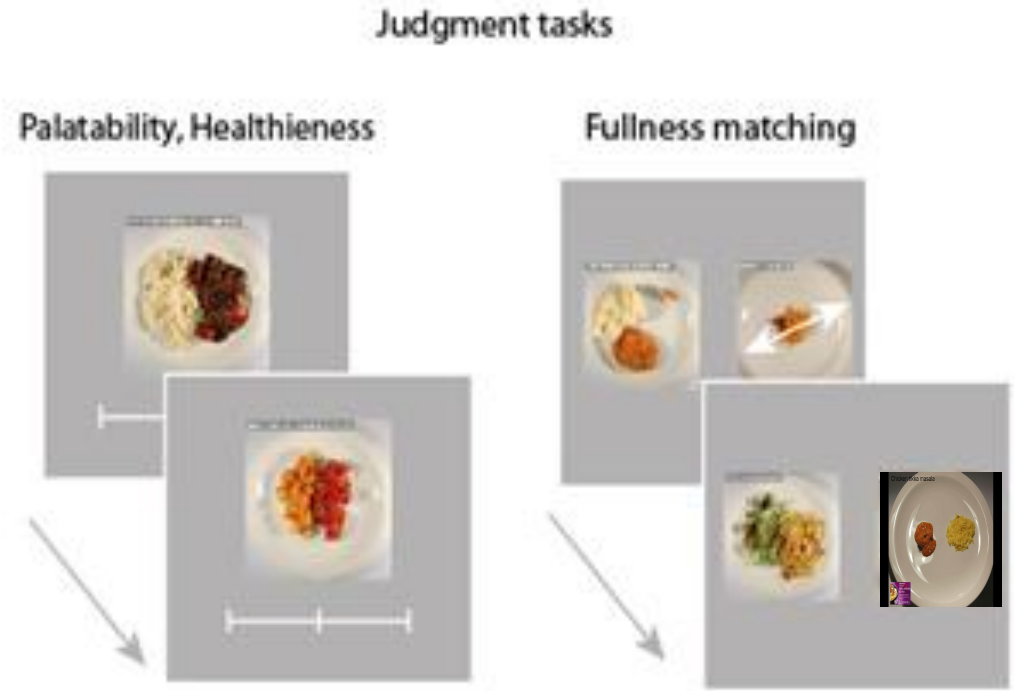


Simulating 250 decisions around lunchtime

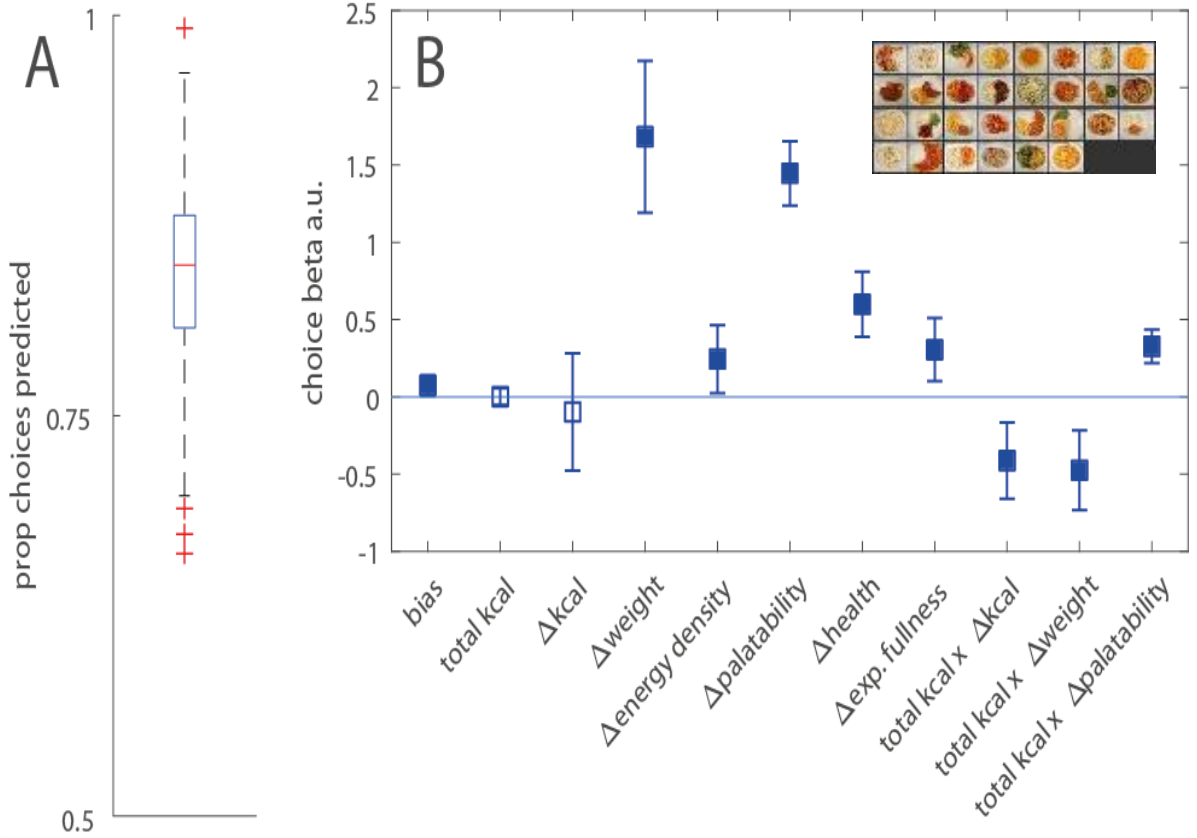
Food choice architecture (step 2)



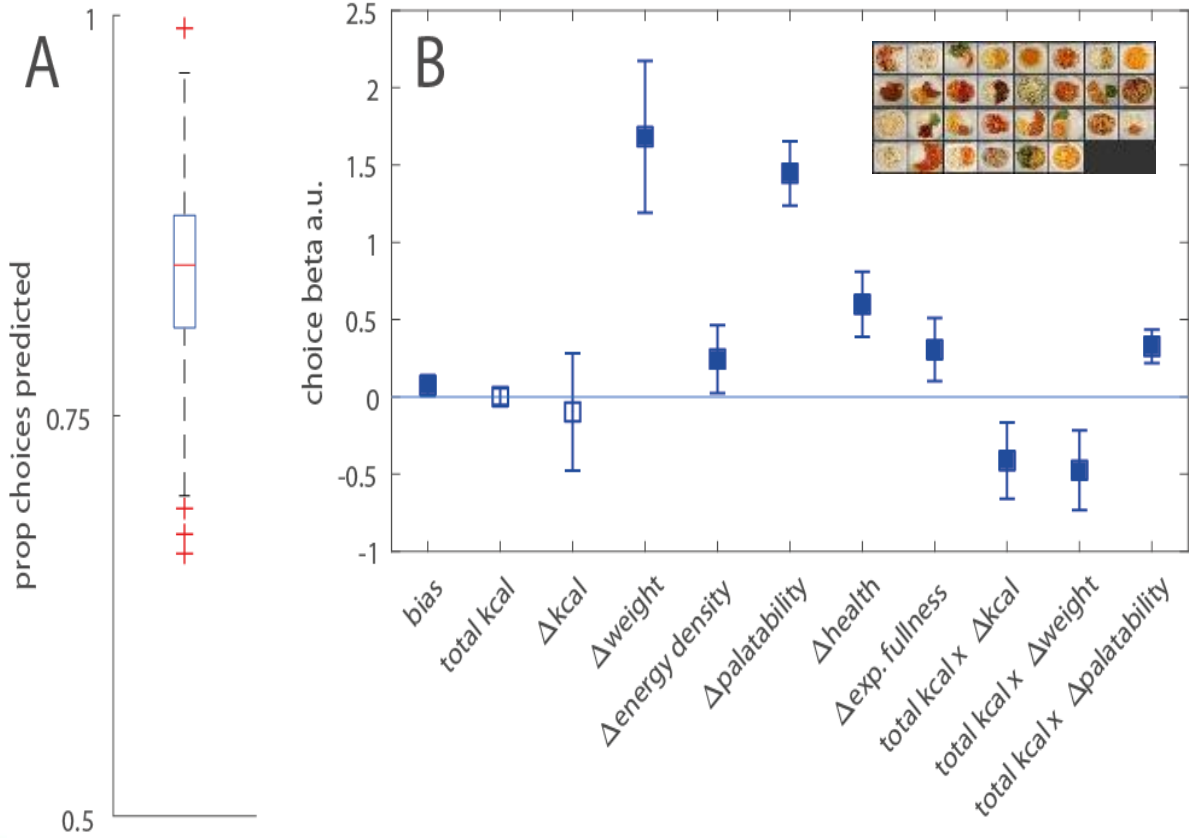
Food choice architecture (step 2)



Food choice architecture – predicting choice



Food choice architecture – predicting choice



Impact Objectives

- Develop a comprehensive understanding of the drivers of, and barriers to, protein intake in middle aged and older adults
- Use knowledge derived about barriers and opportunities to inform future potential dietary interventions
- Generate guidelines to inform protein-based product development

The importance of protein

***Professor Emma Stevenson** introduces the **Protein4Life** project, the outputs of which will help to facilitate increased protein intake to support healthy ageing and aid the food industry in new product development and reformulation of higher protein snack products*

Could you introduce yourself and your key research interests?
I am a Professor in the Faculty of Medical Sciences and Human

September 2016. Academics from various backgrounds relating to food and nutrition were invited to attend the event, along with representatives from the food and drink industry. Project proposals had to be multidisciplinary in nature and take a

protein intake. Adequate intake of protein is one of the key nutritional factors to maintain independence, predominantly by preventing loss of muscle mass and strength (sarcopenia), frailty and associated co-morbidities later in life.

Protein 4 LifE

Newcastle University

www.proteinforlife.co.uk

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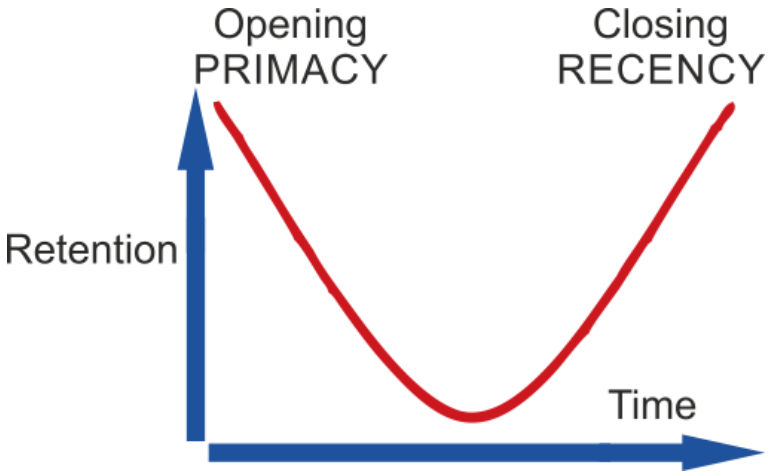
Memory

Memory



fortune
fun
kiss
friend
pleasure
blossom
humor
love
trust
laughter
amusement
health

PRIMACY

RECENCY

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Memory

Research Article

aps ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Psychological Science
2014, Vol. 25(7) 1466–1474

DOI: 10.1177/0956797614534268
pss.sagepub.com
SAGE

Interference of the End: Why Recency Bias in Memory Determines When a Food Is Consumed Again

Emily N. Garbinsky[1], Carey K. Morewedge[2], and Baba Shiv[1]
[1]Graduate School of Business, Stanford University, and [2]School of Management, Boston University

Memory

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

Memory processes in the development of reduced-salt foods

Vanessa Herbert [a], Emma J. Bertenshaw [b], Elizabeth H. Zandstra [c], Jeffrey M. Brunstrom [a,*]

[a] School of Experimental Psychology, University of Bristol, Bristol, UK
[b] Unilever Discover R&D, Colworth Park, Sharnbrook, UK
[c] Consumer Science, Unilever R&D, Vlaardingen, The Netherlands

Appetite 83 (2014) 125–134

Dietary learning

Origins and evolution of the Western diet: health implications for the 21st century[1,2]

Loren Cordain, S Boyd Eaton, Anthony Sebastian, Neil Mann, Staffan Lindeberg, Bruce A Watkins, James H O'Keefe, and Janette Brand-Miller

Am J Clin Nutr 2005;81:341–54.

Poverty and obesity: the role of energy density and energy costs

Adam Drewnowski and SE Specter

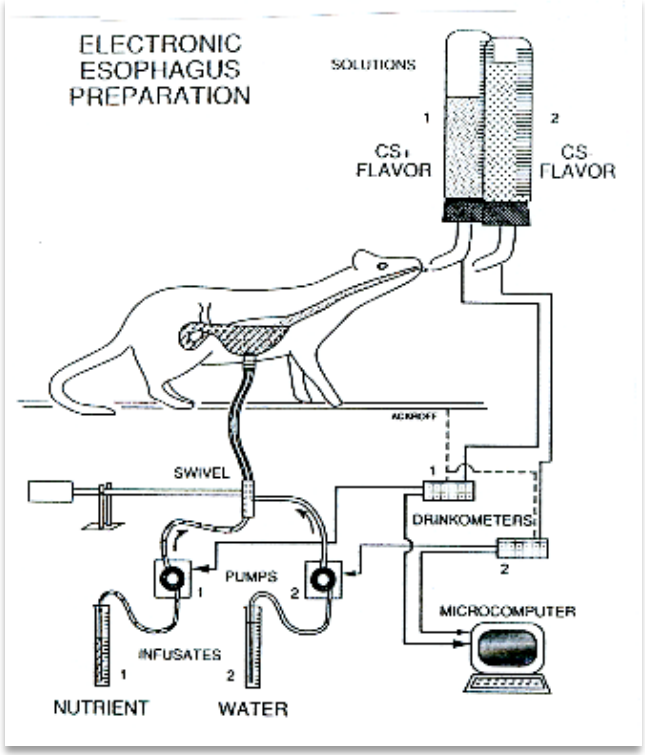
Am J Clin Nutr 2004;79:6–16. 2004

obesity reviews

Fast foods, energy density and obesity: a possible mechanistic link

A. M. Prentice[1] and S. A. Jebb[2] (2003) **4**, 187–194

Dietary learning



Physiology & Behavior 106 (2012) 345–355

Contents lists available at SciVerse ScienceDirect

Physiology & Behavior

journal homepage: www.elsevier.com/locate/phb

Review

Flavour–nutrient learning in humans: An elusive phenomenon?

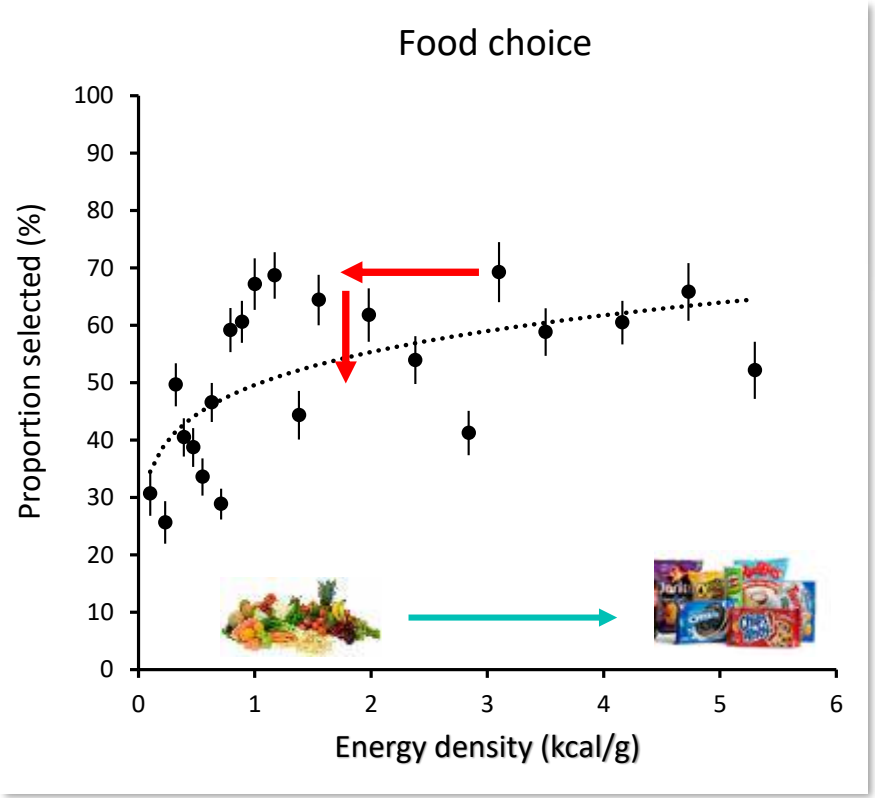
Martin R. Yeomans *

School of Psychology, University of Sussex, Brighton, BN1 9QH, UK

Robust conditioned flavor preference produced by intragastric starch infusions in rats

ANTHONY SCLAFANI AND JEFFREY W. NISSENBAUM

Department of Psychology, Brooklyn College and the Graduate School, The City University of New York, Brooklyn, New York 11210



Theoretically interesting

What happens when we reformulate?

Does this reduce acceptability?

How long does this take?

Dietary learning

How to do we demonstrate dietary learning?

Over what period will this occur? If ever?

Can we use this to predict consumer behaviour?

Dietary learning

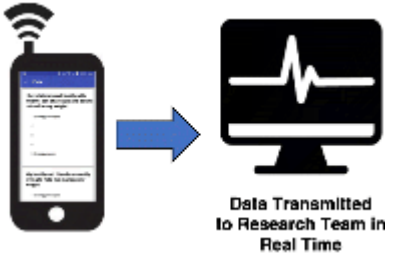
Controlled conditions

Observations over extended periods

Large sample sizes

Novel methods

Programmable vending machine



Online ‘momentary’ product assessment

Acknowledgements

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SEVENTH FRAMEWORK PROGRAMME

Nudge-it.

BBSRC bioscience for the future