

Dairy's role in achieving healthy, sustainable European diets: closing nutritional and sensory gaps



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Dairy's role in achieving healthy, sustainable European diets: closing nutritional and sensory gaps

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Prof Ciarán Forde & Dr Pol Grootswagers, Wageningen University and Research

Sensory perception and eating behaviour: why dairy matters

Dr Anestis Dougkas, Institut Lyfe Research & Innovation Centre

Addressing nutrient adequacy and supporting dietary behaviour change - two fundamental challenges in achieving sustainable healthy diets

Dr Aifric O'Sullivan, University College Dublin

OVERVIEW

Dairy's role in achieving healthy, sustainable European diets: closing nutritional and sensory gaps

It is increasingly recognised that nutrition science and sensory science should go hand in hand when developing strategies to achieve more healthy, sustainable diets. The symposium explores the potential role of the sensory properties of dairy foods in supporting the transition towards more healthy, sustainable dietary patterns in Europe while examining how they may also help ensure that nutritional requirements are fulfilled.

“Food has no nutritional value until it has been chosen, accepted and consumed.”

Taste and other sensory qualities of food play an important role in shaping dietary choices. Dairy foods have unique sensory characteristics — including distinctive aromas, flavours and textures such as creaminess — that may be less pronounced or missing in plant foods, the so-called 'sensory gap'. In this way, the sensory properties of dairy may help to encourage, and be complementary to, more sustainable plant-rich dietary patterns.

OVERVIEW, CONTINUED

There are also potential 'nutritional gaps' in moving towards more plant-rich diets. Dairy foods are rich sources of a wide range of nutrients and have a role in helping ensure nutritional adequacy — including 'at risk' nutrients such as iodine, calcium and riboflavin, which can be challenging to obtain from plant sources. Some of these nutrients are already in short supply in European diets, particularly among teenage girls and young women, making dairy's potential contribution particularly important.

As part of the transition towards more healthy, sustainable diets, dietary guidelines across Europe increasingly emphasise higher consumption of vegetables, legumes, fruits, nuts and wholegrains. Through their nutritional and sensory properties, dairy foods can play an integral part in helping to achieve such future dietary patterns.

***The nutritional and sensory properties of dairy foods
make them a key part of achieving healthy
sustainable European diets***

BIOGRAPHY



Prof Ciarán G Forde

Chair of Sensory Science and Eating Behavior, Wageningen University and Research

Professor Ciarán Forde is the Chair of Sensory Science and Eating Behavior at the Division of Human Nutrition and Health at Wageningen University and Research in the Netherlands. He leads research and education on how a food's sensory properties influence eating behaviours, energy intake and metabolism across the life-span.

Prof Forde coordinates undergraduate and graduate education in Sensory Science, Nutrition and Eating Behaviour at Wageningen. He has published more than 170 articles on topics in sensory, nutrition and metabolism, and presented his research at over 270 national and international scientific meetings.

He is a Section Editor ('Nutrition behaviour') for the European Journal of Nutrition, and also holds editorial board positions at Nutrition Bulletin, Journal of Future Food and Journal of Texture Studies. Prof Forde has spent the past 25 years conducting research in academic, public and private sector roles in the UK (GSK), Australia (CSIRO), Switzerland (Nestlé Research) and Singapore (National University of Singapore/A*STAR).

He received his BSc (Hons) in Food Chemistry and a PhD in Sensory Science from the Department of Human Nutrition at University College Cork in Ireland.

BIOGRAPHY



Dr Pol Grootswagers

Assistant Professor of Nutrition and Ageing, Wageningen University & Research

Dr Pol Grootswagers is Assistant Professor of Nutrition and Ageing at Wageningen University & Research in the Netherlands. His research examines how nutrition can support healthy ageing, with a particular focus on dietary protein quality, muscle and bone health, physical functioning, and biomarkers of biological ageing. He conducts human intervention studies and nutritional epidemiological research and develops practical tools that translate nutritional science into healthier diets.

This includes the Meal Protein Quality Score and the Alpha-Tool, which help assess and optimise the protein quality of meals, particularly in increasingly plant-rich dietary patterns.

Pol coordinates the MSc course Nutrition and the Ageing Body and the online course Nutrition for Healthy Ageing. He is also a board member of the Dutch Society for Research on Ageing and regularly contributes to scientific meetings, public communication, and multidisciplinary research collaborations.

BIOGRAPHY



Dr Anestis Dougkas

Director of Nutrition and Eating Behaviour, Institut Lyfe Research Centre, Lyon

Dr Anestis Dougkas is Director of Nutrition and Eating Behaviour at the Research Centre of the Institut Lyfe (formerly Institut Paul Bocuse) in Lyon, France.

His research explores how the nutritional and sensory properties of foods influence appetite regulation, food intake and health outcomes in both healthy and clinical populations. He completed his PhD in Human Nutrition at the University of Reading (UK), focusing on dairy consumption, obesity risk and appetite regulation through epidemiological and intervention studies. He subsequently conducted postdoctoral research at Lund University (Sweden) on protein quality and appetite control.

His current work integrates nutrition, sensory science and eating behaviour, with interests in sustainable diets and sensory alterations in clinical populations. He is a member of the Nutrition Society, American Society for Nutrition, European Association for the Study of Obesity, and an alumnus of the European Nutrition Leadership Platform.

BIOGRAPHY



Dr Aifric O'Sullivan

Associate Professor, University College Dublin School of Agriculture and Food Science

Aifric O'Sullivan (BSc, MSc, PhD) is an Associate Professor at University College Dublin (UCD) School of Agriculture and Food Science, Principal Investigator at UCD Institute of Food and Health, and Vice Principal (International) at UCD College of Health and Agricultural Sciences.

Her research aims to understand interactions between genes, environment, diet and metabolism that define nutrition phenotypes across the lifespan, with a view to informing personalised, sustainable, healthy nutrition strategies. Within this broad remit, one key research focus is supporting the transition to sustainable healthy diets (SuHeGuide, MyPlanetDiet, PLAN'EAT and Co-Centre for Sustainable Food Systems). This ongoing research will show the nutrition and health implications of changing dietary patterns to be more sustainable, as well as informing recommendations, tools and interventions that support dietary behaviour change to sustainable healthy diets in Ireland and Europe.

In her VP International role, Dr O'Sullivan leads the Global Engagement activity for the UCD College of Health and Agricultural Sciences. She is a UCD representative on the Una Europa SSC Sustainability group and a Royal Irish Academy representative on IAP/EASAC Working Groups related to Sustainable Food Systems and sits on the Editorial Board for three Nutrition Journals.

Sensory perception and eating behaviour: why dairy matters

Dr Anestis Dougkas · Institut Lyfe Research & Innovation Centre

Improving dietary quality and promoting more sustainable eating patterns remain major public health priorities. However, dietary recommendations are often framed in terms of nutrient composition, despite the fact that food choices are primarily driven by sensory experiences (1). Understanding how sensory perception influences eating behaviour is therefore essential for bridging the gap between nutritional guidance and real-world food choices.

This presentation explores the central role of sensory perception in shaping eating behaviour, from food expectations and preferences to oral processing, food intake and acceptance (2). It highlights how flavour, texture, aroma and the broader sensory experience interact with physiological, psychological and environmental factors to influence food selection and consumption. Recent advances in sensory science demonstrate that these sensory properties are not just determinants of food liking, but key mechanisms through which food structure influences eating behaviour (3).

Using dairy as a case study, the presentation illustrates how the dairy matrix generates a unique combination of flavour, texture and mouthfeel that contributes to food enjoyment and acceptance. The complex sensory properties of dairy products provide an informative model for understanding how food structure shapes sensory perception and, ultimately, eating behaviour. It further discusses how dairy may serve as a culinary bridge within more plant-forward dietary patterns by enhancing sensory appeal, reducing barriers to acceptance and supporting dietary adherence (4).

The presentation concludes by arguing that integrating sensory science with nutrition offers new opportunities to design healthier and more sustainable diets that people not only recognise as beneficial but also genuinely enjoy eating. Understanding why people choose foods, rather than simply what they should eat, will be critical to translating dietary recommendations into lasting behavioural change.

References

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- (3) Mattes RD. Sensory nutrition: lessons learned and opportunities. *Obesity (Silver Spring)*. 2024
- (4) Donnelly JE, Sullivan DK, Smith BK, et al. The Effects of Visible Cheese on the Selection and Consumption of Food Groups to Encourage in Middle School Students. *J Child Nutr Manag*. 2010

Addressing nutrient adequacy and supporting dietary behaviour change: two fundamental challenges in achieving sustainable healthy diets

Dr Aifric O'Sullivan · University College Dublin

This presentation explored two key challenges in achieving sustainable healthy diets: ensuring nutrient adequacy and supporting dietary behaviour change.

Findings from the MyPlanetDiet randomised controlled trial show that it is possible to change diet so that it is more environmentally friendly; however, highlight the potential risk of micronutrient inadequacy associated with dietary shifts. Secondary analysis of the MyPlanetDiet findings suggest that higher dairy consumption may help reduce this risk of micronutrient inadequacy without increasing greenhouse gas emissions.

The presentation then introduced the Horizon Europe-funded PLAN'EAT project, which demonstrates that personalised, behaviourally informed support can effectively improve dietary intakes across target food groups, highlighting the value of tailored approaches for supporting behaviour change towards more sustainable healthy diets.

ABOUT EMF

European Milk Forum

The European Milk Forum (EMF) is a collection of national and regional dairy organisations from nine European countries — Austria, Belgium, Denmark, Germany, France, Ireland, Northern Ireland, Norway and Switzerland.

The organisations work together through EMF to build a clearer understanding of the role of milk and dairy products in healthy, sustainable diets across Europe, and of dairy as part of European sustainable food production systems.

This includes science-based information initiatives on dairy, health and sustainability, and engaging in a dialogue with health and nutrition professionals.

MORE INFORMATION

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