



International
Sweeteners
Association

13th European Nutrition Conference

FENS 2019 | Malnutrition in an Obese World: European Perspectives

International Sweeteners Association (ISA) Scientific Symposium

Low calorie sweeteners in the human diet: Scientific evidence and recommendations about their use and benefits

Date: Wednesday 16th October 2019

Time: 15.00 - 16.30

Room: Liffey Hall 1, The Convention Centre Dublin, Ireland



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Detailed overview

Recommendations about the use of low calorie sweeteners: where evidence meets policy. Report from a 2018 Expert Consensus Workshop

Dr Margaret Ashwell, OBE, DSc, Ph.D., FAFN, RNutr (Public Health)

A consensus workshop on low calorie sweeteners (LCS) was held in November 2018 where seventeen experts (the panel) discussed three themes identified as key to the science and policy of LCS: (1) weight management and glucose control; (2) consumption, safety and perception; (3) nutrition policy. The aims were to identify the reliable facts on LCS, suggest research gaps and propose future actions.

The panel agreed that the safety of LCS is demonstrated by a substantial body of evidence reviewed by regulatory experts and current levels of consumption, even for high users, are within agreed safety margins. However, better risk communication is needed. More emphasis is required on the role of LCS in helping people reduce their sugar and energy intake, which is a public health priority. Based on reviews of clinical evidence to date, the panel concluded that LCS can be beneficial for weight management when they are used to replace sugar in products consumed in the diet (without calorie substitution). The available evidence suggests no grounds for concerns about adverse effects of LCS on sweet preference, appetite or glucose control; indeed, LCS may improve diabetic control and dietary compliance. Limited data does not provide adequate evidence that LCS affects gut health at doses relevant to human use.

The panel identified research priorities, including collation of the totality of evidence on LCS and body weight control, monitoring and modelling of LCS intakes, impacts on sugar reduction and diet quality and developing effective communication strategies to foster informed choice. There is also a need to reconcile policy discrepancies between organisations and reduce regulatory hurdles that impede low energy product development and reformulation.

Low calorie sweeteners as a means for weight and glycaemic control: outcomes of systematic reviews and meta-analyses

Prof Anne Raben Ph.D.

Professor in Obesity Research, Head of Study Board, Department of Nutrition, Exercise and Sports, University of Copenhagen, Denmark

Low calorie sweeteners (LCS) may be a useful tool to reduce caloric intake and control glucose response when consuming sweet foods and drinks. Still, several theories about untoward health effects of LCS acutely or in the long term exist, many of which are based on poor, little or no scientific documentation. A number of intervention studies in the past 3 decades have, however, shown that LCS do not stimulate appetite or increase BW, rather on the contrary. Thus, comprehensive meta-analyses from recent years have reported that the use of LCS may lead to reduced body weight relative to sugar¹. Lately, randomised controlled trials (RCTs) have also compared intake of LCS with water and changes in BW. Convincingly, a study in 303 overweight and obese individuals showed that subjects drinking LCS beverages maintained more than twice the weight loss than individuals drinking water after a 1-year behavioural treatment programme, ie an improvement of weight control with LCS compared with water².

Agenda

- 15.00 **Welcome and introduction - by chair Prof Alison Gallagher**
- 15.05 **Recommendations about the use of low calorie sweeteners: where evidence meets policy. Report from a 2018 Expert Consensus Workshop - Dr Margaret Ashwell**
- 15.30 **Low calorie sweeteners as a means for weight and glycaemic control: outcomes of systematic reviews and meta-analyses - Prof Anne Raben**
- 15.55 **Psychological and behavioural factors influencing consumers' views and intakes of low calorie sweeteners - Prof Jason Halford**
- 16.20 **Q&As**

Another systematic review and meta-analyses of 29 randomised controlled trials investigated the role of aspartame, saccharin, steviosides and sucralose on glycemia. No rise in glucose was observed after LCS. Instead, glucose declined after LCS consumption³. These findings have been confirmed by more recent short- and long term clinical studies^{4,5}. Currently, a new systematic review and meta-analysis of acute postprandial glycaemic and insulinemic response after acute exposure of LCS in randomised, controlled human intervention trials is being conducted (PROSPERO 2018 CRD42018099608). The results are expected to be presented at FENS 2019.

In a new Horizon-2020 project "SWEET" (www.sweetproject.eu, 2018 – 2023) we aim to dig further into the potential risks and benefits of sweeteners and sweetness enhancers (S&SEs). The focus is on health, obesity, safety and sustainability, while using a multidisciplinary approach. A main part of SWEET is a 2-y RCT, which will investigate the effect of prolonged use of S&SEs in a whole healthy diet approach (foods & drinks) on diet compliance, weight control and obesity related risk factors (eg glycemia, lipidemia) and safety (eg microbiota).

References:

1) Rogers et al. *Int J Obes* 2015;177;doi 10.1038. 2) Peters et al. *Obesity* 2016;24:297-304. 3) Nichol et al. *Eur J Clin Nutr* 2018;72:796-804. 4) Engel et al. *J Clin Nutr.* 2018 Mar;72(3):358-366. 5) Bonnet et al. *J Nutr.* 2018 Aug 1;148(8):1293-1299.

Psychological and behavioural factors influencing consumers' views and intakes of low calorie sweeteners

Prof Jason Halford, Ph.D. C.Psychol. (Health)

Head of Department - Psychological Sciences, University of Liverpool, UK

Consumption of alternative sweeteners is increasing but there are concerns that sweeteners stimulate appetite, promote preference for sweet-tasting foods and lead to weight gain. Chronic dieters juggle two conflicting goals, hedonic goal of enjoyment of nice-tasting foods/beverages versus diet/weight control. Low Calorie Sweetened (LCS) beverages deliver sweetness (i.e. palatability) but without calories. Do LCS beverages help people to align conflicting goals (hedonic eating and successful weight control)? Our data show restrained eating patterns, body weight concerns, and positive beliefs about palatability and appetite control are key determinants of LCS beverage consumption. Consumption of LCS beverages may help consumers to align conflicting goals (hedonic eating and successful weight control). Frequent consumers may use LCS beverages as a successful strategy to control food intake when in a state of craving. Recent data show frequent consumer show an "attentional bias" towards their favourite LCS beverage (as opposed to a generalised bias to sweet-tasting drinks). This would suggest they don't promote sweet preference per se. However, long term risks and benefits of LCS consumption will be determined in the ongoing SWITCH trial and SWEET project.

References:

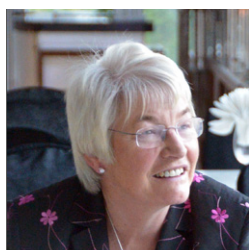
Maloney NG, Christiansen P, Harrold JA, Halford JCG, Hardman CA. Do low-calorie sweetened beverages help to control food cravings? Two experimental studies. *Physiology & Behavior* 2019; 208: 112500

About the speakers



Prof Alison Gallagher

Alison Gallagher is Professor of Public Health Nutrition at Ulster University where she contributes to the research conducted within the Nutrition Innovation Centre for Food and Health (NICHE). Her research interests resonate within the area of obesity and include low calorie sweeteners and their potential impact on health, development of risk factors for disease and lifestyle interventions at key stages across the lifecycle particularly to enhance physical activity and health. A Registered Nutritionist (Public Health), she was the first Fellow of the Association for Nutrition (FAfN) on the island of Ireland. An active member of the Nutrition Society, she is the co-Chair of the Science Committee for FENS 2019. She is a passionate advocate for the European Nutrition Leadership Platform (ENLP), having participated in the ENLP seminar in 1997 and being involved with this international leadership programme ever since, now as Chair/President of the ENLP Board (www.enlp.eu.com).



Dr Margaret Ashwell

Margaret is a Registered Nutritionist and is the President/ Chair of the Association for Nutrition. She was among the first to advocate the use of the simple waist-to-height ratio as a warning of early health risk. Primary screening only requires a piece of string: "Keep your waist to less than half your height". She has been a Research Scientist with the Medical Research Council, Principal of the Good Housekeeping Institute, Science Director of the British Nutrition Foundation and, for more than 20 years, Director of Ashwell Associates, a nutrition science consultancy. Margaret edited the biography of the nutrition pioneers, McCance and Widdowson, published in 1993. She describes this project as that which has given her most satisfaction. She served on the UK Government's Food Advisory Committee for 9 years. She is now a Senior Visiting Fellow at Cass Business School and she received an Honorary Doctorate of Science from the University of Westminster in 2018.



Prof Anne Raben

Anne Raben (AR) is Ph.D. in Human Nutrition, Professor in the Obesity Research Unit, and Head of Study Board at the Department of Nutrition, Exercise and Sports (NEXS), SCIENCE, University of Copenhagen, Denmark. AR has solid experience with clinical intervention studies within obesity and related diseases. Main research topics have been on dietary and drug-induced changes in body weight, appetite regulation, energy expenditure, metabolic parameters and risk markers of CVD and T2D. Especially, the role of different macronutrients and carbohydrates – including sugar, non-caloric sweeteners, and glycemic index - has been in focus. Recently, AR was Project Coordinator of a large multinational EU FP7 project "PREVIEW", Prevention of Diabetes through lifestyle Intervention and populations studies in Europe and around the World (www.previewstudy.com, 2013-18). Currently, AR is co-coordinator of a new Horizon-2020 project "SWEET" focusing on the impact of sweeteners and sweeteners enhancers on health, obesity, safety and sustainability (www.sweetproject.eu, 2018 – 2023).



Prof Jason C.G. Halford

Prof Jason Halford is Head of the Department of Psychological Sciences at the University of Liverpool, President Elect of the European Association of Obesity (EASO), and former Chair of the UK Association for the Study of Obesity (ASO). He is a Chartered Health Psychologist. Over the past 10 years his research has focused on drug-induced weight gain, the effects of nutrients and fibre on appetite and hormone release, the effects of stress on eating behaviour, the effect of marketing on children, and on lean-obese differences in the expression of appetite. In 1999, Jason co-founded the Kissileff Human Ingestive Behaviour Laboratory at Liverpool and in 2004 he also co-founded the Liverpool Obesity Research Network (LORN). Jason is co-ordinator of the SWITCH study, a new trial to examine the impact of artificial sweeteners on appetite in the context of active weight management and is one of the co-ordinating leads for the 9m Euro H2020 SWEET project designed to examine the risks and benefits of using sweeteners to replace sugar in the diet in the contexts of health, obesity, safety and sustainability. Jason is also local lead for iKnowFood examining local and global food systems and their impact on health and leads the Health, Consumption and Behaviour theme for N8 Agrifood for the Universities of Durham, Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield and York.

Please visit us at ISA booth in the Exhibition Hall (space #1) to find out more about the role low calorie sweeteners can play in the diet, and to share your views on low calorie sweeteners by taking part in our survey.

For further information about low calorie sweeteners, please visit www.sweeteners.org