EFAD | The European Federation of the Associations of Dietitians

# Sugar reduction and low/no calorie sweeteners in dietary practice

## The case of obesity and diabetes

Document to support the content of the presentations of the webinar

**Watch webinar**

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# Introduction by the Chairs

**Prof Maria Hassapidou**
The lead of EFAD ESDN Obesity

**Charilaos Dimosthenopoulos**
MSc MedSci. SRD. PhDc
The lead of EFAD ESDN Diabetes

*Dear Webinar Attendees,*

**We are delighted to welcome you to this webinar which is organized by the European Federation of the Associations of Dietitians (EFAD) and two of the EFAD European Specialist Dietetic Networks - Diabetes and Obesity - and made possible through the support of the International Sweeteners Association (ISA).**
**Our aim is to empower dietitians with the knowledge that they need to effectively manage people with obesity and diabetes to reduce their sugar intake based on recommendations. During this webinar, our speakers will share their practical insights and research experience relating to the nutritional status and needs of these patients.**

This webinar aims to provide all the latest information and research outcomes on the main characteristics of low/no calorie sweeteners and their role in dietary practice. It will clarify the use of low/no calorie sweeteners in foods and drinks and their role in reformulation and in sugar reduction for people with obesity and diabetes, the effect of low/no calorie sweeteners on reducing energy intake and on weight management, the impact of low/no calorie sweeteners on glucose control and therefore their role in the diet of people with diabetes. The speakers will discuss how low/no calorie sweeteners can be part of a healthy diet and will inform us on sugar reduction policies in Europe through a review of effective strategies. Finally, new data from a network meta-analysis on whether substituting sugar with low/no calorie sweeteners can improve cardiometabolic risk will be presented at the webinar.

This booklet will introduce our excellent panel of speakers:
Prof Maria Hassapidou (Greece), Prof Alison Gallagher (UK), Prof Anne Raben (Denmark), and Dr. John L Sievenpiper (Canada). Our panel is leading the way with best practice initiatives and will share their experience and expertise from both the strategic and practical levels.

We will also share key publications to help support your local practice.

A recorded link is embedded in the document title so you can access the webinar presentations, expert discussion, and questions and answers if you missed us live.

We hope you will enjoy this webinar and look forward to seeing primary dietitians and other health care professionals attending the webinar.
At the end of this webinar you can expect to have gained the following insight:

1. How low/no calorie sweeteners can help meet public health recommendations about sugar intake reduction and if they are linked to a higher-quality diet.
2. What the results of the different sugar reduction policies in Europe are.
3. What the balance of evidence from human clinical trials shows about if and how low/no calorie sweeteners can aid weight loss and glucose control, when used as a replacement for sugar. Why is there a controversy between observational studies and randomised controlled trials?
4. What new evidence shows about the effect of low/no calorie sweeteners on different cardiometabolic risk factors including adiposity, glycaemic control, blood pressure, blood lipid levels, and liver fat.

*With kind regards,*

***Charilaos Dimosthenopoulos MSc MedSci. SRD. PhDc***
*Chief Dietitian-Biologist*
*Dietetic Dept at General Hospital of Athens "Laiko"*
*Board Member of DNSG*
*Lead of ESDN Diabetes, EFAD*

***Professor Maria Hassapidou***
*Department of Nutritional Sciences and Dietetics, International Hellenic University, Thessaloniki, Greece,*
*Chair of ESDN Obesity, EFAD*
*Chair of NWG, EASO*

# Chairs & Speakers biographies

**Charilaos Dimosthenopoulos**
The lead of EFAD European Specialist Dietetic Network Diabetes
Dietetic Dept at General Hospital of Athens "Laiko"
Board Member of DNSG

Charilaos Dimosthenopoulos received his BSc in Biological Sciences, in 1993, in 1994 he completed his MMedSci in Human Nutrition at the Sheffield University and in 1996 he received his Postgraduate Diploma in Dietetics, at the Leeds Metropolitan University. He is PhD candidate at the Medical School of the Kapodistriakon University, Athens.
He works as Chief Dietitian of the General University Hospital of Athens “Laiko”. He has numerous publications and several abstracts and posters in greek and international congresses. He is member of the committee of the Greek Diabetes Association, Member of the Committee of the Diabetes and Nutrition Study Group of the European Diabetes Association (EASD) and EFAD European Specialist for Diabetes.

**Prof Maria Hassapidou**
The lead of EFAD European Specialist Dietetic Network Obesity
Department of Nutritional Sciences and Dietetics, International Hellenic University, Thessaloniki, Greece
Chair of NWG, EASO

Maria Hassapidou is currently Professor of the Department of Nutritional Sciences and Dietetics of the International Hellenic University. She is also the coordinator of the post-graduate course on Clinical nutrition and director of the Human Nutrition Laboratory.
She has coordinated and/or participated in several research projects funded by the EU (Health, Diets I and II, Healthgrain, EURRECA, JANPA, BigO, PROTEIN), the Greek Ministries of Health, Education, Research and Technology as well as food and pharmaceutical companies in the areas of dietary assessment and nutritional evaluation, dietary treatment of obese patients with cardio metabolic diseases and childhood obesity.
She is the national coordinator for Greece for COSI (WHO European Childhood Surveillance Initiative), chair of NWG (Nutrition Working Group) of EASO, member of the EASO Childhood Obesity Task Force, member of the board of trustees of EuFoDiN (European Foundation of Dietetics and Nutrition) and chair of the European Specialized Dietetic Network (ESDN) of EFAD on Obesity. She is a member of the Hellenic Nutrition Policy Committee of the Greek Ministry of Health.
She has authored several books and has published more than 100 scientific papers in peer-reviewed journals and conference proceedings in the areas of nutrition and obesity. She is also a reviewer in many related European and International journals.

**Prof Alison M Gallagher**
Nutrition Innovation Centre for Food and Health (NICHE)
Professor of Public Health Nutrition
Head of Doctoral College
Ulster University, Northern Ireland

Prof Alison M Gallagher's research interests resonate within the area of obesity and include the development of risk factors for disease, low-energy/non-nutritive sweeteners and their potential impact on health, physical activity and health (including implementation of lifestyle interventions at key stages across the lifecycle).
A Registered Nutritionist (Public Health) and the first Fellow of the Association of Nutrition (FAfN) on the island of Ireland, she is an active member of the UK/Ireland Nutrition Society and was Honorary Programmes Secretary for UK Nutrition Society from 2010-2017 and she co-Chaired the Scientific Committee for the Federation of Nutritional Sciences (FENS) 13th European Nutrition Conference (www.fens2019.org) held in Dublin, 15-18 October 2019.
She is co-editor of the Nutrition Society text book Introduction to Human Nutrition (3rd edition). She is a passionate advocate for the European Nutrition Leadership Platform (ENLP), having first participated in the ENLP seminars in 1997 and being involved with this international leadership programme ever since, being the current Chair/President of the ENLP Board and co-Director of the ENLP Essentials seminar (www.enlp.eu.com).

**Prof Anne Raben**
University of Copenhagen, Denmark

Anne Raben 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.
She has solid experience with clinical intervention studies within obesity and related diseases, especially, the role of different macronutrients and carbohydrates – including sugar, non-caloric sweeteners, and glycemic index. Recently, she 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, she is co-coordinator of a new Horizon-2020 project "SWEET" (www.sweetproject.eu, 2018 – 2023) focusing on the impact of sweeteners and sweeteners enhancers on health, obesity, safety and sustainability.

**Dr. John L Sievenpiper**
University of Toronto, Canada

Dr. John Sievenpiper, MD, PhD, FRCPC is a Clinician Scientist who holds appointments at the University of Toronto as an Associate Professor in the Department of Nutritional Sciences and the Lifestyle Medicine Lead in the MD Program and at St. Michael's Hospital as a Staff Physician in the Division of Endocrinology & Metabolism and Scientist in the La Ka Shing Knowledge Institute.

Dr. Sievenpiper completed his MSc, PhD and Postdoctoral Fellowship training in the Department of Nutritional Sciences at the University of Toronto.

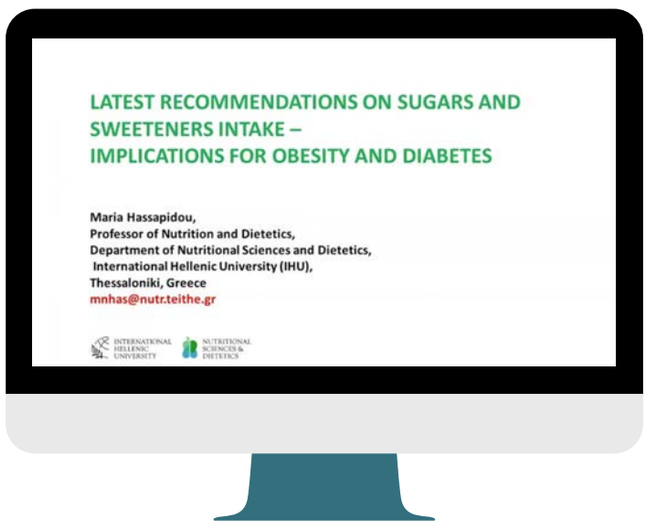
He completed his MD at St. Matthew's University followed by Residency training in Medical Biochemistry at McMaster University leading to his certification as a Fellow of the Royal College of Physicians of Canada (FRCPC).

He has established an internationally recognized research program focused on using randomized controlled trials and systematic reviews and meta-analyses to address questions of clinical and public health importance in relation to diet and cardiometabolic disease prevention with a particular interest in the role of sugars, carbohydrate quality, and plant-based dietary patterns.

He is directly involved in knowledge translation with appointments to the nutrition guidelines' committees of Diabetes Canada, European Association for the study of Diabetes (EASD), Canadian Cardiovascular Society (CCS), and Obesity Canada. He is the recipient of numerous awards including a PSI Foundation Graham Farquharson Knowledge Translation Fellowship, Diabetes Canada Clinician Scientist Award, Banting & Best Diabetes Centre Sun Life Financial New Investigator Award, CIHR-INMD/CNS–New Investigator Partnership Prize, and CNS Young Investigator Award.

He has authored more than 190 scientific papers and 17 book chapters.

# Supplementary information




**Latest recommendations on sugars and sweeteners intake. Implications for obesity and diabetes**

Prof Maria Hassapidou

**Learning points**

1. The World Health Organisation (WHO) in 2015 issued sugar guidelines, recommending that adults and children restrict their added sugar intake to less than 10% of total energy intake per day, and suggests a further reduction to below 5%.
2. Low or no calorie sweeteners (LNCS) used in food and drink production confer sweet taste with low or no calories and they have a much higher sweetening power compared to sugar. Each one of the different LNCS has a unique structure and metabolic fate, technical characteristics and taste.
3. The Acceptable Daily Intake (ADI) is the amount of a low/no calorie sweetener that can be consumed daily in the diet, over a lifetime, without adverse health risk and is a different value for each sweetener.
4. The balance of evidence indicates that the use of LNCS in place of sugar, in both children and adults, can help in the reduction of total energy (calorie) intake and, in turn, in body weight loss.
5. As showed in a recent study the low calorie beverages (LCB) consumers when compared with the sugar sweetened beverages (SSB) ones had a lower energy intake as well as a diet lower in total sugar and free sugars, with increased odds of meeting current dietary guidelines on free sugar intake.


**Latest recommendations on sugars and sweeteners intake. Implications for obesity and diabetes**

Prof Maria Hassapidou

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# Sugar reduction policies in Europe. A review of effective strategies

Prof Alison M Gallagher

## Learning points

1. A number of scientific associations, institutions and authorities have issued policy recommendations that are aimed at reducing intake of sugars.
2. Policy recommendation can be generally categorised as actions that:
   a. address the provision of information to consumers
   b. make the healthy option more available (by improving the food environment), or
   c. provide financial disincentives to high sugar consumption (e.g. sugar tax/levy).
3. Some of the best evidence to date suggests that fiscal approaches to sugar reduction, in particular the introduction of a tax on sugar-sweetened beverages (SSBs) has reduced intake of these taxed beverages and modelling of data suggests the project impact on reducing obesity is greater than would be achieved through reformulation alone.
4. Reformulation of beverages, where sugar is simply reduced and/or replaced by low-calorie sweeteners (LCS), is relatively straightforward as compared to reformulation of food products where sugars are present in the food matrix impacting functionality in addition to sweetness and palatability.
5. Challenging the food and drinks industry to reduce overall sugar across a range of products can result in sugar reduction. However, early data from PHE (2018) highlights that reductions may be more readily achieved in certain food categories as compared to others.
6. Setting targets for the reduction of sugar content of food products and monitoring these as Public Health England is doing is important but we also need to understand and monitor consumption patterns and whether these change in response to reformulation.
7. Robust measures of assessment are needed and in population the addition of more objective biomarker approaches for the assessment of sugars and non-nutritive sweeteners may be helpful.


**Sugar reduction policies in Europe.**
**A review of effective strategies**
Prof Alison M Gallagher

# References and other resources


- **JRC Health and Knowledge Gateway** *(specifically the chapter on 'sugars and sweeteners') – this provides an excellent overview of sugar reduction policy recommendations and also implemented policies across Europe and for individual EU Member States*: https://ec.europa.eu/jrc/en/health-knowledge-gateway/promotion-prevention/nutrition/sugars-sweeteners
- **EU Framework for National Initiatives on Selected Nutrients**, *and specifically the Annex on Added Sugars which sets an EU voluntary framework for Member States to reduce added sugars*: https://ec.europa.eu/health/sites/health/files/nutrition_physical_activity/docs/added_sugars_en.pdf. *Policies/measures at national level in the EU in the last few years have been within this framework.*
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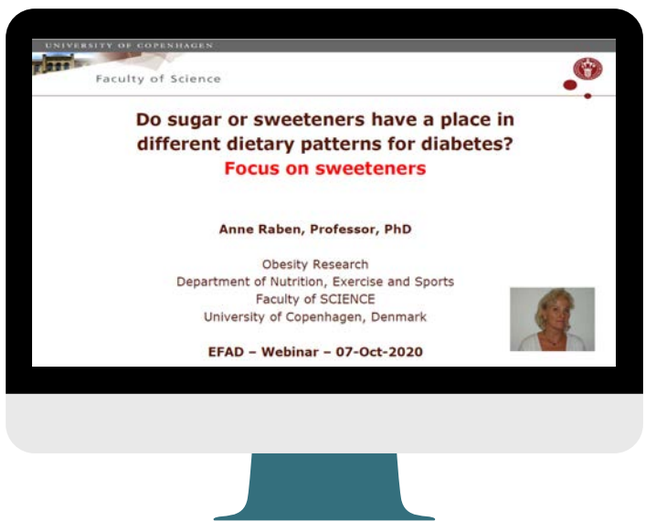
- **UK Sugar reduction and wider reformulation**: https://www.gov.uk/government/collections/sugar-reduction#sugar-reduction *[collection of Public Health England strategy and progress reports; the latest update on progress has been published on this website on 8 October 2020]*




# Do sugar or sweeteners have a place in different dietary patterns for diabetes? A closer look at the current evidence

Prof Anne Raben

## Learning points

1. Many myths and theories about untoward health effects of sweeteners exist. Most of these are not based on the available scientific evidence.
2. Several systematic reviews and meta-analyses have appeared in the past years, adding evidence at the top of the "evidence hierarchy".
3. Conclusions from population studies may suffer from the "reverse causality" and associations are often confounded by differences in body weight.
4. Design of studies (ie fixed-calorie, hypocaloric, ad libitum design) and the comparator for sweetener (ie sugar, water, placebo) are important to take into account.
5. "SWEET" horizon-2020 project (www.sweetproject.eu, 2018 – 2023, Grant Agreement # 774293) targets potential risks and benefits of sweeteners in relation to health, obesity (including diabetes risk factors), safety, and sustainability.

## Conclusions

- Sweeteners do have a place in the dietary pattern for diabetes.
- Sweeteners can help control blood glucose levels when consumed instead of sugar.
- Sweeteners can also help regulate diabetes through improved body weight regulation.

## References and other resources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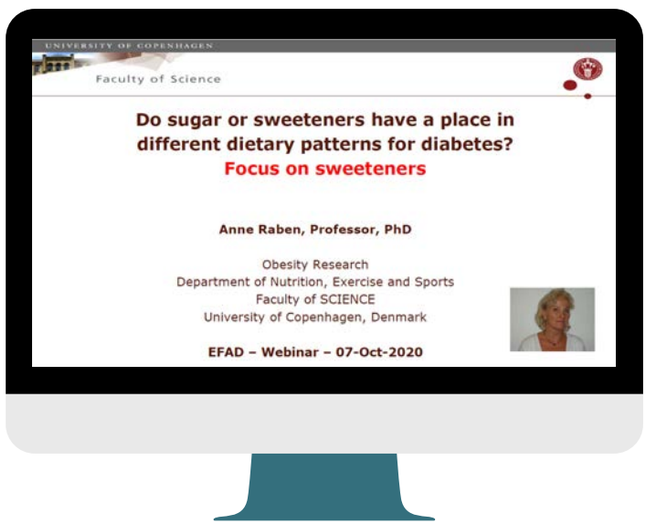


**Do sugar or sweeteners have a place in different dietary patterns for diabetes? A closer look at the current evidence**
Prof Anne Raben


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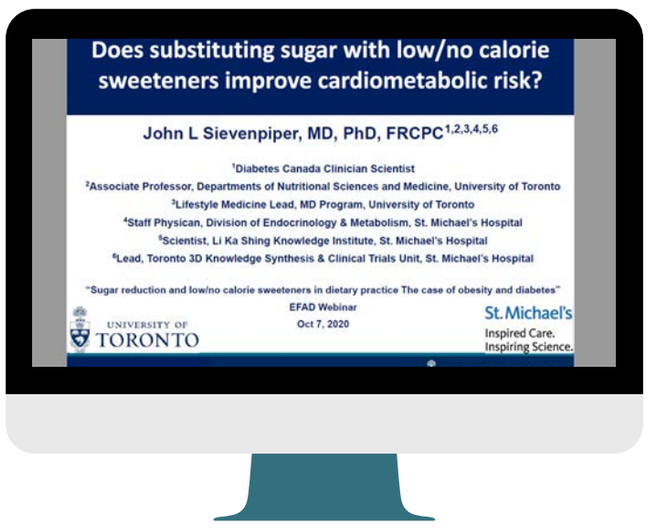
# Does substituting sugar with low/no calorie sweeteners improve cardiometabolic risk?

Dr. John L Sievenpiper

## Learning points

1. To appreciate differences in the current guidance on low-calorie sweeteners (LCS)
2. To assess the methodological and design issues that drive the differences in the interpretation of the evidence on LCS
3. To understand the importance of the nature of the LCS intervention (matrix effects – solid versus liquid and type of LCS), and nature of the comparator (caloric versus non-caloric comparators), when applying the evidence to clinical practice
4. To evaluate the evidence from randomized controlled trials and recognize that the most common food source of LCS, low-calorie sweetened beverages (LCSBs), in the "intended substitution" for sugar sweetened beverages (SSBs) improve cardiometabolic risk factors similar to the "standard of care" water.
5. To evaluate the evidence from prospective cohort studies and recognize that LCSBs in the "intended substitution" for SSBs are associated with reductions in body weight, coronary heart disease incidence, and all-cause mortality incidence similar to the "standard of care" water.




**Does substituting sugar with low/no calorie sweeteners improve cardiometabolic risk?**
Dr. John L Sievenpiper

## References and other resources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# About EFAD


**The European Federation of the Associations of Dietitians (EFAD)** is the voice of 35,000 European dietitians in 30 European countries representing more than half the profession in Europe. Through its membership of 33 National Dietetic Associations and 40 Higher Education Institutes, EFAD aims to improve European nutritional health and reduce health inequalities among the populations its members represent.

**Our Mission**

To support member Associations in developing the role that dietitians have in the improvement of nutritional health in Europe.

**Our Vision**

EFAD, National Dietetic Association members (NDAs), Education Associate Members and dietitians are the recognised leaders in the field of dietetics and nutrition.
To achieve our vision, EFAD:

- supports the highest quality of dietetic education, professional practice, research activity and partnership.
- pro-actively initiates and grows collaborations in order to improve nutritional health, reduce socio-economic health inequalities and contribute to economic prosperity.

**Registered Address**:
The European Federation of the Associations of Dietitians (EFAD)
Gooimeer 4-15, 1411 DC Naarden,
The Netherlands

Kamer van Koophandel (Chamber of Commerce in NL)
registration number: 40215656
European Commission Transparency Register
Identification number: 99138006725-91
Email: secretariat@efad.org
Website: www.EFAD.org

# About ISA


**The International Sweeteners Association (ISA)**
is an international non-profit organisation with scientific aims representing suppliers and users of low/no calorie sweeteners. Established over 35 years ago, the ISA is recognised by the European Commission, national and international regulatory and public health authorities, and the World Health Organization, and has Non-Government Observer status with the Codex Alimentarius Commission which establishes international food standards.

The ISA informs and educates on the most up-to-date nutritional and scientific information in relation to the role and benefits of low/no calorie sweeteners, and the foods and beverages that contain them. The ISA also encourages research into and enhances understanding of the role that low/no calorie sweeteners can play in achieving a balanced diet, including in the context of current health challenges globally and of the efforts from public health authorities in encouraging food manufacturers to replace sugar and reduce calories as part of their reformulation goals.

For more information on the ISA, please visit: www.sweeteners.org

**ISA resources for health professionals**
The ISA has developed a series of resources for health professionals, also in collaboration with worldwide renowned experts, to provide evidence-based scientific information on the use, role and safety of low/no calorie sweeteners.

To access our resources for health professionals online, including the **Booklet 'Low Calorie Sweeteners: Role and Benefits'**, please visit: https://www.sweeteners.org/resources-for-health-professionals

EFAD The European Federation of the Associations of Dietitians

THE VOICE OF EUROPEAN DIETETICS