

ECO ONLINE 2021
28TH EUROPEAN CONGRESS ON OBESITY

From fluid intake patterns to behavior change:
**HOW TO ENCOURAGE
HEALTHY HYDRATION?**

MAY 11th, 12h30-13h30
ROOM 2

 **HYDRATION
FOR HEALTH.**

Living with obesity increases risks from COVID-19

Living with obesity increases the risk of COVID-19 related hospitalisation, critical care needs and mortality; there are multiple pathways by which obesity / excess ectopic fat increase the effect of COVID-19 infection.

The social determinants of health, (including race, ethnicity, SES, education, food security and food and physical environment) and severe negative outcomes from COVID-19 for people with obesity (PLWO) and other chronic diseases are interrelated. The pandemic has had a negative impact on dietary patterns and health behaviours of children and adults including PLWO, and is associated with depression and anxiety. This has been further complicated for PLWO who have experienced loss of access to support and treatment. We have recently conducted a study with 3000 respondents living with overweight and obesity from 10 European countries (44% MALE / 55% FEMALE / 0.4% OTHER, AVG AGE – 41, AVG BMI – 35) - the EUROpean Obesity PatiEnt pANdemic Survey, which provides valuable insight.

Mental health issues are distinctive in PLWO, particularly due to self-isolation, disruption of customary weight control strategies, reduced access to treatment and food availability, stress, and stigmatisation. During Wave 1 of the COVID-19 pandemic 55% of respondents felt 'worse off' in terms of their overall emotional well-being. Around 1/3 of survey respondents had diagnosed psychiatric conditions, with variation between countries. 47% reported being 'financially worse off' during COVID-19 compared with pre- COVID-19. 17% of survey respondents skipped meals during the lockdown, 15% had gone hungry and 10% had not eaten for an entire day due to cost /access, while almost 30% reported snacking much more often. These challenges will be described.

Jason Halford

PhD, C.Psychol. AFBPsS, University of Leeds, UK
President Elect European Association for the Study of Obesity (EASO)



Jason Halford is Head of the School of Psychology at the University of Leeds, 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 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.



Pauline Douglas

RD, University of Ulster, UK
Executive member of the European Federation of
the Association of Dietitians (EFAD)

Pauline Douglas has over 25 years of clinical and academic experience in dietetics. Her main teaching disciplines in Ulster University are in Professional Practice for dietetic students and dietetic practice educators. She has been the Key Contact for Ulster University in the European funded “Dietitians Improving the Education and Training Standards (DIETS) project” and was a member of Work package 8 – Exploitation.

Pauline is a previous Honorary Chairman of the British Dietetic Association (BDA). She was elected to Fellowship of the BDA for her professional achievements in 2010. She is her Professional Body’s European and International representative.

She is a partner with the Health and Care Professions Council, the statutory regulator for Allied Health Professions in the UK. Pauline works closely with Ray et al across the domains of NNEdPro Global Centre for Nutrition and Health and she is an elected Visiting Scholar/College Research Associate at Wolfson College, University of Cambridge.

She is a member of the Executive Committee of the European Federation of the Associations of Dietitians (EFAD). She has led and been an integral part of the European Healthy Hydration Awareness Campaign on behalf of EFAD over the past 6 years.

The role of hydration in dietary practice for people with obesity

Water is a core component of the human body and has many roles to play to optimize its functioning. Meeting the EFSA recommendations¹ has specific challenges for many. Approximately 50 % of adults and less than this percentage for children and adolescents achieve an adequate intake of water from fluid².

Are there additional challenges or aspects that need to be considered to ensure people with obesity remain hydrated?

The relationship between obesity and dehydration needs to be considered. There is evidence that shows that people with obesity are at a higher probability of hypohydration than those of normal or underweight³. Does the altered body composition change the amount of fluid required to meet the recommendations?

It is important to consider what people drink specifically looking at the types of fluid they consume⁴. The impact of consuming Sugar Sweetened Beverages in increasing the risk of obesity, diabetes and cardiovascular disease will be mentioned. It has been shown that behaviours can be changed⁵. In conclusion the importance of water accessibility to enable people with obesity to alter their dietary practices to optimize healthy hydration will be discussed.

1. EFSA. Scientific Opinion on Dietary Reference Values for water. EFSA J. 2010;8(3):2–3. Available from <https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/j.efsa.2010.1459>

2. Ferreira-Pêgo C, Guelinckx I, Moreno LA, Kavouras SA, Gandy J, Martinez H, et al. Total fluid intake and its determinants: cross-sectional surveys among adults in 13 countries worldwide. Eur J Nutr. 2015;54.

3. Rosinger AY, Lawman HG, Akinbami LJ, Ogden CL. The role of obesity in the relation between total water intake and urine osmolality in US adults, 2009–2012. Am J Clin Nutr. 2016;104(6):1554–61

4. Guelinckx I, Iglesia I, Bottin JH, De Miguel-Etayo P, González-Gil EM, Salas-Salvadó J, et al. Intake of water and beverages of children and adolescents in 13 countries. Eur J Nutr. 2015; Available from: <http://link.springer.com/10.1007/s00394-015-0955-5>

5. Gomez P, Mariani SB, Lambert J-L, Monrozier R. A Water Intervention Program to Improve Fluid Intakes Among French Women. Nutr Today [Internet]. 2013;48(4):S40--S42. Available from: <http://www.scopus.com/inward/record.url?eid=2-s2.0-84881629179%7B&%7DpartnerID=tZ0tx3y1>

Do children have a same fluid intake patterns across the world?

Results of six Liq.In⁷ cross functional surveys

Purpose: Total Fluid Intake and the type of fluids consumed have been reported by many studies and have shown that while an individual may be drinking sufficient in terms of volume to meet, or exceed recommendations on fluid intake, there may be a wide variety of combinations of fluids within that total volume. Moreover, considering only one or two variables limits the interpretation of the data. Therefore, it is key to understand fluid intake patterns as opposed to studies that consider only volume of fluid types. This study aimed to identify and characterize patterns of fluid intake in children and adolescents from six countries; Argentina, Brazil, China, Indonesia, Mexico and Uruguay.

Methods: Data on fluid intake volume and type amongst children (4-9 years; N=1400) and adolescents (10-17 years; N=1781) were collected using the validated 7-day fluid specific record (Liq.In⁷ record). To identify relatively distinct clusters of subjects based on eight fluid types (water, milk and its derivatives, hot beverages, sugar sweetened beverages (SSB), 100% fruit juices, artificial/nonnutritive sweetened beverages (A/NSB), alcoholic beverages, other beverages), a cluster analysis (partitioning around k-medoids algorithm) was used. Clusters were then characterized according to their socio-demographics and lifestyle indicators.

Results: The six interpretable clusters identified (figure) were: low drinkers – SSB (n 523), low drinkers – water & milk (n 615), medium mixed drinkers (n 914), high drinkers – SSB (n 513), high drinkers – water (n 352) and very high drinkers – water (n 264). Country of residence was the dominant characteristic, followed by socioeconomic level, in all six patterns.

Conclusion: Fluid Intake patterns among children are primary driven by water and SSB. In addition to country, socio-demographic and lifestyle factors determined the characteristics of each cluster. Therefore, interventions aimed to induce healthier fluid intake behavior need to target and be adapted to a particular subpopulation

Clémentine Morin

MSc Danone Nutricia Research, France



Clémentine Morin is a Consumer Science & Fluid Intake Insights Manager at Danone Research, France, where she leads the research on the drinking habits across countries. She earned a MS in Therapeutical research with a specialization in Neurodigestive and metabolic pathophysiology from Nantes University in 2014 completed by a second MS in Food Science and Human nutrition from National Veterinary, Food and Agriculture School of Nantes-Atlantique (ONIRIS), France in 2015. She joined Danone Research in 2015 where she began working on a better understanding of the consumption habits of people around the world and participated to the creation of the Liq.In⁷ database. A database gathering surveys among a nationally representative sample of children and adults performed with a fluid-specific 7-day record validated for water. Clémentine collaborated with numerous research team and her work resulted into a dozen scientific articles dedicated to the results of the Liq.In⁷ surveys. Her current research focus is the identification of drinking patterns to tailor interventions to improve fluid intake behavior. She is passionate about food, people and their lifestyle to support them on the achievement of their nutritional goals.

A European example : are Spanish children drinking enough and healthily?

An update of the Liq.In⁷ cross-sectional survey in children and adolescents



Iris Iglesias

PhD, University of Zaragoza, Spain

Iris Iglesias is nutritionist and she has an International PhD on Health Sciences at the University of Zaragoza. Master in Genetics, Nutritional and Environmental Conditioners, Growth and Development at the University of Granada. She has developed her research on nutritional epidemiology since 2006 in Growth, Exercise, Nutrition and Development (GENUD) research group belonging to the University of Zaragoza and leded by Prof. Dr. Luis A. Moreno Aznar. She has participated in a number of international projects such as HELENA study (HEalthy Lifestyle in Europe by Nutrition in Adolescence), IDEFICS study (IDentification and prevention of dietary- and liFestyle-Induced health effects in Children and infantS) or EURRECA network (EURopean micronutrients RECommendations Aligned). Author of more than 30 indexed articles in the topics of B-vitamins intake and status of European adolescents, fluid intake during childhood and adolescence, and programming effect of the perinatal period on future health. Currently, she has a postdoctoral contract at the Aragon Health Research Institute in charge of the Spanish Network for Maternal-Child Health and Development.

Introduction: Insufficient and unhealthy total fluid intake (TFI), especially in early stages of life, may have negative health impact.

Objective: To assess current patterns of fluids consumption in children and adolescents in Spain; including drinking occasions and locations (e.g., at home and at school) and to compare TFI with the adequate intake (AI) of water from fluids recommended by the European Food Safety agency (EFSA)

Methodology: A Spanish cross-sectional study assessing TFI from all sources of fluid consumption according to occasions of the day and location, using a validated liquid intake 7-day record (Liq.in⁷) was performed. Data collection occurred between April and May 2018. A sample of 146 (63% boys) children (4-9 years old) and adolescents (10-17 years old) was included. Parents reported such information in case children were under 16 years.

Results: A high proportion of children and adolescents did not meet EFSA-derived reference values for fluid intake (73% and 72%, respectively). Forty percent of children and about 50% of adolescents consumed at least one serving of sugar-sweetened beverage (SSB) per day, while about 20% consumed only one or less serving of water per day. Consumption during main meals was the most important for both children and adolescents (representing 50% and 54% of TFI, respectively) and was mainly driven by water (62%). The consumption at home in children (70% of TFI), was made of water (47%). In the same way, at school, water was contributing to half of the intake. However, adolescents' girls at school drink more SSB (41%) than water (34%), being the highest consumed fluid. At other locations, adolescents' boys, also drink more SSB (51%) than either water (29%) or milk and derivatives (10%).

Conclusion: Drinking habits of Spanish young populations are far away from current recommendations because a low fluid intake, specifically water, and a high proportion of SSB consumption in children and adolescents. Interventions assuring achieving EFSA TFI recommendations are of special importance for children and adolescents, with, according our results, a special focus in male adolescents.

The Psychology of Hydration Habits : Automaticity and reward and effects of the UK pandemic lockdown

This talk will address the psychology of habits in hydration behaviour, and present two recent insights about water drinking habits. Habits play a key role in most health behaviour, and they allow us to act automatically and without much deliberation or effort. Habits also play a key role in hydration behaviour, and are among the strongest predictors of the consumption of water, sugar-sweetened beverages (SSBs), hot beverages, and alcoholic drinks.

Recent in-depth qualitative interviews and surveys provide us with two new insights about water drinking: water drinking is not a simple behaviour, and reward plays an important role in water drinking. In our studies, participants described numerous barriers to drinking water, including forgetting, lack of access, perceived effort, and others. In addition, our analyses also show that water drinking habits are unlikely to emerge or be maintained unless consumers expect experiencing reward from drinking water, for example because of its taste, cognitive, or physical consequences.

Our study of the effect of the UK pandemic lockdown on drinking behaviour points to the effects of reward in drinking habits as well. Situations that typically afford the consumption of SSBs and water outside of the home (e.g., eating out, socializing, parties for SSBs; gym, office, travel for water) were less frequent during lockdown. Nevertheless, overall consumption of sugar-sweetened beverages, but not water, increased in this period, especially among strongly habitual SSB consumers. This was driven by SSB consumption at home, suggesting that participants established new, rewarding consumption habits when their typical consumption situations had disappeared. Overall, these findings suggest that experiencing reward from consumption is essential in hydration habits, which may further inform applications to increase healthy hydration.

Esther Papies

PhD, Institute of Neuroscience
and Psychology and School of Psychology,
University of Glasgow, UK



Dr Esther K. Papies (PhD) is a Senior Lecturer in the Institute of Neuroscience and Psychology at the University of Glasgow, where she heads the Healthy Cognition Lab and the Research Centre for Social, Cognitive and Affective Neuroscience. Her team's focus is on health cognition, and she is an expert in research on self-regulation in obesogenic food environments, the trade-off between short-term desires and long-term health goals, and the psychological processes underlying successful behaviour change. Dr Papies is particularly interested in the interplay of personal motivation and environmental factors underlying healthy and sustainable food choices, and the motivation for sugar-sweetened beverages and water. Her work has been published in prestigious outlets such as the Journal of Personality and Social Psychology, Health Psychology, and the International Journal of Obesity, and it is currently funded by the Economic and Social Research Council in the UK. Dr Papies is passionate about combining fundamental laboratory work with field experiments, and about developing effective strategies to enhance people and planet health.