



NUTRITION &

WHAT'S NEW . . .

... FOR
THE GUT
& GUT
HEALTH?

A conference for health and nutrition professionals

25 April 2024

W5, Odyssey, Belfast

The Dairy Council for Northern Ireland

CONFERENCE PROGRAMME

5:00pm REGISTRATION AND COFFEE

5:45pm **Professor Sean Strain, OBE**

ULSTER UNIVERSITY

Chairperson's introduction

5:50pm **Professor Thom Huppertz**

WAGENINGEN UNIVERSITY AND RESEARCH

Lactose for health and nutrition: breakthrough innovation or old news for new people?

6:20pm **Professor Orla O'Sullivan**

TEAGASC FOOD RESEARCH CENTRE AND UNIVERSITY COLLEGE CORK

No guts, no glory: a role for the microbiome in athletic performance?

6:50pm **Gráinne O'Higgins**

SPORT IRELAND INSTITUTE

Reducing the revolving door of IBS referrals: more than just FODMAPs

7:20pm **Professor Alex Miras**

ULSTER UNIVERSITY

Gut hormones: new insights on the effects on metabolism, appetite and food intake

07:50pm Q&A

08:00pm CLOSE

Professor Sean Strain, OBE

NICHE, ULSTER UNIVERSITY

Chairperson's introduction

Sean Strain is Emeritus Professor of Human Nutrition at Ulster University. He is the founder and former director of the Nutrition Innovation Centre for Food and Health (NICHE) at Ulster. He is an author of over 300 peer-reviewed research publications and has attracted over £38M in external research funding during his career.

In 2002, he was elected a member of the Royal Irish Academy. He is a Fellow and former President of The Nutrition Society, and in 2014 he was awarded an OBE for services to nutrition research and education. He was President of the Board of the European Nutrition Leadership Programme, Vice-Chairman, Panel on Dietetic Products, Nutrition and Allergies (NDA), and Chairman of the NDA Working Group on Claims, European Food Safety Authority. He chaired the International Science Advisory Panel for the New Zealand Government funded, High Value Nutrition Programme.

Professor Thom Huppertz

WAGENINGEN UNIVERSITY AND RESEARCH AND FRIESLANDCAMPINA, THE NETHERLANDS

Thom Huppertz holds an MSc from Wageningen University and a PhD from University College Cork. His research career includes academic and industrial research in the field of dairy science and technology, and has spanned many dimensions. From products to processes, and their interactions, from biosynthesis of milk to digestion of milk constituents in the human body, and from product and process optimization to the role of milk and dairy products in sustainable food systems.

He currently combines the roles of Professor of Dairy Science and Technology at Wageningen University, Principal Scientist at FrieslandCampina, Distinguished Visiting Professor at Victoria University, Visiting Professor at the State Key Lab of Dairy Biotechnology and Editor-in-Chief of International Dairy Journal.

Lactose for health and nutrition: breakthrough innovation or old news for new people?

Lactose plays a unique role in human nutrition and is the first major carbohydrate source consumed by all humans. It is present in milk from virtually all mammals studied in sufficient detail and is the only sizeable dietary source of galactose. It has been shown to have a low glycemic index and low cariogenicity, but despite these interesting properties, it mostly hits the spotlight in relation to so-called lactose intolerance, which is not synonymous to lactose maldigestion.

Although a sizeable proportion of the world adult population can be classified as lactose maldigesters, due to the lack of (sufficient) intestinal lactase activity, only a small portion of these lactose maldigesters encounter lactose intolerance symptoms on consuming lactose. However, incomplete lactose digestion may also show benefits, in terms of favourable shifts in gut microbiota and thus could also be linked to favourable effects, next to the aforementioned low glycemic index and low cariogenicity. The low glycemic index of lactose can in part be explained by its monosaccharide composition, but also because the intestinal activity of lactase, which is responsible for the hydrolysis of lactose into glucose and galactose, is notably lower than that of e.g., sucrase or maltase, which hydrolyse sucrose and maltose, respectively. As a result, uptake of monosaccharides following lactose hydrolysis is slower, leading to lower glycemic responses.

Further reductions in glycemic responses are observed when lactose is consumed in dairy products, rather than as an isolated carbohydrate. In this case, controlled gastric emptying limits the lactose flux into the intestine, therewith further reducing glycemic responses. Such matrix effects are also apparent when lactose is considered in relation to dental health. Because the β -glycosidic bond in lactose is not readily hydrolysed by the oral microbiota, it is the least cariogenic of all common fermentable carbohydrates. Also here, cariogenic effects are further reduced in dairy matrices due to beneficial effects of both the milk proteins and the minerals present in milk, thus also signifying strong matrix effects. Overall, it is apparent that many potential benefits of lactose in nutrition and health are often overlooked and require attention.

Professor Orla O'Sullivan

TEAGASC FOOD RESEARCH CENTRE AND UNIVERSITY COLLEGE CORK

Orla O'Sullivan is a Senior Computational Biologist in Teagasc Food Research Centre, Ireland and Principal Investigator with VistaMilk and APC Microbiome Ireland. She is scientific advisor with SeqBiome and sits on the scientific advisory board of Open Research Europe. In 2019, she was awarded the highly prestigious SFI Early Career Researcher of the Year. Currently she is vice-coordinator of EU project DOMINO and a partner on the EU project CoDiet.

Her research focuses on elucidating the microbiome from various environments including human gut and lung, soil, rumen and food. Of particular interest to her is the role of fitness and diet on the human gut microbiome both in healthy and diseased cohorts. This research has led to collaborations with many sporting bodies including the Irish Rugby Football Union, Cricket Ireland, Sports Ireland and English Premiership teams.

No guts, no glory: a role for the microbiome in athletic performance?

Microbiomes are the communities of microorganisms that live in and on every environment imaginable. These microbes, tiny as they are, perform essential functions in the ecosystem they inhabit for example microbes help humans digest food, produce methane in cows, are involved in nitrogen fixation in soil and produce flavours in cheese. Maintaining a healthy diverse gut microbiome is essential for our overall physical and mental health. Recent studies have linked unfavourable disturbances to our gut microbiome to many chronic health conditions, including depression, inflammatory bowel diseases, type II diabetes and obesity.

By 2030, it is predicted that 90% of the Irish population will be overweight or obese. Research has demonstrated that both diet and fitness play a role in maintaining good gut microbial diversity. Furthermore, it has been demonstrated that athletes have a higher microbial diversity compared to controls that are more sedentary. Therefore, studying the gut microbiomes of athletes can not only help improve athlete health and performance but can potentially translate health promotion into non-athlete populations.

Gráinne O'Higgins

SPORT IRELAND INSTITUTE

Gráinne O'Higgins is an Advanced Practitioner Dietitian for the National Health Service (NHS) and is a member of the British Dietetic Association. She has 7 years' experience working in the area of Gastroenterology and, in particular with individuals suffering from Irritable Bowel Syndrome (IBS).

She also holds a post graduate diploma in Sports Nutrition and works for Sport Ireland Institute where she carries out the role as Gut Health Specialist Dietitian, providing evidence-based nutrition advice and support to high performance athletes with gut disorders. She is a registered Practitioner with Sports and Exercise Nutrition Register (SENr) and is nationally recognised for her work in sports nutrition. Grainne will be supporting Irish athletes this summer in Paris for the 2024 Olympic games.

Reducing the revolving door of IBS referrals: more than just FODMAPs

IBS is a chronic and debilitating gastrointestinal (GI) disorder and is characterized by a change in bowel movements with accompanied abdominal pain. IBS affects an estimated 11% of the global population and around 1 in 5 adults living in the UK. It is also known as a disorder of the gut brain axis, a bidirectional communication pathway between the brain and the gut, and can lead to altered gut motility, heightened sensitivity, gut dysbiosis, and increased intestinal permeability which can lead to increased risk of chronic inflammation. The gut brain axis can be impacted by stress and diet as well as cognitive, behavioural, and emotional responses to symptoms. Understanding the complex relationship between the brain and gut is key to effective IBS management.

Diet appears to be a key trigger for symptom generation in IBS, with food related symptoms being reported in around 60–80% of individuals. There are two effective dietary approaches most often used to manage IBS in the UK; "Traditional," also known as BDA/ BSG guidelines, which consists of general diet and lifestyle advice, and a low FODMAP elimination diet. The low fodmap diet does appear to have the strongest science to support its use, however the traditional diet is found to be the most patient-friendly in terms of cost, convenience, and ease of implementation. Recent research has highlighted an element of clinical response in some IBS sufferers when going on a Gluten Free diet, igniting the possibility of a "bottom up" gentle low FODMAP approach to help manage IBS symptoms. The mediterranean diet is also now being explored as a dietary strategy for IBS management and has shown promising benefits for GI and psychological symptoms.

Given the interconnected roles of the brain and the gut, it's not surprising that behavioural therapies have been found to be as effective as the low fodmap diet in managing IBS symptoms; these include gut directed hypnotherapy, mindfulness, CBT and yoga and should be considered as possible treatment options. We know that IBS management is not a "one size fits all" and a personalized approach will offer the best outcome. Understanding one's symptoms, triggers, history, and behaviours will help determine the most effective treatment plan and encourage one to be able to self-manage their symptoms in the long term thus reducing the need for future re referrals for IBS management.

Professor Alexander Miras

ULSTER UNIVERSITY AND WESTERN HEALTH AND SOCIAL CARE TRUST

Alexander Miras is Professor of Endocrinology at Ulster University and works clinically at the Western Health and Social Care Trust, based at Altnagelvin hospital. He is a former Senior Clinical Lecturer and Consultant in Endocrinology at Imperial College London.

His clinical and research work focus solely on obesity and type 2 diabetes. He has contributed to the clinical management and research in obesity over the last 14 years, through his work at a high throughput Obesity Centre. The specialist interests of his research Group are the mechanisms of action of interventions for obesity, focusing on pharmacotherapy, medical devices and obesity surgery. He is Chair of the Clinical Committee of the Association for the Study of Obesity and of the National Bariatric Surgery Registry Research Committee and his objective is to setup obesity management services in Northern Ireland.

Gut hormones: new insights on the effects on metabolism, appetite and food intake

Our understanding of the causes of obesity have changed over the last two decades and the biology underpinning it is now considered to be dominant. In this presentation, we will discuss the modern understanding of obesity as a chronic disease and principles of treatment.

The gut is the largest endocrine organ and the way that the gut "talks" to the brain has revolutionised the way we treat obesity. We will discuss the best scientific evidence regarding pharmacological treatments for obesity and what the future holds.



WHAT'S NEW...



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