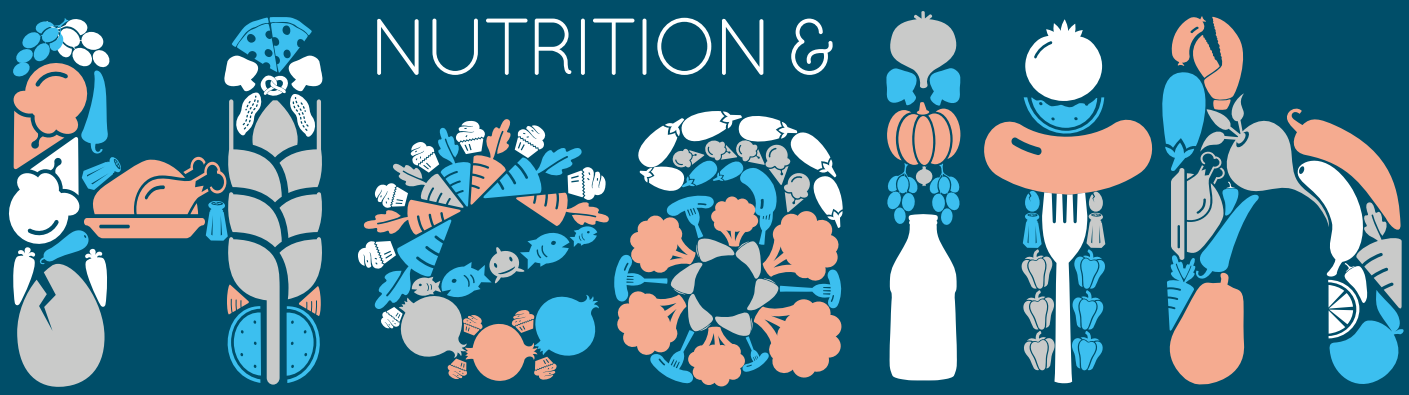

WHAT'S NEW?

A conference for health and education professionals

27th April 2018

W5, AT ODYSSEY, BELFAST

The Dairy Council for Northern Ireland

NUTRITION & Health

WHAT'S NEW?

CONFERENCE PROGRAMME

09:30 REGISTRATION AND COFFEE

10:00 Professor Sean Strain OBE
ULSTER UNIVERSITY
Chairperson's introduction

10:15 Dr Emma Feeney
UNIVERSITY COLLEGE DUBLIN
The dairy matrix: is food more than the sum of its nutrients?

10:50 Professor Moira Dean
QUEEN'S UNIVERSITY BELFAST
Cooking and food skills: what impact do they have on achieving a healthy diet?

11:25 COFFEE

11:45 Professor Ian Givens
UNIVERSITY OF READING
Putting nutrition at the heart of sustainable diets

12:20 Dr Megan Rossi
KING'S COLLEGE LONDON
The low FODMAP diet for IBS: panacea or just another fad?

12.55 LUNCH

2:00 Dr Alison Yeates
ULSTER UNIVERSITY
An update on iodine in the UK diet: the role of milk

2:35 Professor Wendy Kohrt
UNIVERSITY OF COLORADO, DENVER
Exercise, hormones and disease prevention

3:10 CLOSE

The dairy matrix: is food more than the sum of its nutrients?

Dr Emma Feeney

LECTURER / ASSISTANT PROFESSOR IN FOOD SCIENCE AND HUMAN NUTRITION,
SCHOOL OF AGRICULTURE & FOOD SCIENCE, UNIVERSITY COLLEGE DUBLIN

Nutrition research is moving from a 'single nutrient' approach towards a food-based one, which has stimulated considerable interest in the food 'matrix' effect. This term describes the interaction of the individual constituents of a food together with the overall food structure, on digestion and absorption of nutrients. Dairy matrix effects are of particular interest, due to the nature of the wide range of nutrients and food structures that exist in this food category. Dairy foods can vary in their protein types (casein, whey) and their protein structures, which vary from solids, gels, visco-elastic, through to liquid.

Evidence suggests that the different nutrient contents and protein and fat structures lead to a variety of health benefits including metabolic health markers, maintenance of lean body mass, bone health benefits and overall weight management. Food for Health Ireland (FHI) is a dairy technology centre that is actively researching dairy food components. This talk will cover some recent research in dairy matrix effects, and summarize the current evidence for health benefits.

- The food 'matrix' effect describes the interaction of the food structure together with the nutrients contained therein
- Different dairy foods contain different groups of nutrients with different health effects
- Strong evidence for weight management effects of dairy protein
- Saturated fat intake from dairy has different health effects when eaten within different dairy matrices

Cooking and food skills: what impact do they have on achieving a healthy diet?

Professor Moira Dean

PROFESSOR IN CONSUMER PSYCHOLOGY AND FOOD SECURITY, INSTITUTE FOR GLOBAL FOOD SECURITY,
QUEEN'S UNIVERSITY BELFAST

Recent concerns regarding the increase in diet related chronic diseases and obesity have been partially attributed to a decrease in diet quality. Factors associated with the decline in diet quality include; snacking, increased consumption of takeaways and meals consumed outside the home environment as well as the increased consumption of convenience products, many of which contain excessive energy, sugars, fats and salt.

Alongside this, there has been a reported decline in domestic cooking skills, with a decrease in the number and level of skill required to prepare a meal. This lack of cooking skill ability or knowledge, may leave future generations solely reliant on nutritionally subpar convenience food. Therefore, this research aimed to understand the role of cooking in modern times on the IOI. A critical review of the literature was undertaken to understand current research and measurements. Additionally, cooking interventions were deconstructed to identify successful and unsuccessful components. Interviews were conducted with a wide range of participants from the IOI to explore how individuals define cooking from scratch and their barriers and facilitators to cooking with basic ingredients. Based on these findings two measures to elicit cooking and food skills confidence, were developed and validated.

Following this, a nationally representative survey was conducted to investigate the relationships between cooking and food skills and diet quality as well as the impact of age and source of learning cooking/food skills on diet quality. Next, a cooking from scratch experiment with young mothers was conducted to investigate components that influence the repetition of this behaviour. Finally, focus groups were conducted with the young mothers who participated in the experiment, to understand their perceptions of the task and their experiences with cooking in general.

This talk will discuss the findings of these studies highlighting the link between cooking skills and diet quality, the importance of learning cooking skills from a young age and the level of cooking skills transference occurring in the home.

Putting nutrition at the heart of sustainable diets

Professor Ian Givens

PROFESSOR OF FOOD CHAIN NUTRITION, INSTITUTE FOR FOOD, NUTRITION AND HEALTH,
UNIVERSITY OF READING

The need for sustainable diets has been discussed for some time but exactly what this means and how they may be produced and consumed habitually has been much less clear. FAO (2018)[1] proposed a definition of sustainable diets as '...diets with low environmental impacts which contribute to food and nutrition security and to healthy life...' It is now considered that the factors contributing to and defining food insecurity vary considerably and depend on the geographical target (e.g. world, country, sub-population etc.) and involve more than monetary poverty alone. It is therefore logical to consider food and nutrition security in the context of sustainable diets at a series of levels. At a global level there is a pressing need to sustainably produce increasing volumes of food to feed a rapidly growing population, particularly in less wealthy developing countries. This will require a major international effort. There is also a need to consider food security at national or continental levels. A good example of this is the development of the New Nordic Diet (NND) which aimed for a national diet that was not only healthy but environmentally friendly, to be achieved mainly by reducing imports of most foods to zero[2]. It is of note that that the NND contains slightly more (101%) dairy products than the average Danish diet (ADD) but has large reductions in meat, particularly of beef (30% of ADD). These changes were tested in a long term human intervention study which showed that compared with the ADD, the NND induced weight loss and also reduced blood pressure, blood cholesterol and triacylglycerols[3].

In the UK it is not often realised that key sub-sections of the population already have substantial food insecurity, notably children associated with poverty, and sections of the elderly are substantially malnourished. There is also evidence in teenage females, with up to 60% of them consuming less than the LRNI for key nutrients including calcium, magnesium and iodine. In large part this has arisen because of substantial reductions in milk consumption but is of considerable concern for e.g. because of the risk of sub-optimal bone development, the outcome of which may not be seen until later life. In parallel with this there have been reports that the production of milk and other animal-derived foods is associated with a large environmental cost although this has often been without considering the nutritional benefits of these foods or the impact on health of replacing them with plant-derived alternatives. It is therefore noteworthy that a recent UK study has shown that dietary patterns associated with higher milk consumption are classified as healthier than those defined by low milk consumption and the environmental cost of providing key nutrients from the high milk dietary pattern is less per unit of nutrient than from dietary patterns low in milk[4]. Overall, sustainable diets need to be developed within the relevant regional context and other related drivers that govern their need but they must consider the ability of these diets not only to adequately deliver key nutrients but also health functionality.

1. FAO (2018) Dietary guidelines and sustainability. www.fao.org/nutrition/education/food-dietary-guidelines/background/sustainable-dietary-guidelines/en/
2. Saxe H (2014). Am. J. Clin. Nutr 99, 1117–1125.
3. Poulsen SK et al. (2014). Am. J. Clin. Nutr 99, 1–11.
4. Hobbs DA et al. (2015). Proc. Nutr. Soc., 74: (OCES), E310.

Low FODMAP diet in IBS: panacea or just another fad?

Dr Megan Rossi

RESEARCH FELLOW, DIABETES & NUTRITIONAL SCIENCES,
KING'S COLLEGE LONDON

Over the past decade there has been growing interest in the role of fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAPs) in gastrointestinal symptom generation in irritable bowel syndrome (IBS). The mechanisms underpinning symptom-aggravation include an increased osmotic load in the small intestine and gas volume in the colon, demonstrated in both MRI and blinded, controlled feeding studies[1].

Dietary restriction of fermentable carbohydrates (popularly termed the 'low FODMAP diet') has received considerable attention. There is a growing body of research[2] that demonstrates the efficacy of the low FODMAP diet in IBS, which has recently been translated into clinical guidelines; however, our understanding of this approach including who is most likely to respond and other benefits beyond symptom control are only beginning to be elucidated. Emerging evidence also advocates caution surrounding the diets influence on the gut microbiota and nutrient intake[3].

There is also considerable confusion related to administration of the diet, such as the reintroduction process and whether all FODMAPs (such as lactose) need to be restricted in all patients. Moreover, strategies to mitigate potential detrimental side effects, including pre and probiotic supplementation, are currently under investigation. Fermentable carbohydrate restriction in people with IBS is promising, but the effects on gastrointestinal health and refining patient selection requires further investigation.

1. Staudacher, HM, et al.: Mechanisms and efficacy of dietary FODMAP restriction in IBS. Nat Rev Gastroenterol Hepatol, 11: 256-66, 2014.
2. Marsh, A, et al.: Does a diet low in FODMAPs reduce symptoms associated with functional gastrointestinal disorders? A comprehensive systematic review and meta-analysis. Eur J Nutr, 55: 897-906, 2016.
3. Staudacher, HM, et al.: Fermentable carbohydrate restriction reduces luminal bifidobacteria and gastrointestinal symptoms in patients with irritable bowel syndrome. J Nutr, 142: 1510-8, 2012.

To keep updated on the latest gut health news connect with Megan on social media: @TheGutHealthDoctor
www.drmeganrossi.com

An update on iodine in the UK diet: the role of milk

Dr Alison Yeates

RESEARCH FELLOW IN NUTRITIONAL BIOCHEMISTRY,
NUTRITION INNOVATION CENTRE FOR FOOD AND HEALTH (NICHE), ULSTER UNIVERSITY

Iodine deficiency is a global problem affecting up to one third of the world's population. Iodine is required for the production of thyroid hormones, which are necessary for optimal brain and neurological development, making adequate iodine intake in pregnancy of critical importance. The consequences of severe iodine deficiency are well recognised; with the spectrum of iodine deficiency disorders (IDD) featuring characteristics of goiter, hypothyroidism and endemic cretinism. However, it is now recognised that even mild-to-moderate iodine deficiency in pregnancy is associated with reduced cognitive ability of infants. To enable the mother to meet the increased rate of thyroid hormone synthesis in pregnancy and prevent deficiency, the World Health Organisation (WHO) advise a Recommended Nutrient Intake (RNI) of 250 g/d iodine for pregnant and lactating women. Yet there is no incremental dietary requirement established in the UK, where the RNI of 140 g/d applies to all adults over 19 years including pregnant and lactating women.

Since the 1980s it was historically believed that the UK was iodine sufficient until data from a systematic survey of teenage girls across various centres in the UK in 2009 discovered more than 2/3 of those surveyed to be iodine deficient, placing the UK on the global map of iodine deficient countries. To determine the iodine status of the wider UK population the National Diet and Nutrition Survey (NDNS) initiated the monitoring of iodine status in Year 6 of the Rolling Programme (2013/14), analysing urinary iodine concentration among spot urine samples collected from children and adults. According to the most recent survey the UK adult population is now iodine sufficient according to WHO criteria, with a median urinary iodine concentration (UIC) greater than 100 g/L. However, the survey does not include pregnant women, for which there are various reports of mild-to-moderate deficiency from UK cohorts. Furthermore, the survey indicates that almost 50% of women of childbearing age have insufficient iodine status with a median UIC below 100 g/L. Attention is required to ensure that these women have an adequate iodine supply prior to pregnancy.

Reasons for iodine deficiency in these groups could include the avoidance of milk and dairy products and the rise in milk-alternative drinks, which are iodine-poor. Cow's milk remains the most important dietary source of iodine in the UK, contributing 34% of average daily intakes. Data from a recent randomised controlled trial conducted at Ulster University show that moderately increasing cow's milk consumption can significantly improve UIC in women of childbearing age. Yet the iodine content of milk is directly proportional to the iodine content of the animal diet and as such, prone to variations by season and farming practice, which could have implications for population dietary intakes. The data reviewed in this presentation suggest that iodine deficiency remains a public health concern in the UK. In the absence of salt iodisation and with concerns over the potential effects of supplementation on thyroid function, the immediate and most important strategy to improve iodine intakes in the UK should focus on increasing knowledge and awareness of iodine and of milk as a valuable dietary source.

Exercise, hormones and disease prevention

Professor Wendy M Kohrt

PROFESSOR OF MEDICINE AND OBSTETRICS & GYNECOLOGY, NANCY ANSCHUTZ CHAIR IN WOMEN'S HEALTH RESEARCH, UNIVERSITY OF COLORADO – ANSCHUTZ MEDICAL CAMPUS

Biological systems age at different rates and the consequences of aging in one system can influence other systems. For example, reproductive aging, which results in decreased systemic sex hormone levels, is known to increase osteoporosis risk. This is of particular concern in women, because the loss of gonadal function occurs in mid-life, whereas it occurs much later in men. The skeletal consequences of the loss of estrogen have been well studied, but potential consequences on other systems have not. There is strong preclinical evidence that loss of ovarian function triggers a disruption in energy balance that causes excess fat gain, particularly in the abdominal region.

Some of the consequences of gonadal ablation in female rodents include insulin resistance and dyslipidemia, which can be prevented by estrogen treatment or by programmed exercise. Preclinical research has demonstrated that this disruption of energy balance involves both increased energy intake (in some species) and decreased energy expenditure; the latter reflects both the suppression of resting metabolic rate and a dramatic reduction in spontaneous physical activity; both are reversed by estradiol. To advance the translation of such findings to humans, we utilize a pharmacologic model of ovarian suppression to experimentally isolate the effects of sex hormones. Using this approach, we have demonstrated that suppressing ovarian function results in a decrease in resting metabolic rate (-50 kcal/d), which is prevented by estradiol therapy. Total energy expenditure is reduced even more dramatically (-130 kcal/d). Ovarian suppression also results in an increase in abdominal adiposity and a decrease in muscle mass, both of which are prevented by estradiol. A key question is whether regular exercise can mitigate these consequences of the loss of ovarian function. Our findings suggest that exercise can attenuate some (e.g., loss of bone), but not all (e.g., decline in resting metabolic rate), of the consequences of ovarian hormone suppression

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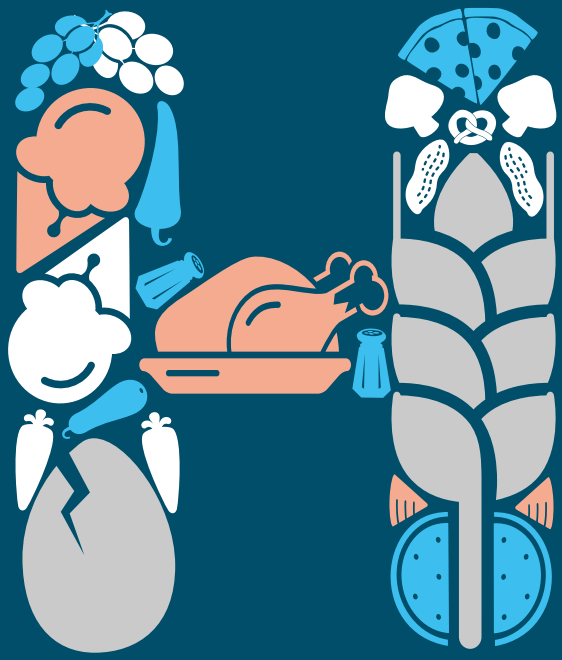

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