WHAT'S NEW?

A conference for health and education professionals

5th April 2017

W5, AT ODYSSEY, BELFAST

The Dairy Council for Northern Ireland

WHAT'S NEW ?

CONFERENCE PROGRAMME

09:30 REGISTRATION AND COFFEE

10:00 Professor Sean Strain OBE
Ulster University
Chairperson's introduction

10:15 Dr Sabita S Soedamah-Muthu
Wageningen University, The Netherlands
Cardiometabolic health and fermented dairy foods: a review of the evidence

10:50 Professor Marie Murphy
Ulster University
Promoting physical activity and reducing sedentary behaviour in young people

11:25 COFFEE

11:45 Mary Feeney
King's College London
Early dietary interventions for prevention of food allergy: lessons from peanut allergy

12:20 Dr Éadaoin Ní Bhuachalla
University College Cork
Malnutrition in the oncology setting: prevalence, diagnosis and treatment strategies

12.55 LUNCH

2:00 Dr Miriam C Casey
St James's Hospital, Dublin
Dairy and the elderly: evidence to support the policies

2:35 Professor Fred Brouns
Maastricht University, The Netherlands
Gluten protein: the good, the bad or just ugly?

3:10 CLOSE

Cardiometabolic health and fermented dairy foods: a review of the evidence

Dr Sabita S Soedamah-Muthu

ASSISTANT PROFESSOR EPIDEMIOLOGY, DIVISION OF HUMAN NUTRITION, WAGENINGEN UNIVERSITY & RESEARCH, WAGENINGEN, THE NETHERLANDS

Recent interest in the human microbiome as a major determinant of human health emphasizes the need to understand the functions of microorganisms that enter the GI tract by fermented food intake. Fermented foods are increasingly understood for their properties that reach well-beyond preservation and sensory attributes. Fermented dairy foods (mainly cheese and yogurt) are highly consumed fermented foods that have been related to human health.

We and others conducted several meta-analyses and systematic reviews to quantify epidemiological associations between dairy foods including the fermented types and type 2 diabetes, hypertension, cardiovascular disease, all-cause mortality in population cohort studies. An overview will be given of published dose-response meta-analyses on relationships between fermented dairy foods and type 2 diabetes, hypertension, cardiovascular diseases and all-cause mortality as well as updated new results.
The diabetes meta-analysis included 22 cohort studies, with 579,832 individuals and 43,118 diabetes cases. The most striking result was the non-linear inverse association between increasing yogurt intake (at 80 g/d RR=0.86 vs. 0 g/d; 95% CI 0.83, 0.90; P<0.001; I2=73%) and type 2 diabetes risk. In a more limited subset of studies, we also found a 12% lower risk for an intake of 40 g/d fermented dairy, but cheese was not associated with diabetes risk. The hypertension meta-analysis included 9 prospective cohort studies comprising 57,256 individuals with 15,367 incident hypertension cases accrued during a follow-up time of 2-15 years, no associations were shown with fermented foods, cheese or yogurt. The stroke meta-analysis with 18 prospective cohort studies included 762,414 individuals and 29,943 stroke events accrued during a follow-up time of 8-26 years, and showed that total fermented dairy intake was borderline significantly associated with a 9% lower risk of stroke per 200 g/d. Cheese intake was marginally inversely associated with stroke risk (RR 0.97; 95% CI 0.94-1.01 per 40 g/d). Risk reductions were maximal from 25 g/d onwards for cheese. Yogurt intake was not associated with stroke risk. The most recent work (unpublished) on associations between fermented foods and cardiovascular and all-cause mortality will be shown during the presentation.

Conclusions
Summarising the totality of evidence from prospective cohort studies, neutral and beneficial associations were found between fermented dairy foods and cardiometabolic diseases. Future prospective cohort studies need to examine fermented food data in more detail, with separation of types of fermented dairy, high-and low fat fermented dairy foods or with/without added sugars. There is a need for randomized, controlled, clinical trials to measure effects of different fermented foods on markers of human health and studying underlying mechanisms.

Promoting physical activity and reducing sedentary behaviour in young people

Professor Marie H Murphy

PROFESSOR OF EXERCISE AND HEALTH, DEAN OF POSTGRADUATE RESEARCH AND DIRECTOR OF THE ULSTER DOCTORAL COLLEGE, ULSTER UNIVERSITY

Despite unequivocal evidence of the link between children's physical activity and both child and adult health and emerging evidence on the dangers of sedentary behaviour, a majority of children in the UK remain insufficiently active (and spend more than 6.5h per day engaged in sedentary behaviours (Griffiths et al 2013 and 2016).

Interventions to change physical activity and decrease sedentary behaviours in children have been targeted at the individual, social and environmental levels. School represents a key environment for promoting health-related behaviours with the potential to overcome health inequalities. Examining the barriers to physical activity and the determinants of sedentary behaviour among children provides a useful starting point for changing these behaviours. This presentation will provide an overview of a range of school-based interventions designed to increase physical activity and decrease sedentary behaviour and present some of the research findings from innovative trials in the UK, Australia and Northern Ireland. These will include the use of physical activity breaks in a classroom setting, the promotion of walking and use of peer leadership and social networks to increase PA in adolescent girls and the use of standing desks and workstations in the classroom to reduce sedentary time (Salmon 2010).

REFERENCES

Carlin A, Murphy MH & Gallagher AM (2016). Do interventions to increase walking work? A systematic review of interventions in children and adolescents. Sports Medicine, 46(4), 515-530.

Griffiths LJ, Cortina-Borja M, Sera F, Pouliou T, Geraci M, Rich C, ... & Jebb SA (2013). How active are our children? Findings from the Millennium Cohort Study. BMJ open, 3(8), e002893.

Griffiths L, Geraci M, Cortina-Borja M, Sera F, Law C, Joshi H, ... & Dezateux C (2016). Associations between children's behavioural and emotional development and objectively measured physical activity and sedentary time: Findings from the UK Millennium Cohort Study. Longitudinal and Life Course Studies, 7(2), 124-143.

Salmon J (2010) Novel Strategies to Promote Children's Physical Activities and Reduce Sedentary Behavior Journal of Physical Activity and Health, 2010, 7(Suppl 3), S299-S306

Early dietary interventions for prevention of food allergy: lessons from peanut allergy

Mary Feeney MSc, RD

SENIOR RESEARCH DIETITIAN, LEARNING EARLY ABOUT PEANUT ALLERGY (LEAP) STUDY,
KING'S COLLEGE LONDON

The incidence of food allergy has risen in recent decades, and peanut allergy now affects up to 1 in 50 school age children in the UK. Peanut allergy develops early in life, is rarely out-grown and there is currently no cure. It imposes a considerable burden, impacting negatively on quality of life for patients and their families. For many years Public Health Guidelines, Paediatricians and Allergists have recommended avoiding foods in infants' diet that cause allergies such as peanut. However, an observational study published in 2008 found that Jewish children in the UK had a 10-fold higher risk of developing peanut allergy compared to Israeli children of similar ancestry. Children in Israel typically consumed peanut from around 7 months of age while children in the UK did not consume peanut in the first year.

The LEAP Study, a randomized controlled trial, was designed to investigate whether early introduction of peanut (before one year of age) or avoidance, was the more effective strategy to prevent peanut allergy. The trial enrolled 640 infants (aged between 4 and 11 months) considered at high-risk of developing peanut allergy due to pre-existing severe eczema and/or egg allergy. Half were asked to eat peanut-containing foods three or more times each week, and the other half to avoid such foods until 5 years of age.

Adherence to peanut consumption or avoidance advice was assessed using a food frequency questionnaire at regular intervals during the study and by measuring peanut levels in the child's bed at the end of the study. Dietary intake was evaluated with prospective food diaries; growth assessments and allergy testing were carried out at all study visits. The proportion of participants with peanut allergy at 60 months of age was determined by means of an oral challenge.

The primary results of the study found an 80% reduction in prevalence of peanut allergy in the consumption group (3.2%) compared to the avoidance group (17.2%). Differences in allergy prevalence were supported by immunological changes biomarkers of allergic responses, antigen exposure and immune modulation. The intervention was feasible, safe and well tolerated. It did not affect the duration of breastfeeding nor impact negatively on growth and nutritional intake. The LEAP On trial confirmed that participants remained protected against peanut allergy after stopping peanut consumption for a year.

Conclusions

The early introduction of peanuts significantly decreased the frequency of the development of peanut allergy among children at high risk for this allergy and modulated immune responses to peanuts. This study has important implications for the development of allergy prevention guidelines.

Malnutrition in the oncology setting: prevalence, diagnosis and treatment strategies

Dr Éadaoin Ní Bhuachalla

RESEARCH DIETITIAN, DEPARTMENT OF FOOD & NUTRITIONAL SCIENCE, UNIVERSITY COLLEGE CORK

Malnutrition is highly prevalent in the oncology setting, with rates ranging from 8-85% depending on cancer site and disease stage. The aetiology is multifactorial and complex, occurring secondary to a negative energy balance caused by the detrimental combination of reduced oral intakes and metabolic derangements. Early identification of malnutrition is of critical importance as its presence is established as a negative prognostic indicator in the oncology setting.

The detection of cancer-related malnutrition is particularly challenging as it encompasses a range of abnormal nutritional states, including cancer-induced weight loss, cancer cachexia, sarcopenia and myosteatosis. All of these conditions produce adverse clinical implications in their own right; however comprehensive screening can be difficult. Computed-tomography (CT) analysis is recognised as the gold standard method of body composition analysis and is particularly useful in the oncology setting as CT scans are routinely performed as part of the diagnosis and staging of the disease. Unfortunately, due to time, cost and staffing limitations, routine body composition analysis by CT is not feasible in the clinical setting. Body weight, body mass index (BMI) and weight loss are among the most common indicators of malnutrition utilised in practice, however their ability to adequately detect cachexia, sarcopenia or myosteatosis is uncertain.

Our research has demonstrated the high prevalence of malnutrition in a large cohort of Irish ambulatory oncology patients (n=725) receiving chemotherapy, with sarcopenia, myosteatosis and cancer cachexia present in >40% of the cohort respectively. The majority of the cohort had a BMI >25kg/m^2. Interestingly, patients were found to have profound levels of malnutrition despite the high level of overweight and obesity recorded. Although malnutrition was detected using CT analysis, excessive adiposity appeared to mask muscle wasting during screening. When nutritional risk scores from screening tools were compared to CT analysis, vast misclassification of adverse body composition phenotypes was exposed. Nutritional Risk Index, proved the most sensitive tool in our cohort and identified patients at risk of significantly reduced survival, independent of confounding factors, however its lack of specificity reduced its total accuracy and hence applicability.

Following diagnosis, it is imperative that a timely, targeted intervention is employed to prevent progression of malnutrition to a refractory state that is unreceptive to intervention. Multi-modal interventions incorporating dietary, physical activity and anti-inflammatory therapies are necessary to fully address the multiple aetiological factors that contribute to the development of cancer-related malnutrition. Initial nutritional assessment should be conducted at diagnosis and support pathways launched in parallel with medical treatments. Earlier, successful screening of oncology patients will give clinicians the opportunity to mediate negative clinical implications and to act when interventions still have the potential to be effective.

Dairy and older people: evidence to support the policies

Dr Miriam Casey

CONSULTANT PHYSICIAN IN GENERAL AND GERIATRIC MEDICINE, MERCER'S INSTITUTE FOR SUCCESSFUL AGEING, ST JAMES HOSPITAL, DUBLIN

Few studies have investigated the dairy intakes of older adults and the subsequent effects on vitamin micronutrient status. In addition, little information exists on the associations of yogurt intake with bone health bio-markers and with measures of functionality. We examined these issues in data from the Trinity Ulster Department of Agriculture (TUDA) ageing cohort study. This was a large study of older Irish community dwelling adults (>60 yrs) designed to investigate nutritional factors, related gene-nutrient interactions and a range of health and lifestyle factors, in the development of chronic diseases of ageing. Participants were eligible for recruitment if they were aged ≥60 years (without a diagnosis of dementia) but attending hospital outpatients with any of these common diseases of ageing: osteoporosis, hypertension or mild cognitive dysfunction.

The findings of the study indicate that the majority of participants sampled (~96%) did not reach the recommended guideline intake of three servings of dairy per day. Just 4% of females and 2.4% of males met these dairy requirements. The mean total reported dairy intake was 1.16 (SD 0.79) portions per day with males consuming significantly fewer total dairy portions compared to females (1.07 vs 1.21 respectively) ($P<0.05$).

We observed significant positive associations of increased frequency of yogurt intakes with bone health and measures of physical function. Females with the highest yogurt intakes had significantly higher BMD concentrations and better physical function scores compared to individuals with the lowest intakes. Total hip and femoral neck BMD in females were 3.1 - 3.9% higher among those with the highest yogurt intakes (n= 970) compared to the lowest (n= 1,109; $P<0.05$) as were the Timed Up and Go scores (-6.7%; $P = 0.020$). This score reflects mobility and muscle function. Furthermore, we show for the first time that, after adjustment for covariate predictors, each unit increase in yogurt intake significantly decreased the odds of being characterized as osteopenic or osteoporotic in both men and women. In females for example, yogurt intake was a significant positive predictor of BMD at all regions. Each unit increase in yogurt intake was associated with a 29% lower risk of osteopenia (OR 0.71; 95% CI 0.51 – 1.01; $P=0.037$) and a 37% lower risk of osteoporosis (OR 0.63; 95% CI 0.44 - 0.91; $P=0.014$). Dairy products (especially yogurt) were meaningful sources of micronutrients and contributed significantly to the B-vitamin and vitamin D biomarker status of older adults. Blood concentrations of vitamin B12 biomarkers, red cell folate, vitamin B2 and vitamin B6 were significantly worse in those with the lowest tertile of dairy intake (0-0.71 servings) compared to those in the highest tertile (1.50-4.50 servings) ($P<0.05$).

Improving both dairy and yogurt intakes could be a valuable and cost-effective health measure for maintaining bone health (ultimately possibly reducing fracture risk) and, in addition, also providing a source of micronutrients and reducing frailty in older adults. The findings also highlight opportunities for the food industry in developing micronutrient-rich, acceptable dairy products for the elderly consumer.

Gluten protein: the good, the bad or just ugly?

Professor Fred Brouns

HEALTH FOOD INNOVATION, FACULTY OF HEALTH, MEDICINE AND LIFE SCIENCES,
MAASTRICHT UNIVERSITY, NETHERLANDS

Wheat is the third most consumed cereal in the world. After earlier discussions on the role of fat, fructose and added sugars, 'social media fingers' are now pointing to gluten containing grains as a cause of obesity, diabetes and brain disorders. In addition, vital wheat gluten, being a significant waste stream of starch and beer production, is being added to many food products for technological production reasons or just as a relatively cheap protein source.

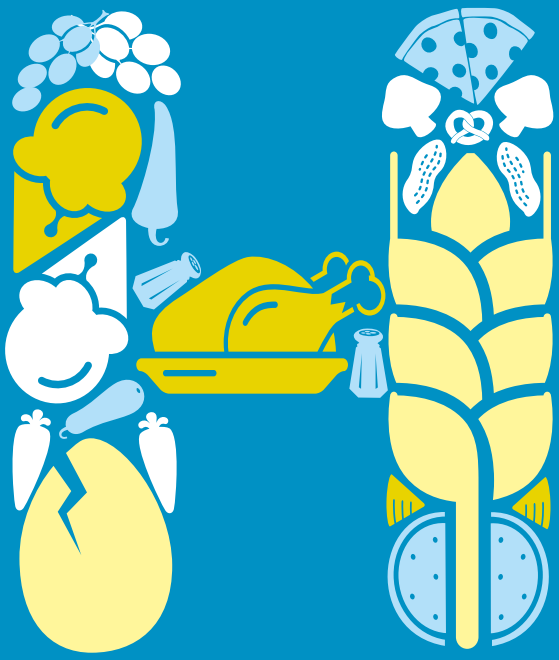
Many controversial arguments have been put forward to support the idea that humans are not 'designed to eat wheat' and that we should be better to avoid gluten altogether. However, suggestions that wheat has been genetically modified resulting in increased gluten content and changed gluten composition cannot be substantiated by sound data. Furthermore, gluten can NOT be linked to eating addiction as a causal factor in obesity.

Wheat-containing foods prepared in customary ways (such as cooked, baked, or extruded) and eaten in generally recommended amounts are, as was recently shown in several meta-analyses, associated with a significant risk reduction for type 2 diabetes, heart disease and colon cancer, as well as a more favorable long term weight management. Related and observed metabolic changes are improved blood glucose control, improved cholesterol levels, reduced blood pressure and lower blood levels of markers of inflammation. Individuals that suffer from celiac disease (about 0.7 - 1.5% of the population) and individuals that are sensitive for specific wheat proteins that cause allergy (0.3% of population), will benefit from avoiding foods that contain gluten (wheat, rye, spelt and barley), added gluten or wheat.

Very recent research indicates that some persons, who suffer from a hypersensitive gastro-intestinal system (irritable bowel syndrome), but do not suffer from celiac disease or wheat allergy, may develop local irritation and inflammation. This may cause intestinal discomfort symptoms that are similar to those observed in celiac disease, yet without gut epithelial damage. It was observed that such individuals react positively to the avoidance of wheat and/or gluten. Yet, some argue that gluten does not cause the problems in these individuals but FODMaPs (indigestible, rapidly fermentable carbohydrate types). In higher quantities these may lead to large bowel distention due to gas formation and related discomfort feelings. Fructans, galactans and xylans, as present in grains, belong to these compounds. However, FODMaPs are not grain specific and are present in many foods. These observations indicate that we should take complaints about gastrointestinal discomfort related to grains consumption seriously and that we need further research to unravel the causative factors and develop appropriate screening tests as well as healthy dietary recommendations. Taken all together, the consumption of whole grain wheat foods is associated with significant health advantages in the majority of the population. Individuals with suspected intolerance are advised to consult a gastroenterologist for screening, before starting "self medication".

notes

N&



The Dairy Council for Northern Ireland

Shaftesbury House
Edgewater Office Park
Edgewater Road
Belfast, BT3 9JQ
Tel. 028 9077 0113
Fax. 028 9078 1224

nutrition@dairycouncil.co.uk
www.dairycouncil.co.uk
www.milknutritiousbynature.eu
twitter @DairyCouncilNI