



# WHAT'S NEW ?

A CONFERENCE FOR HEALTH AND  
EDUCATION PROFESSIONALS

FRIDAY 9 MAY 2014  
HILTON HOTEL, TEMPLEPATRICK

THE DAIRY COUNCIL FOR NORTHERN IRELAND



WHAT'S NEW?

## Conference Programme

09.30 Registration and coffee

10.00 Professor Sean Strain,  
University of Ulster, Coleraine  
**Chairperson's introduction**

10.15 Professor Luc van Loon,  
University of Maastricht, the Netherlands  
**Maintenance of muscle mass in older people -  
effects of diet and physical activity**

10.50 Dr Kelsey Mangano,  
Harvard Medical School, Boston, USA  
**An update on protein and bone health**

11.25 COFFEE

11.45 Professor Jayne Woodside,  
Queen's University Belfast  
**The role of nutrition in maintaining cognitive  
function in older people**

12.20 Professor Marion Hetherington,  
University of Leeds  
**Influences on the development of food  
preferences in early life**

12.55 LUNCH

2.00 Dr Michelle McKinley,  
Queen's University Belfast  
**Diet in the prevention of type 2 diabetes**

2.35 Dr Jeanette Magne,  
Aarhus University, Denmark  
**Views about food and health among people  
with low educational attainment – implications for health  
education**

3.10 Close

# Maintenance of muscle mass in older people: diet and physical activity

Professor Luc JC van Loon

PROFESSOR OF PHYSIOLOGY OF EXERCISE, DEPARTMENT OF MOVEMENT SCIENCES,  
MAASTRICHT UNIVERSITY

Aging is accompanied by a progressive loss of skeletal muscle mass and strength, leading to the loss of functional capacity and an increased risk of developing chronic metabolic disease. The age-related loss of skeletal muscle mass is attributed to a disruption in the regulation of skeletal muscle protein turnover, resulting in an imbalance between muscle protein synthesis and degradation. As basal (fasting) muscle protein synthesis rates do not seem to differ substantially between the young and elderly, many research groups have started to focus on the muscle protein synthetic response to the main anabolic stimuli, i.e. food intake and physical activity. Recent studies suggest that the muscle protein synthetic response to food intake is blunted in the elderly. The latter is now believed to represent a key factor responsible for the age-related decline in skeletal muscle mass. We recently applied contemporary stable isotope methodology with the use of specifically produced intrinsically labeled milk protein. The latter allows us to study dairy protein digestion and absorption kinetics, as well as the subsequent muscle protein synthetic response in vivo in humans.

Besides food intake, physical activity and/or exercise stimulate muscle protein accretion. However, the latter largely depends on the timed administration of amino acids and/or protein prior to, during, and/or after exercise. Prolonged resistance type exercise training represents an effective therapeutic strategy to augment skeletal muscle mass and improve functional performance in the elderly. The latter shows that the ability of the muscle protein synthetic machinery to respond to anabolic stimuli is preserved up to very old age. Research is warranted to elucidate the interaction between nutrition, exercise and the skeletal muscle adaptive response. The latter is needed to define more effective strategies that will maximize the therapeutic benefits of lifestyle intervention in the elderly.

# An update on protein and bone health

Dr Kelsey Mangano

POST-DOCTORAL RESEARCH FELLOW, INSTITUTE FOR AGING RESEARCH, HEBREW SENIORLIFE,  
HARVARD MEDICAL SCHOOL, BOSTON, USA

Osteoporosis is characterized by low bone mass and can lead to increased risk of fracture. It is imperative to identify risk factors associated with poor bone health to maximize the functional capacity of aging adults. Nutritional strategies to forestall osteoporosis are important because they are well tolerated, effective and easily modifiable.

Although it was once thought that the acid generating components of a high protein diet were detrimental to bone, an updated review of the literature shows greater protein intake is not harmful to bone. The most recent research suggests the potential positive impact of dietary protein on bone health may be apparent under conditions of adequate calcium intake. The interaction between dietary protein and calcium intake in altering bone mass requires further attention. Studies examining specific food sources of protein and their potential differentiating associations with bone health also require more research, as dietary protein is not consumed as a single nutrient, but consumed in conjunction with other nutrients in the context of a whole diet.

Dairy foods contain a high proportion of bone benefiting nutrients, including protein; however, their benefit to bone health may be dependent upon an individual's vitamin D intake. Further understanding the interaction of dietary protein with other nutrients, and the use of dietary patterning techniques will provide future therapeutic targets in forestalling bone loss with aging. It is of public health importance to create awareness of modifiable lifestyle factors which can improve the health and well-being of adults in an aging population.

# The role of nutrition in maintaining cognitive function in older people

Professor Jayne Woodside

PROFESSOR, CENTRE FOR PUBLIC HEALTH, SCHOOL OF MEDICINE, DENTISTRY AND BIOMEDICAL SCIENCES,  
QUEEN'S UNIVERSITY BELFAST

Cognitive decline has a profound impact on the health and quality of life of older people and their caregivers. Exploring mechanisms to delay cognitive decline has become an urgent economic priority, given the projected changes in population demographics. Systematic reviews and meta-analyses of observational studies suggest that adherence to a Mediterranean Diet, folic acid intake, low or moderate alcohol intake, and fish intake are associated with reduced cognitive decline, but the quality of evidence is rated as low because of a lack of randomised controlled trials. Intervention evidence is currently very limited, and future studies need to be adequately powered, with careful attention given to choice of participants, outcomes being assessed, study duration and strategies to achieve compliance.

Alongside these studies, consideration has to be given to how best promote and encourage dietary change in older people in general, and particularly in those experiencing the early stages of cognitive decline, as there may be specific factors that need to be considered when designing lifestyle behaviour change interventions in this group.

## REFERENCES

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Daviglus ML, Plassman BL, Pirzada A, Bell CC, Bowen PE, Burke JR, et al.  
*Risk factors and preventive interventions for Alzheimer disease: state of the science. Arch Neurol* 2011; 68: 1185-90.

# Influences on the development of food preferences in early life

Professor Marion Hetherington

PROFESSOR OF BIOPSYCHOLOGY, INSTITUTE OF PSYCHOLOGICAL SCIENCES, UNIVERSITY OF LEEDS

Infants are born as univores and must make the transition to omnivore. They are assisted in this task by innate preferences directing their acceptance of milk, by early exposure to flavours and by exposure to a range of solid foods during and after complementary feeding. The early experience to flavour occurs in utero and is then enhanced by breastfeeding and expanded during weaning. It is clear from studies of infants that they prefer human milk even if formula fed (Marlier & Schaal, 2005) and that they prefer sweet tastes over all others. By 6m of age infants appear to prefer salty, umami and sweet tastes to water (Schwartz et al., 2013) but show no liking for sour and bitter tastes. It has been suggested that exposure to breast milk facilitates acceptance of a variety of flavours given the complex flavour components of breast milk. This demonstrates the critical role of learning in the development of flavour and food preferences. In practice, parents use a range of strategies to encourage acceptance of novel foods during and long after complementary feeding to encourage the transition to the family diet (Caton et al., 2011; Schwartz et al., 2013). Effectively parents are teaching their infants about the range of acceptable foods within their family and society as well as culturally appropriate patterns of eating.

Findings from our recent studies in babies confirm the importance of early experience. We investigated the effect of a step-by-step introduction of pure vegetables added first to milk and then to rice at the start of weaning on liking and intake of vegetables. Just before weaning, 40 mothers were randomised to either the intervention (IG) or control group (CG). IG infants received 12 daily exposures to vegetable puree added to milk, then 12 daily exposures to vegetable puree, added to baby rice at home. Plain milk and cereal were given to the control group. Then both groups received 11 daily exposures to vegetable puree; intake and liking were recorded at home and in the laboratory on days 25-26 and 33-35. Vegetables were provided in rotation (carrots, green beans, spinach and broccoli) and a new vegetable (parsnip) given on the final day (day 36).

IG infants liked and ate the vegetable purees more than CG infants. Carrots were liked and consumed more than green beans. However, group differences were weaker at 6m and 12m follow up. The weaning period is an ideal time to provide vegetables since acceptance is generally high. Early exposure to vegetables in a step-by-step process enhanced liking and intake of vegetables during weaning. This approach was acceptable to mothers and provides infants with a foundation on which to build healthy eating habits by improving vegetable acceptance.

In addition, a series of experimental studies conducted in pre school children supports and extends these findings by comparing the effectiveness of different forms of learning on liking and intake of a variety of vegetables. Overall, across studies familiarisation is the most effective means to encourage vegetable acceptance in infants and young children. Adding familiar flavours or energy does not enhance intake beyond mere exposure.

In conclusion, early and repeated exposure is the most effective means by which to encourage intake of healthy foods. Adding vegetable puree to milk and then to cereal was a successful strategy to promote vegetable intake in the weaning period, and the step-by-step guidance was appreciated by mothers. The strategies tested within these experiments could be used to encourage healthy eating, since learning is key to establishing the foundations of a healthy diet in the early years.

# Diet in the prevention of type 2 diabetes

Dr Michelle McKinley

SENIOR LECTURER, CENTRE FOR PUBLIC HEALTH, SCHOOL OF MEDICINE, DENTISTRY AND BIOMEDICAL SCIENCES, QUEEN'S UNIVERSITY BELFAST

The prevalence of diabetes is increasing<sup>1</sup>. By 2030, it is estimated that over 400 million people worldwide will have diabetes, with approximately 90% of new cases diagnosed as Type 2 Diabetes Mellitus (T2DM).

Early detection of individuals at high risk of developing T2DM and implementation of effective prevention strategies that impede the onset of T2DM are of paramount importance in order to reduce the health burden of the disease<sup>2,3</sup>.

Large scale intervention studies<sup>4-6</sup> have demonstrated that weight loss and/or physical activity reduce the risk of developing T2DM by up to 60%. With regard to diet, there is considerable interest in defining the optimal dietary approach for diabetes prevention.

Research to date has investigated the potential of individual nutrients, foods groups and whole diet approaches to reduce the risk of type 2 diabetes. This evidence will be reviewed in order to establish if there are key dietary approaches that can currently be recommended to prevent type 2 diabetes.

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# Views about food and health among people with low educational attainment: implications for health education

Professor Jeanette Magne Jensen

RESEARCH PROGRAMME IN LEARNING FOR CARE, SUSTAINABILITY AND HEALTH, DEPARTMENT OF EDUCATION, UNIVERSITY OF AARHUS

This presentation gives insight into notions of food and health among people with low educational attainment which is a prerequisite for understanding how to prepare interventions aimed at enhancing health among this target group. The presentation builds on qualitative research (interviews) among people with low educational attainment in Denmark.

Aims of the research are to understand how conditions and beliefs in everyday life shape the understanding of health, objectives for health and the notion of quality of life among this target group. Statistics show how people with low educational attainment eat more unhealthily, smoke more and exercise less than people with high educational attainment. Furthermore, people with low educational attainment are characterized by being reluctant to change their health behavior. By providing an insight into views of health and food among the target group, the presentation demonstrates how healthy food and having a healthy lifestyle is not consistent with a life which is primarily lived for feeling good. People with low educational attainment have a notion of health which is psychological more than it is physiological – they will rather feel good than be healthy in the official interpretation of what a healthy life implies.

The presentation discusses the implications for health education that this everyday life and belief system among people with low educational attainment entails: How does it influence health education when we place the target group in centre of the definition of health?

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