



# WHAT'S NEW ?

A CONFERENCE FOR HEALTH AND  
EDUCATION PROFESSIONALS

FRIDAY 3RD MAY 2013  
W5, AT THE ODYSSEY, BELFAST

THE DAIRY COUNCIL FOR NORTHERN IRELAND

# Conference Programme

09.30 REGISTRATION AND COFFEE

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

10.15 Dr Janne Kunchel Lorenzen,  
University of Copenhagen  
Dairy and weight control:  
what's the evidence?

10.50 Dr Emeir McSorley,  
University of Ulster, Coleraine  
An update on nutrition and immune function

11.25 COFFEE

11.45 Professor Peter Elwood,  
Cardiff University  
Effects of healthy living on  
dementia and chronic disease risk

12.20 Professor Wim Verbeke,  
Ghent University  
Nutrition information and communication:  
key challenges

12.55 LUNCH

2.00 Katherine Livingstone,  
University of Reading  
Diet and blood pressure:  
a role for dairy?

2.35 Dr Jason Gill,  
University of Glasgow  
Physical activity in the prevention  
& management of type 2 diabetes

3.10 Close

## Dairy and weight control: what's the evidence?

Dr Janne Kunchel Lorenzen

DEPARTMENT OF NUTRITION, EXERCISE AND SPORTS (NEXS)  
UNIVERSITY OF COPENHAGEN

The first indication that dietary calcium intake is inversely related to body weight was reported in the mid-1980s based on data from the first National Health and Nutritional Examination Survey in USA (NHANES I). However, at that time there was a lack of a plausible biological explanation for this association and therefore it was relegated to the status of a chance association. But in 2000 two additional studies were published supporting these findings and the first plausible mechanisms were proposed. Since then the effect of dietary calcium or dairy intake on body fat mass and body weight has attracted a lot of attention and several observational and intervention studies have been conducted.

The available data conflict on the effect of calcium or dairy consumption on body fat mass and body weight. The primary support for the negative association between calcium or dairy intake and obesity comes from epidemiological studies whereas findings from randomized controlled clinical trials (RCTs) have been conflicting. In this presentation a short review of the present evidence will be given.

Several plausible biological mechanisms to explain how calcium may affect energy balance have been proposed. It has been proposed that calcium affects both sides of the energy equation, i.e. both energy intake and energy utilization. The mechanisms proposed for affecting energy intake include decreased digestibility of fat and decreased food intake, and the mechanisms proposed for affecting energy utilization includes decreased de novo lipogenesis and increased lipolysis. This presentation will give an overview of these mechanisms.

# An update on nutrition and immune function

Dr Emeir McSorley

NORTHERN IRELAND CENTRE FOR FOOD AND HEALTH (NICHE)  
UNIVERSITY OF ULSTER

The immune system is a complex and integrated network of cells, cell products and tissues that defend against foreign pathogenic antigens and protects against the development of inflammatory disease. It consists of the innate immune system and the adaptive immune system. The innate response is an immediate, nonspecific response to foreign antigens. It involves the physical barriers, for example the skin, as well as the chemical and microbiological barriers such as the mucous secretions and the normal flora. The adaptive immune response is the second line of defence against foreign antigens which is instigated when the innate response fails or is inadequate. The major mediators of the adaptive response are the white blood cells namely B lymphocytes (B cells) and T lymphocytes (T cells) which are responsible for antigen-specific responses along with the development of immunologic memory.

The nutritional status of the host strongly influences the ability of the immune system to prevent infection and disease. In fact, malnutrition is the most common cause of immunodeficiency in the world. Inadequate, deficient and excess intake of macronutrients or selected micronutrients can impair the immune response leading to compromised host defence mechanisms and increased susceptibility to infection and disease. Sustained malnutrition can lead to chronic inflammatory related disease and organ damage.

Vitamin D is currently being widely researched for its potential to both fight infection and to alleviate clinical symptoms of disease. One of the most recently established non-classical effects of vitamin D is its role in regulating both the innate and adaptive immune response. Not only have vitamin D receptors been found on all immune cells but it now is evident that immune cells have their own mechanism of activating vitamin D locally, highlighting the importance of this nutrient in optimal immune response. The vitamin D status of an individual appears to directly influence the immune response with impaired immunity and autoimmunity linked to deficiency of this vitamin. Increasing awareness of impaired vitamin D status in populations, including that of the UK and Ireland, has emphasised the significance of vitamin D to health. This presentation will discuss recent findings in relation to the impact of vitamin D status in relation to the immune response in both the normal population as well as in clinical conditions.

Knowledge of a link between nutrition and immune function is not a new phenomenon as demonstrated by the plethora of supplements readily available to consumers which claim to enhance immunity. However, a growing field of nutritional immunology is that of functional foods where added value foods are generated for their potential to maintain or promote a healthy immune response. Marine derived bioactives, including those from seaweed, are receiving attention for their effect on the inflammatory response. Examples of novel marine functional foods and their impact on the immune response will be presented.

# Healthy living – healthy aging Effect of healthy living on dementia and chronic disease risk

Professor Peter Elwood OBE

COCHRANE INSTITUTE  
CARDIFF UNIVERSITY

The term ‘healthy living’ clearly implies reductions in disease and disablement. What seems not to be widely appreciated, however, is the extent of the reductions which result from a truly healthy lifestyle.

The Caerphilly Cohort Study was set up in 1979 and 2,500 men have been followed for over 30 years. At baseline, details on healthy behaviours were recorded: non-smoking, BMI, diet, exercise and alcohol intake. During the following 30 years details of all new disease events were recorded: diabetes, vascular disease, cancer, dementia and death.

Men who followed a healthy lifestyle experienced massive reductions – 50-70% lower incidence rates for diabetes, heart disease and stroke, dementia and death. For cancer however, the benefit of the healthy behaviours was much less: non-smoking was associated with a 40% reduction in cancer, but the other healthy behaviours added little to this. This highlights the potential importance of daily low-dose aspirin – the sixth healthy behaviour!

The size of these benefits seems however to be little appreciated within the general community. Furthermore, huge expenditure spent by the various health authorities on the promotion of healthy behaviours seems to have achieved little over the years. In 1979 only 0.5% of the men in the Caerphilly cohort followed all five healthy behaviours, while 5% followed four. Thirty years later, The Welsh Health Survey, conducted across the whole of Wales, found these prevalence rates within men of comparable ages, to be 0.8% and 7%.

On the other hand, the prevalence of prophylactic aspirin taking is 30-40% - and rising!

# Nutrition information and communication: key challenges

Professor Wim Verbeke

DEPARTMENT OF AGRICULTURAL ECONOMICS  
GHENT UNIVERSITY

Consumers' food choices and dietary behavior are markedly affected by information and personal attitudes. Whether the provided information is processed by the receiver – and thus becomes likely to be effective – depends on numerous factors. The role of selected personal determinants such as attitudes and motives are discussed in the presentation based on previous empirical studies.

Nutrition information is currently spread through many different approaches and channels to citizens and consumers in the European Union. Labelling of the nutritional value of food products is probably the most commonly known method, next to conveying nutrition information through advertising campaigns, education programs, restaurant menu cards, online forums, health claims, logos and symbols. This presentation will use consumers' responses to nutrition information as its point of departure and report on their interest in both qualifying and disqualifying nutrients, while accounting for gender, age and country differences.

The contribution will also discuss consumer reactions to interventions to promote healthy eating, with particular attention to nutrition labelling. Based on findings from research into consumers' response to nutrition and health claims and functional or enriched foods, the presentation will further also illustrate the power of the concept of naturalness as the best perceived approach for providing and communicating additional nutritional benefits in foods. Also issues relating to trust and credibility of information sources and their usage to obtain nutrition information will be discussed. Last but not least, the presentation will provide conclusions and recommendations for the provision of nutrition information about dairy products.

# Diet and blood pressure: a role for dairy?

Katherine M. Livingstone

SCHOOL OF AGRICULTURE, POLICY AND DEVELOPMENT  
UNIVERSITY OF READING

Raised blood pressure, or hypertension, is the single greatest risk factor for cardiovascular disease in the UK and Europe. When considering how to minimise the risk of developing this disease, modifiable risk factors such as hypertension and diet are at the forefront. The evidence to support a relationship between dietary components and blood pressure is not always consistent or sufficient across the literature, although some foods appear to more strongly linked with blood pressure regulation than others. Specifically, according to the American Heart Association, strong evidence highlights weight loss, a low sodium and high magnesium and potassium intake, and a moderate alcohol consumption, as key dietary factors in maintenance of normal blood pressure. New research also suggests that nitrite containing foods may also play a noteworthy role in lowering blood pressure.

As well as individual foods and their components, whole diet approaches have been evaluated for their effect on blood pressure. The DASH (Dietary Approaches to Stop Hypertension) diet is arguably one of the most well-known combination-based diets that effectively lowered blood pressure. This dietary approach focused on the combination of a diet high in fruit and vegetables and low-fat dairy products. The role of dairy products in the prevention of hypertension has been a topic of growing interest. Epidemiological research has provided strong evidence that these foods not only lower the risk of hypertension, but also the risk of cardiovascular disease, stroke, diabetes and all-cause mortality. Furthermore, recent data from a prospective cohort suggest that milk and dairy products not only help regulate blood pressure but also help lower arterial stiffness - a strong, independent marker of cardiovascular disease and all-cause mortality. Given the wide consumption of milk and dairy products by all ages, the relationship between these foods and arterial stiffness is of great interest. In particular, future randomised controlled trials are needed that go beyond traditional markers of brachial blood pressure.

Substantial epidemiological evidence points towards the benefits of milk and dairy products for our health. Nonetheless, due to a lack of randomised controlled trials and in vitro studies in this area, the mechanism by which these foods lower blood pressure and arterial stiffness is poorly understood. Recent research has focused on the importance of bioactive peptides in the regulation of blood pressure. A subclass of these peptides, released from milk and dairy products during digestion, have anti-hypertensive properties and regulate blood pressure by inhibiting ACE-1, a potent vasoconstrictor. Subsequently, it is speculated that these peptides may be in part responsible for the anti-hypertensive effects seen following consumption of milk and dairy products. Moreover, recent evidence suggests that whey protein, but not casein, lowers arterial stiffness.

# Physical activity and the prevention and treatment of diabetes

Dr Jason Gill

INSTITUTE OF CARDIOVASCULAR AND MEDICAL SCIENCES  
UNIVERSITY OF GLASGOW

It is estimated that over 370 million people worldwide – 8.3% of the adult population – have diabetes and this number is projected to rise. Physical inactivity, low cardiorespiratory fitness, sedentary behaviour and obesity are all strong risk factors for type 2 diabetes. There is now good evidence that lifestyle intervention incorporating increased physical activity and modest weight loss can prevent or delay conversion to type 2 diabetes and reduce risk of diabetes complications over the long-term in individuals at high risk of the disease (mainly in those with impaired glucose tolerance). In addition, lifestyle intervention (including increasing physical activity) in patients with type 2 diabetes has been shown to be effective at improving glycaemic control, facilitating weight loss and reducing medication use, reducing sleep apnoea and improving mobility.

In individuals with impaired glucose tolerance, the effectiveness of lifestyle intervention for diabetes prevention is broadly similar across ethnic groups. However, within the normoglycaemic general population, there is a wide range of diabetes risk, and in groups at increased diabetes risk (e.g. certain ethnic groups, those with a diabetes family history and the obese), the benefits of physical activity (and the risks of inactivity) appear to be particularly large. This raises questions about whether we should target early intervention for diabetes prevention in certain population groups and whether a “one size fits all” is appropriate with respect to recommendations for physical activity.

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