



# WHAT'S NEW ?

A conference for health and education professionals

Thursday 25th February 2010

W5, The Odyssey, Belfast

**The Dairy Council for Northern Ireland**

# Conference Programme

09.30 REGISTRATION AND COFFEE

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

10.15 Dr Lynn Moore,  
University of Boston, USA  
**New thinking on dietary guidance:  
focus on nutrient-rich foods**

11.05 COFFEE

11.30 Dr Mary Ward,  
University of Ulster at Coleraine  
**Nutrition and blood pressure  
A role for B vitamins?**

12.05 Professor Gerry Linden,  
Queen's University Belfast  
**Update on nutrition and periodontal disease**

12.45 LUNCH

2.00 Dr Susan Shirreffs,  
Loughborough University  
**Developments in sports nutrition  
Strategies for post-exercise recovery**

2.35 Ruth Towell,  
University of Hertfordshire  
**To eat or not to eat?  
New advice on preventing food allergy**

3.10 General discussion

3.30 Close

## New thinking on dietary guidance: focus on nutrient-rich foods

**Dr Lynn L Moore**

PREVENTIVE MEDICINE AND EPIDEMIOLOGY  
BOSTON UNIVERSITY SCHOOL OF MEDICINE, USA

Despite the explosion in nutrition-related research over the past two decades, most studies have focused on single nutrients or foods. In the U.S. and elsewhere around the world there are repeated discussions about the need for more food-based dietary recommendations but most public health guidance invariably tends to return to nutrients and their associated foods. Despite our best intentions, this leads to a negative approach to dietary recommendations. It has also led to the development of new many food products (e.g., low-fat cookies) that target single nutrients in their advertising but are far from nutrient rich in content.

This negative approach to dietary guidance has not led to improvements in diet quality or reductions in the rates of nutrition-related diseases. More recently, the nutrition research community has turned to the study of dietary patterns. Unfortunately many of these studies have also had a decidedly negative focus (e.g., studies of the so-called "Western" diet pattern). While these studies do provide some important information about unhealthy eating patterns, they also have the unanticipated and under-appreciated consequence of linking certain nutrient rich foods (that also happen to contain fat, saturated fat or cholesterol) with other less healthy dietary patterns. For example, the typical fast food diet has linked consumption of red meat with high intakes of fried potatoes. This linkage leads to a great deal of confusion about appropriate dietary guidance for red meat and/or potatoes for scientists, clinicians, the general public and even dietitians.

A new paradigm for healthy eating is slowly emerging. The concept of nutrient-rich foods conceptually links nutrients and foods in a way that allows for positive dietary advice. In this talk we will discuss not only the concept of nutrient-rich foods but also the notion of nutrient-rich eating patterns and their impact on health outcomes.

# Nutrition and blood pressure: a role for B vitamins?

Dr Mary Ward

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UNIVERSITY OF ULSTER AT COLERAINE

Cardiovascular disease (CVD) is one of the leading causes of death worldwide. High blood pressure or hypertension is a major risk factor for CVD and is the strongest predictor of stroke risk, making it one of the most important preventable causes of premature morbidity and mortality. The prevalence of hypertension in the UK is estimated to be as high as 40%.

Various factors are known to influence blood pressure including age, diet, physical activity and genetics. Dietary strategies to lower blood pressure have largely focused on weight reduction and decreasing salt intake although more recently there has been a growing interest in the role of other nutrients. The Dietary Approaches to Stop Hypertension (DASH) diet plan results in an increased intake of potassium, calcium, magnesium and protein and has been shown to significantly lower blood pressure in some but not all hypertensive patients. Despite these different dietary strategies however and the availability of many effective blood pressure lowering therapies, hypertension remains under-diagnosed, under-treated and poorly controlled in the population.

In recent years an elevated level of the amino acid homocysteine, itself considered to be an independent risk factor for CVD, has been associated with high blood pressure. Homocysteine levels are determined by both nutritional and genetic factors. The main nutritional determinants are the B-vitamins folate, B12 and B6 while a common genetic defect (affecting approximately 10% of the population) in an enzyme involved in homocysteine metabolism is recognised as the main genetic determinant. In individuals with this defect, known as the TT genotype, an adequate intake of a fourth B-vitamin riboflavin, found primarily in milk and dairy products has been shown to be particularly important. Although the risk of CVD associated with the TT genotype was originally thought to be via homocysteine, recent evidence suggests that it may in fact be acting independently of homocysteine. Furthermore interesting data is now emerging showing an important association between this common genetic factor and hypertension.

This talk will focus primarily on the role of this genetic factor in determining blood pressure. Furthermore evidence will be presented that supports a role for riboflavin in modulating blood pressure in this genetically 'at-risk' group.

# Update on nutrition and periodontal disease

Professor Gerry Linden

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Periodontal disease results in the destruction of the supporting tissues of the affected teeth. It is an inflammatory condition which represents our response to dental plaque bacteria which exist as a biofilm on the surface of the teeth. Periodontal disease is serious oral health problem for 10-15% of adults worldwide resulting in the loss of some or all their teeth.

Factors regulating susceptibility include structural alterations in the tissues or imbalances in the immune and inflammatory responses to the bacteria in dental plaque which cause periodontitis. Some factors associated with disease progression have been identified. For example smoking is acknowledged to be a major environmental risk factor. In the context of nutrition, recent research has highlighted as association between obesity and periodontal disease. Changes in behaviour resulting in the development of obesity may be associated with reduced awareness and practice of behaviours associated with maintaining long term periodontal health. Alternatively obesity, which is increasingly identified as a low-grade inflammatory condition, may have an independent effect leading to periodontal disease.

There may also be regulatory factors, not as yet well characterised, which are protective and limit the progression of periodontal tissue destruction and in this context good nutrition may have an important protective role. In the mid 18th century it was recognised that giving citrus fruit to sailors, who had been deprived of fresh fruit and vegetables on long sea voyages, protected them from developing scurvy. It was some time later that vitamin C was identified as the active agent which is necessary to maintain healthy periodontal tissues. However, with the exception of Vitamin C the role of other specific nutritional factors in the development and progression of periodontal diseases is less well defined. It is known that oxidative stress is central to the tissue damage which characterises periodontitis. Theoretically therefore, antioxidant supplementation should be beneficial and provide protection against progressive periodontal disease.

In this context epidemiological studies in the United States have shown that a reduced dietary intake or low serum levels of antioxidants were associated with an increased risk of periodontitis. A recent study at Queen's University identified an association between low levels of carotenoids and periodontitis in men in Northern Ireland. Those with the lowest levels of two of the carotenoids,  $\beta$ -cryptoxanthin and  $\beta$ -carotene, were significantly more likely to have severe periodontitis. Increased intake of fruit and vegetables can raise carotenoid levels, however, it is not clear what the impact of this would be in those with established disease. Nevertheless, continued focus on improvement in the diet, with an increase in the consumption of foods containing antioxidants, could in addition to reducing systemic inflammation also benefit periodontal health.

# Developments in sports nutrition: milk as a post-exercise recovery drink

Dr Susan M Shirreffs

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LOUGHBOROUGH UNIVERSITY

Milk is a nutrient dense foodstuff that has the potential to benefit individuals participating in sport and/or exercise. In recent years a number of studies have been undertaken to investigate whether there are any benefits to consuming milk in association with sport or exercise, including as a recovery drink.

## Hydration

During exercise sweat loss generally exceeds fluid intake so a hypohydrated state at the end of exercise is common. The electrolyte content of the drink consumed after exercise plays a key role in the rehydration process, with the fraction of fluid retained directly related to the amount of sodium ingested. There is also good evidence that the volume of fluid ingested after exercise must be greater than the volume of sweat lost, with evidence suggesting that a volume equal to around 150% of the body mass lost should be consumed to ensure adequate restoration of fluid losses. Recent research (Shirreffs et al 2007) has demonstrated that milk can be an effective post-exercise rehydration drink and can be considered for use after exercise by everyone except those individuals who have lactose intolerance.

## Muscle adaptations

Resistance exercise is typically undertaken to create muscle adaptations, the most obvious being skeletal muscle hypertrophy. For this to occur there must be an increase in muscle protein net balance; an increase in protein synthesis, a decrease in muscle protein breakdown or a simultaneous increase in synthesis with a decrease in breakdown. Studies have shown that consumption of fat-free milk increases protein net balance via an increased rate of muscle protein synthesis after resistance exercise (Wilkinson et al 2007). Consumption of low-fat milk seems to create an anabolic environment after resistance exercise. As such it seems that greater gains in lean mass and muscle hypertrophy can be achieved (Hartman et al 2007).

## References

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Wilkinson SB, Tarnopolsky MA, Macdonald MJ, Macdonald JR, Armstrong D, Phillips SM. (2007) Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *American Journal of Clinical Nutrition*, 85, 1031-1040

Hartman JW, Tang JE, Wilkinson SB, Tarnopolsky MA, Lawrence RL, Fullerton AV, Phillips SM. (2007) Consumption of fat-free fluid milk after resistance exercise promotes greater lean mass accretion than does consumption of soy or carbohydrate in young, novice, male weightlifters. *American Journal of Clinical Nutrition*, 86, 373-381

# To eat or not to eat: new advice on preventing food allergy

Ruth Towell Bsc (Hons) MSc, RD

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UNIVERSITY OF HERTFORDSHIRE

The nutritional management of food allergy is well established - the removal of the allergy causing antigen(s) from the diet. The nutritional prevention of food allergies however is not so clear cut and conflicting evidence still causes confusion especially with regards to:

1. Antigen avoidance during pregnancy and lactation
2. Early versus late weaning

For the atopic and general population, practitioners now have available to them recommendations and guidance from a Cochrane review (2006)<sup>1</sup> as well as consensus (since 2008) between European (ESPGHAN<sup>2</sup> and ESPACI) and American (AAP<sup>3</sup> and AAAACI) paediatric and allergy experts on points 1 and 2 above.

To add to this body of advice the Department of Health for England, Northern Ireland, Scotland and Wales in conjunction with the Food Standards Agency has recently (2009)<sup>4</sup> amended its previous (1998) advice on peanut avoidance during pregnancy, lactation and until 3 years of age within the atopic population. Research is still continuing in this field in the hope of providing practitioners with the best strategy for preventing food allergy in infants: allergen avoidance or early introduction. Two such studies taking place at the Evelina Children's Hospital in London are:

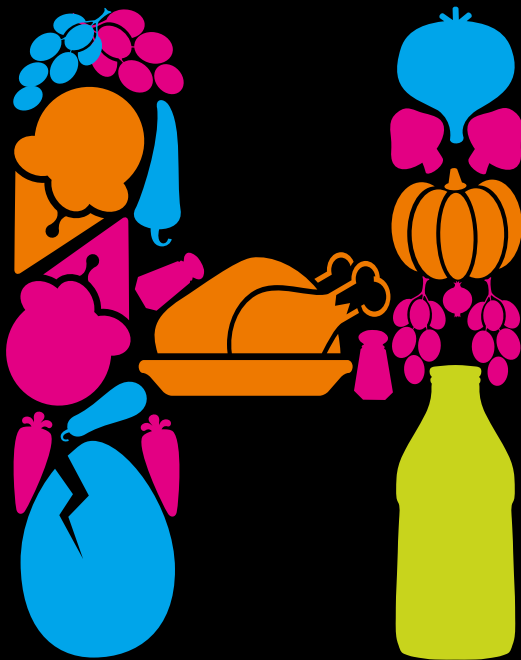
1. The EAT Study<sup>5</sup>: A 3 year RCT of the early introduction of 6 allergenic foods - investigating the possibility of inducing tolerance as a means of prevent food allergy in infants (3 months - 3 years). Enrolment started late 2009.
2. The LEAP Study<sup>6</sup>: A 7 year intervention trial investigating the best strategy to prevent peanut allergy in infants (4 - 11 months): peanut avoidance or peanut consumption. Due for completion in 2013.

In addition to this research, there have been various trials investigating the supplementation of infants' diets with: pre and pro biotics; omega 3 fatty acids and Vitamin D. Currently however the evidence has been inconclusive and no recommendations can be made regarding the supplementation of an infant's diet with any of these potential nutraceuticals.

## References

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3. Greer FR, Sicherer SH, Burks, AW and the Committee on Nutrition and Section on Allergy & Immunology (AAP) (2008) *Pediatrics* 121(1):183-191
4. [www.food.gov.uk/safereating/allergyintol/peanutspregnancy](http://www.food.gov.uk/safereating/allergyintol/peanutspregnancy)
5. [www.eatstudy.co.uk](http://www.eatstudy.co.uk)
6. [www.leapstudy.co.uk](http://www.leapstudy.co.uk)

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