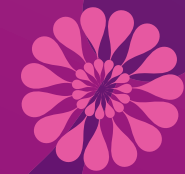


Wednesday 25th February 2009  
W5, at the Odyssey, Belfast

# Women's Nutrition & Health

A conference for health and  
education professionals



The Dairy Council for Northern Ireland



# Women's Nutrition & Health

## Programme of events

09.30 Registration and coffee

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

10.15 Professor Janet Cade, University of Leeds  
Introduction and overview - women's nutrition and health

10.50 Dr Tom Hill, University College Cork  
Bone health – update on the optimum diet for bones

11.25 Coffee

11.45 Dr Julie Wallace, University of Ulster at Coleraine  
Pregnancy - key dietary components in fetal development

12.20 Professor Louise Dye, University of Leeds  
Hormones - effects on appetite, well-being and cognitive performance

12.55 Lunch

2.00 Dr Marie Murphy, University of Ulster at Jordanstown  
Physical activity – quantifying the health benefits of exercise for women

2.35 Wendy Lawrence, University of Southampton  
Food choice – working to change women's dietary behaviour

3.10 General discussion

3.30 Close

# Introduction and Overview: Women's nutrition and health

## Professor Janet Cade

Centre for Epidemiology and Biostatistics  
University of Leeds

Although life expectancy for women is higher than for men in the UK, there are still some concerns about the optimal diet for women. The talk will review current dietary patterns in women with a focus on women from low income groups showing how food choices are influenced by food cost. Potential problems in meeting the reference requirements for nutrients will be reviewed, mentioning in particular iron deficiency. Thirty three per cent of low income women have iron intakes below the lower reference nutrient intake and 12% are anaemic.

Diet in pregnancy is clearly important for women. I will mention evidence linking weight gain in pregnancy to birthweight. In addition, I will refer to our own recent work<sup>1</sup> showing that caffeine consumption in pregnancy leads to smaller babies.

Finally, I will refer to evidence exploring diet through the life course and risk of breast cancer.

1. Boylan S, Cade JE, Dolby VA, Greenwood DC, Hay AWM, Kirk SFL et al. Maternal caffeine intake during pregnancy and risk of fetal growth restriction: a large prospective observational study. *British Medical Journal* 2008; 337

# Bone Health: Update on the optimum diet for bones

## Dr Tom Hill

Department of Food and Nutritional Sciences  
University College, Cork

It is well accepted that nutrition is an important determinant of bone health throughout the lifecycle. Osteoporosis is a debilitating disease that affects many older people. Fragility fractures are the hallmark of osteoporosis. Although nutrition is only one of many factors that influence bone mass and fragility fractures, there is an urgent need to develop and implement nutritional approaches and policies for the prevention and treatment of osteoporosis that could, with time, offer a foundation for population-based preventive strategies. In the case of vitamin D, while prolonged and severe deficiency leads to rickets in children and osteomalacia in adults, less severe deficiency (sometimes referred to as vitamin D insufficiency) leads to elevations in parathyroid hormone (PTH) concentrations, increases bone turnover and ultimately contributes to osteoporosis. Vitamin D insufficiency prevalence rates are comparatively high in the UK and Ireland.

Dairy foods are, or can be, an important source of bone active nutrients and bioactive ingredients. Dairy foods also contribute significantly to the dietary intakes of calcium and vitamin D in the UK and Irish populations. Calcium and to some extent, vitamin D have key endocrine, metabolic and structural roles in skeletal development and maintenance. Dairy foods also contain other nutrients and bioactive ingredients which may positively influence bone. In particular, Conjugated Linoleic Acid (CLA) has been shown to promote bone mass in experimental models. Evidence from human studies is more ambiguous.

The current presentation will briefly overview the role of calcium and vitamin D in bone health across the lifecycle and will present evidence that increased intake and/or status of these nutrients benefits skeletal health. Strategies for increasing intake of these nutrients will also be examined. The presentation will also overview the current knowledge of the effect of CLA on bone health.

# Pregnancy: Key dietary components in fetal development

Dr Julie Wallace

Northern Ireland Centre for Food and Health (NICHE)  
University of Ulster

A balanced and varied diet is vital throughout life, but gains particular importance during pregnancy when the diet must provide sufficient energy and nutrients not only to meet the mother's requirements, but must also supply the needs of the growing fetus. Current recommendations suggest only modest increases in energy intake during pregnancy and that the mother should follow general healthy eating advice. During pregnancy changes are evident in metabolism, leading to more efficient absorption and utilization of nutrients, consequently for many nutrients, an increase in dietary intake is not necessary. For some nutrients, however, an increase in dietary intake is recommended.

The talk will focus on three specific nutrients which play critical roles in fetal development and, status of which may be of concern among pregnant women in Northern Ireland. Vitamin D status is low in the general population and also among pregnant women, even among those reporting supplement use. Such findings are of concern given research linking low maternal vitamin D status with poorer bone development in children.

The importance of optimal folate status for the prevention of neural tube defects is undisputed. However, a large proportion of pregnant women in Northern Ireland still do not comply with the current guidelines, which advise taking a folic acid supplement prior to conception and for the first 12 weeks of pregnancy.

Long chain omega-3 fatty acids are important structural components of cell membranes, particularly in neural tissue and as such are essential for brain development. Evidence does suggest that intakes of omega-3 fatty acids correlate with child development. As such, an adequate intake during pregnancy is important and pregnant women should be advised on the importance of an adequate intake of long chain omega-3 fatty acids either from fish or from supplements.

# Hormones: Effects on appetite, well-being and cognitive performance

Professor Louise Dye

Human Appetite Research Unit  
Institute of Psychological Sciences, University of Leeds

This talk will cover the effects of hormones on appetite and food intake. It will explore the theory that food cravings occur cyclically in women in relation to fluctuations in the neurotransmitter, serotonin. The theory that foods are selected to redress low levels of serotonin will be examined in the light of common cravings particularly in women with Premenstrual Syndrome (PMS). Results from a recent randomised controlled trial to examine the effectiveness of St John's Wort for PMS will be presented. St John's Wort was superior to placebo in relation to some but not all symptom clusters common in PMS. The hormonal effects of this common herbal supplement will also be examined.

The effect of other nutrient interventions including soy isoflavones in pre and post menopausal women on wellbeing and cognitive function will be presented. Soy isoflavones altered cycle length and affected oestrogen receptor mediated symptoms in younger women and reduced hot flushes and night waking in post menopausal women. Cognitive effects were evident in post menopausal but not younger women.

Finally, the effect of Polycystic Ovarian Syndrome (PCOS) on Quality of Life (QoL), body mass index (BMI), depression and cognitive function will be examined. PCOS results in hyperandrogenism and elevated oestrogen levels. PCOS is the most common endocrine disorder in women and is associated with obesity, acne, hirsutism and insulin resistance. Hence, this under researched syndrome could affect psychological and physiological indicators of well being and cognition. Evidence for the dietary management of these hormone related conditions will be discussed.

# Physical Activity: Quantifying the health benefits of exercise for women

Marie Murphy PhD, FACSM

Head of School of Sports Studies / Co-director Ulster Sports Academy  
University of Ulster

The association between regular physical activity and reduced morbidity and mortality from a range of chronic disease conditions is now well-established. For women physical inactivity and low physical fitness are independently linked with a range of diseases including the two leading causes of death cardiovascular disease<sup>1</sup> and cancer<sup>2</sup>. Despite this physical activity levels in the adult population remain low and females of all ages are less active than their male peers.

The recommended frequency, intensity and duration of physical activity required for maximum health benefit have evolved over the past 30 years. In particular, the relative importance of moderate and vigorous intensity exercise has been the subject of considerable debate. Public health guidelines now recommend that all adults should perform at least 30 minutes or more of moderate intensity exercise, 5 days a week or at least 20 minutes of vigorous intensity exercise 3 days a week<sup>3</sup>.

This presentation will review some of the recent epidemiological and empirical evidence in an attempt to quantify the health benefits for women of adhering to current physical activity guidelines.

These physical activity guidelines have now been refined to accommodate a range of intensity and duration combinations to suit previously active and inactive individuals<sup>3</sup>. From a population perspective it is likely that moderate intensity exercise such as walking<sup>4,5</sup>, exercise accumulated in short bouts over the course of a day<sup>6</sup>, and 'lifestyle' physical activity where individuals are encouraged to incorporate planned or unplanned occupational, leisure or household activities into daily life will be most effective in persuading sedentary females to increase their activity. The evidence underpinning this prescription will also be critically reviewed.

1. Bassuk SS and Manson JE (2008) Lifestyle and Risk of Cardiovascular Disease and Type 2 Diabetes in Women: A Review of the Epidemiological Evidence *American Journal of Lifestyle Medicine* 2 (3) 191-213
2. Friedenreich CM and Cust AE (2008) Physical activity and breast cancer risk: impact of subgroup effects timing, type and dose of activity and population *Br. J. Sports Med.* 2008;42: 636-647
3. Haskell, W. L. et al. (2007). Physical activity and public health: updates recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Medicine and Science in Sports and Exercise* 39(8): 1423-1434.
4. Murphy MH Nevill AM Murtagh EM and Holder RL (2007) The effect of walking on fitness, fatness and resting blood pressure: a meta-analysis of randomised, controlled trials *Preventive Medicine* 44: 377-385
5. Jordan, A.N. et al. (2005) Pedometer indices for weekly physical activity recommendations in post-menopausal women *Medicine and Science in Sports and Exercise* 37(9): 1627-1632
6. Murphy MH, Blair SN and Murtagh EM (2009) Accumulated vs Continuous Exercise for health benefit: A review of empirical studies *Sports Medicine* 39 (2) 33-41

# Food Choice: Working to change women's dietary behaviour

Wendy Lawrence CPsychol

MRC Epidemiology Resource Centre  
University of Southampton

The Southampton Women's Survey showed that women with few or no educational qualifications had the poorest quality diets of all the 12,583 women interviewed. The quality of women's diets improved with each increase in level of education attained. Our team at the MRC Epidemiology Resource Centre have been exploring this relationship in order to inform a city-wide intervention to improve the diets of women in Southampton.

At the outset a literature review suggested a range of psychological, social, environmental and historical factors as influences on women's food choices. We ran a series of focus group discussions to see how these factors varied in their influence on women of lower and higher educational attainment. Thematic analysis revealed that women of lower educational attainment felt they had less control over their own and their family's diets, and that a sense of control over life was key to managing other factors influencing their food choices. To examine the direct effect of these influences on women's diets, we developed a questionnaire including a dietary assessment, which was administered to 378 women in Southampton. The findings of this survey confirmed that those who had the poorest diets felt less in control of their lives; were less positive about the potential benefits of eating healthily; less interested in food shopping, preparation and consumption; and reported less social support for eating healthily.

We then took these findings to an Expert Focus Group comprising staff currently working with women in disadvantaged areas of Southampton, to explore how we might use this information and work with them to improve the diets of these women. Our experts talked about the importance of gaining the women's trust and of accepting what is achievable in terms of change. They also described the barriers they faced in supporting women to change their behaviour.

In order to better understand current practice, we observed 14 group sessions covering a range of activities in Sure Start Children's Centres. We were interested in identifying which behaviour change techniques staff were using and what nutrition messages they were able to communicate. Our observations suggested that staff would benefit from: (1) increasing their knowledge of nutrition and how best to put this into practice; (2) raising their awareness of a range of behaviour change techniques, beyond simply instructing and demonstrating.

This programme of research has shown us that the most effective way of improving the diets of disadvantaged women in Southampton would be to mount a training initiative for Sure Start Children's Centre staff. We are working jointly with Southampton City Council and Southampton PCT to plan and implement a training programme in facilitating nutrition behaviour change.

# Notes

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