

What's new in prevention? News on nutrition, physical activity and weight research

Prevention Research Centres Newsletter

Practising what we preach

By Hidde van der Ploeg



Staff at the Prevention Research Centres (PRC) know all about the importance of having a physically active lifestyle. As a consequence, we spend the whole day behind the computer, in the meeting room or on the phone working out how we can increase population levels of physical activity. The occasional trip to the printer and toilet prevents us from taking root in front of our computers.

This changed for the better in 2005, when Adam Capon introduced lunchtime sport and then led the PRC

Panthers in a soccer challenge against the rest of the School of Public Health at the University of Sydney. In the weeks running up to this highly anticipated sporting event, the PRC Panthers trained during lunchtimes to improve their soccer skills. After a sensational match but a somewhat disappointing zero all draw, many PRC members experienced a large gap in the working day, and the sudden reduction in endorphin concentrations made many miserable.

Since then, Jo Chau and Stephanie Schoeppe have organised a twice-weekly schedule of lunchtime sport. Lunchtime sport has become a social happening at the PRC with a nice mix of gender, skill level and outfits. A wide range of sports and activities have been tried out, thanks to the enthusiastic and motivated participants, many of whom have hidden talents and have volunteered to lead different activities. Thus lunchtime activities have included salsa dancing, cricket, touch footy, handball (the school playground version), self defence and walking; but the all time favourite remains basketball.

One of the highlights of 1.5 years of lunch time sport was the cricket during the Christmas 2005 picnic. Almost all PRC members were found on the grounds, showing off their best bowling and batting. The Aussies put a significant effort into explaining to the Europeans and Americans the rules and why this was such a beautiful sport but they still do not understand... Maybe this Christmas?

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IN THIS ISSUE...

Page 2

- From the Editor
- ICO Highlights

Page 4

- ICO Satellite Highlights

Page 5

- Breakfast with Coke

Page 6

- Sugar sweetened drinks and excessive weight gain in the Nepean Study

Page 7

- Vitamin B12 in older Australians

Page 8

- Abby King visits the PRC

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From the Editor...



In this issue, we present highlights from the International Congress on Obesity (ICO) and the Satellite Conference. As well, this issue presents how some PRC colleagues maintain a physically active lifestyle and includes articles on industry framing of obesity-related issues, sugar-sweetened drinks and weight gain in children, and Vitamin B12 in older Australians.

For those of us working on problems related to the prevention of overweight and obesity, ICO, held in Sydney on 3-8 September 2006 provided a supersized, energy-dense conference experience. It was terrific - with a mix of researchers and policy makers from Europe, North America, South America, Asia and, of course, Australia and New Zealand.

It was particularly encouraging to see that interventions were the focus in many of the prevention/ epidemiology sessions. The interventions that were discussed included advocacy, policy, environmental changes, setting-based programs (mostly schools) and interventions on specific determinants (such as sweetened drinks). ★ Lesley King

ICO Highlights

Go Team!

By Louise Hardy

The depth and breadth of work into obesity research presented at ICO 2006 was extraordinary. The Congress provided a wonderful opportunity not only to personally meet many international experts, but to also showcase COO's research to the world. I feel there was considerable interest in our work and that our presentations were of an excellent quality. Go Team!



New Zealand's APPLE

By Lesley King

Check out the New Zealand APPLE project¹ – it placed part-time coordinators in schools to engage primary school children in more activity during extra-curricular times – and was effective in changing physical activity participation and slowed weight gain.

1. Taylor R. et al International J. Paediatric Obesity 2006; 1(3): 146-152.



Healthy lunch served at ICO Conference

Obesity, is it all in the genes? Take 2

By Margaret Allman-Farinelli



Our physical make-up is inherited but why is it that two people who have the same DNA sequences do not have the same appearance?

Yes, we are a product of our DNA, said Professor Emma Whitelaw, from the Queensland Institute of Medical Research, but our environment also influences our physical characteristics.

Environment includes events that leave marks on our genes known as epigenetic marks. Epigenetics is the study of changes in gene expression resulting from these epigenetic marks. It seems these marks can be inherited from one generation to the next. This has already been demonstrated in a type of mouse called *agouti viable yellow* and is associated with obesity.

It is not yet known how widespread this phenomenon is in humans. However, Prader Willi Syndrome, associated with excessive eating and obesity, has been demonstrated to be due to an epimutation in some cases. Epigenetics is a promising line of research to investigate the causes of human disease.

Influencing agriculture and trade policies in developing countries

By Anna Rangan



The session by Professor Philip James focused on the detrimental effects that agricultural and trade policies can have on health, especially in developing countries. The over-production of fats and sugars, largely due to government subsidies to protect farm industry revenue in developed countries, has contributed to the current obesity epidemic. For example, compared to the cost of apples at 55 cents per 100 calories, oil costs just 1 cent per 100 calories. Prof James argues that governments need to take stronger action by changing trade agreements in the interest of people's health.

Focusing on physical activity

By Adrian Bauman



The ICO Conference in Sydney was a wonderful set of obesity related research presentations and discussions. However it did not have a strong focus on physical activity, nor on the physical activity contribution to obesity from the population level. For this reason a satellite conference was organised in Brisbane, for the two days preceding the Sydney ICO conference. The two days of the Brisbane physical activity satellite were organised by Queensland University of Technology, but one of those days had a specific public health strand, focusing on physical activity's contribution to obesity from a population health perspective. This strand was organised through the International Association for the Study of Obesity (IASO) Physical Activity Taskforce, chaired by Stephen Blair, and this day presented epidemiological, economic, and socio-cultural evidence for the contribution of physical inactivity to the obesity epidemic.

There were presentations on large population cohort data, indicating the impact that physical activity has on health, specifically how it interacts with obesity. There were sessions on the health costs of obesity, and the potential for physical activity to mediate some of these costs, sessions on physical activity guidelines for weight loss and how they differ from physical activity guidelines for vascular disease prevention, and sessions on physical activity advocacy and policy. This physical activity satellite provided a good adjunct to the ICO conference, and was an important vehicle for airing the energy expenditure side of the imbalance that leads to obesity. The physical activity satellite was attended by international delegates who also attended and presented at ICO, and was a useful meeting. CPAH, in partnership with the University of Queensland, was responsible for developing this embedded public health program in the physical activity satellite, but our thanks to the IASO Physical Activity Taskforce for providing excellent speakers.

Embedding physical activity into the school day

By Josephine Chau

Dr Mark Tremblay from Statistics Canada presented a novel approach for increasing children's physical activity throughout the school day. The Canadian Learning to be Active in School Study (CLASS) embedded physical activity into the school curriculum taught by regular teachers, so that students learned their lessons while moving their bodies. A feasibility study found that third grade children randomly selected to wear accelerometers significantly increased their moderate to vigorous physical activity and decreased their physical inactivity after the intervention.



Breakfast with Coke

By Catriona Bonfiglioli

When thousands of experts gathered in Sydney for the 2006 International Congress on Obesity, Coca Cola's newly formed Beverage Institute For Health & Wellness seized the opportunity to refocus the obesity debate¹.

A select but no doubt influential minority of delegates were invited to breakfast at a swish Darling Harbour restaurant and hear an impressive team of international speakers argue that sugar and soft drinks should not bear the brunt of the blame for obesity.

Adding to strategies of creating new healthy products and sponsoring physical activity, industry are using sophisticated public relations techniques to help reframe the discourse of obesity away from blaming high-energy products such as soft drinks towards other causes of obesity.

Professor Adam Drewnowski, director of the University of Washington's Exploratory Center for Obesity Research, asked: What is the honest truth about obesity? Are liquid calories responsible? Is sugar to blame?

"Is the obesity epidemic coming to Bill Gates house?" Professor Drewnowski, asked. No, he said, an analysis of King County, Seattle, shows obesity prevalence varies from 5% in rich areas to 30% in poor areas. Fast food outlets are also concentrated in low SES neighbourhoods, he said.

Professor Drewnowski cited research showing liquid and solid calories are no different when it comes to spoiling your appetite so sugary drinks are not to blame. "Obesity is a very complex social and economic problem. I don't think it is caused by the consumption of one single food". And, so, he concludes soft drink is off the hook.

Professor David B Allison, of the University of Alabama at Birmingham, warned that policies to restrict access to certain foods might backfire as animal research shows birds put on weight when food is scarce and food insecurity is linked to overweight.



Professor Allison, professor of biostatistics and director of the university's Clinical Nutrition Research Centre, said research showed snack foods were not an important independent driver of weight gain.

He too emphasised the complexity of obesity, citing research linking many factors to obesity,

including: adenovirus 36, central heating and air conditioning, large people having children with large people, antipsychotic medication, the built environment, and lack of sleep².

Coca-Cola Australia managing director Gareth Edgecombe told participants that Coca-Cola is developing new products to meet health and wellness requirements including waters, teas, juices and the very successful Coke Zero.

Front-of-label nutrition information is being enhanced so that all products included an energy count, he said.

Dr John Foreyt, of the behavioral medicine research centre, Baylor College of Medicine, told participants that scientists had agreed the key to good health was 'managing sweetness' through the use of different sources of sweetness including sugar and non-sugar sweeteners and adequate physical activity.

The obesity debate is hotting up so we can expect more of this kind of sophisticated public relations in which credible third party experts reframe an issue by presenting scientific evidence to audiences of opinion leaders sweetened by swanky meals in glorious settings.

1. <http://www.beverageinstitute.org/>
2. Keith et al. 2006. International Journal of Obesity. Putative contributors to the secular increase in obesity: exploring the roads less traveled. <http://www.nature.com/ijo/journal/vaop/ncurrent/pdf/0803326a.pdf>

Sugar-sweetened beverages and subsequent excess weight gain in children: data from the Nepean Study

By Louise Baur



The link between sugar sweetened drinks and obesity has been the stuff of controversy, not least so when the WHO Technical Report 916 stated that there was 'probable evidence' that sugar sweetened beverages led to an increased risk of weight gain and obesity¹, a comment that resulted

in back-lash from sectors of the food industry and some sugar-producing countries².

A systematic review subsequently published in the *American Journal of Clinical Nutrition* has reviewed 15 cross-sectional, five prospective and five experimental studies and concluded that "the weight of ... evidence indicates that a greater consumption of sugar-sweetened beverages is associated with weight gain and obesity"³. Just as this review was being published, so too was a paper based upon the longitudinal Nepean Study which looked at this very issue in Australian children⁴.

The Nepean Study analysed a sub-set of 281 children (141 males) who completed a three-day food record (household measures) at age 7-8 years, who were followed up five years later at age 12-13 years. Anthropometry was measured at both time points, and participants were categorised into four groups based on BMI change over the five year period: 1) acceptable BMI at both times, 2) BMI gainers – those with an acceptable BMI at baseline but who were in the overweight or obese category at follow-up, 3) BMI losers – those who were overweight/obese at baseline but had an acceptable BMI at follow-up, and 4) overweight/obese at both time-points.

Beverage consumption and carbohydrate intake from sweetened drinks were calculated from the food record at baseline. Median carbohydrate intake from soft drink/cordial was 10g higher (P=0.002) per day in children who were overweight/obese at follow-up compared to those who had an acceptable BMI at both baseline and follow-up: 30 g/day for overweight/obese at both times, 29 g/day for BMI gainers, 6.5 g/day for BMI losers and 20 g/day for acceptable BMI at both times.

No associations with weight change status were found with intake of fruit juice/fruit drink or milk.

This study adds further evidence to the strategy of limiting soft drinks and cordials, in conjunction with promoting healthier food choices, increasing physical activity and reducing sedentary behaviour, as a healthy weight strategy for children and young people.



Louise Baur is a co-Director of the NSW Centre for Overweight & Obesity and is based at the Clinical School, The Children's Hospital at Westmead.

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1. World Health Organization. Diet, Nutrition and the Prevention of Chronic Diseases: report of a joint WHO/FAO expert consultation. WHO technical report series: 916. Geneva: WHO, 2003.
2. Zaracostas J. WHA adopts landmark global strategy on diet and health. *Lancet* 2004; 363:1775.
3. Malik VS, Schulze MB, Hu FB. Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr* 2006; 84:274-288.
4. Tam C, Garnett SP, Cowell CT, Campbell K, Cabrera G, Baur LA. Soft drink consumption and excess weight gain in Australian school students: Results from the Nepean study. *Int J Obesity* 2006; 30:1091-1093.

Vitamin B12 in older Australians

By Vicki Flood



The prevalence of low blood levels of the vitamins folate and B12 increase as people age and can lead to several potential poor health outcomes. Low folate can cause gastrointestinal tract disturbances and megaloblastic anaemia (reduced number of abnormally large red blood cells). Low vitamin B12 can also cause anaemia as well as neuropathy (nerve damage) with problems such as difficulties with walking, tingling of the hands and feet, and cognitive decline such as memory loss. We recently published data about a population-based group of 2901 older people in the Blue Mountains, aged 50 years and over, collected as part of the Blue Mountains Cohort Study with the Centre for Vision Research. Low serum vitamin B12 was found in 22.9% of participants and low serum folate in 2.3% of participants. The proportion of people with low serum vitamins increased with age, particularly amongst men.

Vitamin B12 status is affected by many factors, including the health of the gut, medication use and food patterns, such as strict vegetarianism (vitamin B12 is primarily found in animal products). Poor gut health and the use of certain medications are particularly likely to contribute to poorer vitamin B12 status among older people. Given the high prevalence of low serum levels of vitamin B12 among this large population-based cohort, it seems useful for their physicians to consider investigating serum B12 levels more frequently.

Reference: Flood V.M, Smith W.T, Webb K.L, Rochtchina E, Anderson V.E, Mitchell P. Prevalence of low serum folate and vitamin B12 in an older Australian population. *Aust NZ J Pub Health*. 2006; 30: 38-41.



Abby King looks for opportunities to be active every day

By Josephine Chau

Despite her busy schedule, Dr Abby King from the Stanford Prevention Research Centre still finds opportunities to be active every day. On a recent visit to the University of Sydney Dr King said she achieved the recommended 30 minutes per day of physical activity by taking walking breaks, running errands and conducting 'walking meetings' with colleagues and students, when they walk and talk instead of convening around a table. She also enjoys walking for leisure in her neighbourhood.

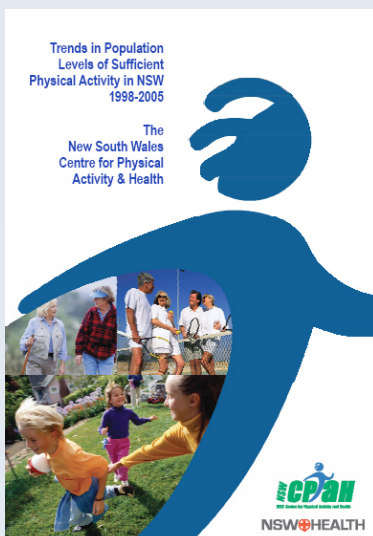
In a CPAH-hosted seminar by Dr King on 26th September 2006, Dr King spoke about taking a public health approach to promoting physical activity. Some directions Dr King suggested included:



- Incorporating behavioural strategies in programs. Eg, expectations, self-monitoring, goal-setting, feedback and support.
- Use simple technologies to help. Eg, pedometers, signs and emails.
- Include physical activity components opportunistically in other programs.
- Look for multiple ways to evaluate programs.
- Look for ways to impact multiple levels. Eg, individual, social, organisational, environmental, political.
- Identify programs and settings that cut across generations.

Dr King's research interest in physical activity involves studying the relationship of physical activity with other health-promoting and health-related behaviours. She is also interested in the link between physical activity and stress and coping, and psychological well-being. She has a particular interest in chronically stressed populations, such as family caregivers.

Look out for these upcoming reports from NSW CPAH:



Trends in population levels of sufficient physical activity in NSW, 1998 to 2005.

A review of Physical Activity Interventions for 2 to 5 year old children.

Physical Activity Measurement in Children 2 to 5 years old.