FROM THE DIRECTOR

The Boden Institute has been in existence for a little over 4 years. In that time we have achieved a great deal and experienced a lot. We have developed, and as we developed, our name has changed. Initially we were IONE (Institute of Obesity Nutrition and Exercise) but this became BIONE as the Boden family and the University were gracious enough to commemorate Alex Boden and his generosity to the University and we took the Boden name. Then Eating Disorders joined us and we became the Boden Institute of Obesity Nutrition Exercise & Eating Disorders, shortened to the Boden Institute.

Some three and a half years ago we moved to the Medical Foundation Building with the aim of bringing those from each of the three Faculties involved (Science, Medicine and Health Sciences) to a single site. This co-localisation has been delayed because of the funding obtained to build the Charles Perkins Centre with which we have been closely involved. So, some of the people who were to move are still at distant sites but that has not stopped us developing our identity, collaborations and an increasing feeling of being part of an institute that is productive, helpful and which does exciting research across a range of disciplines.

So what have we achieved? We have a sense of who we are and what we want to do. We are a group growing in numbers. Amanda Sainsbury-Salis, Michael Skilton and Tanya Little have joined us as mid-career researchers, Crystal Lee, Yan Lam and Radhika Seimon have joined as postdoctoral fellows, and we now have a whole range of researchers, public health people and clinicians who are involved with our projects. We collaborate closely with the Clinical trials Centre and are part of a new Program Grant with them commencing this year. We have obtained clinical trial funding from a range of sources and funds for diabetes prevention and public health issues and initiatives. In addition to being the base for part of our people the MFB has become the place where our members and colleagues come to meet, for journal club and to do their research projects.

This has been an exciting and productive period. The Boden Institute is growing and is becoming recognised as a centre of expertise and excellence. It has been great to have been part of this development and we look forward to being stronger, more productive and better in the years ahead.

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THE COST EFFECTIVENESS OF WEIGHT LOSS INTERVENTIONS

Nick Fuller is an accredited exercise physiologist and dietitian and has been working at the Boden Institute for the past 4 years. Nick is currently working on several multi-site industry funded projects and international research collaborations examining the efficacy and cost effectiveness of medical devices, commercial weight loss programs and specific diets for weight loss. His most recent work published in the International Journal of Obesity looks at the cost-effectiveness of a commercial program for weight loss relative to standard care.

A within-trial cost-effectiveness analysis of primary care referral to a commercial provider for weight loss treatment, relative to standard care—an international randomised controlled trial—due to the high prevalence of overweight and obesity there is a need to identify cost-effective approaches for weight loss in primary care and community settings.

We evaluated the cost effectiveness of two weight loss programmes of 1-year duration, either standard care (SC) as defined by national guidelines, or a commercial provider (Weight Watchers) (CP).

This analysis was based on a randomised controlled trial of 772 adults (87% female; age 47.4±12.9 years; body mass index 31.4±2.6 kgm) recruited by health professionals in primary care in Australia, United Kingdom and Germany. Both a health sector and societal perspective were adopted to calculate the cost per kilogram of weight loss and the ICER, expressed as the cost per quality adjusted life year (QALY).

RESULTS: The cost per kilogram of weight loss was USD122, 90 and 180 for SC and 138, 151 and 133, respectively. For the CP in Australia, the United Kingdom and Germany, respectively. For SC the cost was USD138, 151 and 133, respectively. From a health-sector perspective, the ICER for the CP relative to SC was USD18 266, 12 100 and 40 933 for Australia, the United Kingdom and Germany, respectively.

AMANDA SAINSbury SALIS

*“With my knowledge of the molecular mechanisms contributing to weight loss plateaus, combined with the clinical and public health expertise at Boden, I feel that my team’s research here will contribute to greatly improved human obesity treatments in the ensuing 5-10 years.”*

Most people realise that carrying excess body weight has numerous adverse health consequences, and that losing excess weight improves health. Most people also realise that losing excess weight is a question of eating less and moving more. However, for the majority of people who attempt this, weight loss reaches a ‘plateau’ long before a healthy body weight or waist circumference is attained. This unfortunately leads most people to give up on their diet and exercise attempts, frequently regaining all of the weight they lost, plus more.

Determined to find solutions to weight loss plateaus, in March this year Associate Professor Amanda Sainsbury Salis joined The Boden Institute of Obesity, Nutrition, Exercise & Eating Disorders. Amanda’s position is funded by a Project Grant from the National Health & Medical Research Council (NHMRC) of Australia (Sainsbury Salis, Byrne & Caterson), as well as a Bridging Support Fellowship from the Deputy Vice Chancellor (Research). And she has obtained an NHMRC Senior Research Fellowship for 2013 onwards.

“Part of the reason why so many weight loss attempts fail is that the body responds to energy restriction with a series of adaptive responses that increase appetite and reduce metabolic rate”, explains Amanda. “Not only do these adaptations oppose ongoing weight loss, they may also adversely affect body composition via hormonal changes that favor abdominal fat accretion, with loss of muscle mass and bone.”

Prior to joining Boden, Amanda was awarded an NHMRC Career Development Grant at the Garvan Institute of Medical Research. There, her team identified brain pathways mediating these adaptive responses to energy restriction and their effects on fat, muscle and bone, predominantly using transgenic mice. Building on the successful outcomes of that work, Amanda now aims to apply this knowledge to clinical practice for more immediate benefit to human health. In the first instance, Amanda’s team at Boden will test novel ways of attenuating the adaptive responses to energy restriction in humans, using ketogenic diets and intermittent energy restriction.
EXERCISE THERAPY – MOVING BEYOND WEIGHT LOSS

Epidemiological data show that the majority of the adult population fails to meet recommended physical activity levels, which contributes to the global epidemic of overweight/obesity and associated cardiovascular disease. Weight loss programs are often difficult to adhere to and poor compliance can be detrimental to the therapeutic effects. The primary reason cited for failure to participate in regular exercise is a perceived lack of time.

High intensity interval training (HIIT) involves repeated bursts of sprint-like supra-maximal (>100% VO2max) exercise interspersed with regular short recovery bouts. There is emerging evidence that HIIT is a potent and time-efficient strategy for eliciting improvements in work capacity and body fat levels in young healthy adults. However, there has been no investigation of the efficacy of supra-maximal HIIT in an overweight sedentary adult population.

Thirty two previously sedentary, overweight adults have enrolled in a 12 week randomised controlled trial being conducted at The Boden Institute. PhD candidate Shelley Keating is leading the trial under the supervision of Dr Nathan Johnson. The trial compares the effect of high intensity interval training versus traditional continuous aerobic exercise on parameters of metabolic risk such as abdominal adipose tissue, cardiorespiratory fitness and blood lipids.

COULD THE UTERINE ENVIRONMENT HOLD THE KEY TO HALTING ESCALATING OBESITY RATES?

Will gaining an understanding of the in uterine environment hold the key to halting the escalating obesity rates? Dr Kyra Sim is investigating this conundrum.

Dr Sim began her studies at the University of Otago in New Zealand before completing her Masters in Nutrition and Dietetics at Sydney University. Her passion of investigating the relationship between obesity and infertility led her to complete her PhD under the supervision of Professor Ian Caterson. They successfully reported that a multidisciplinary weight loss intervention implemented 12 weeks prior to fertility treatment tripled pregnancy rates and resulted in substantial cost savings. The intervention group lost an average of 6.6 kg and dropped 9 cm from their waistlines, compared with a 1.8 kg average weight loss and 1 cm drop in waist circumference in the control group. These results were presented by Dr Sim at the European Congress on Obesity held in Lyon, France, in May 2012.

Not content with the accolade of completing the first randomized control in this field, Dr Sim is now the project officer of a preconception study led by Professors Louise Baur and Len Storlein. Despite the plethora of international birth cohorts, there are very few studying parents before conception. This study intends to investigate factors from maybe to baby and beyond.

* a multidisciplinary weight loss intervention implemented 12 weeks prior to fertility treatment tripled pregnancy rates*
With the September 2011 UN High Level Political Declaration on Non-Communicable Diseases (NCDs) and the June 2012 Rio+20 Outcomes Document reinforcing the link between NCDs and sustainable economies and environments it has been an amazing 12 -18 months in the history of cardiovascular diseases, diabetes, cancer and chronic lung disease. Five years ago global recognition for these four major NCDs that currently account for over 60% of the world’s deaths would have been unthinkable. Now, their contribution to personal poverty and lost national productivity is such that all UN member states now recognise and commit to action on NCDs – including a 2010 World Health Assembly (WHA) global NCD target aimed at reducing NCD deaths by 25% by 2025.

As a Vice-President of the International Diabetes Federation (IDF) and as a public health and health policy academic, Associate Professor Ruth Colagiuri, Director of the Boden Institute’s Health and Sustainability Unit, has been intimately involved in the global advocacy and health policy movement that has brought about these remarkable events. Ruth has developing national action plans – Australian Diabetes Strategy 1998, Western Pacific Diabetes Plan of Action 2000 and Diabetes Strategy for Africa 2006 and the IDF’s Call to Action on Diabetes (2010) and Global Diabetes Plan (2011). In 2012 she has been an invited speaker on NCDs and sustainability at side events to the UN’s Rio+20 Conference and the World Health Assembly. Other aspects of her work include capacity building projects in the Pacific – currently on diabetes in the Solomon Islands; developing global research priorities for the interface between NCDs and climate change, and she and her team recently completed an evidence review of the health and social harms of coal mining.

With a focus on nutrition, Dr Ian Darnton-Hill has held senior management and technical roles with the World Health Organization, UNICEF and Helen Keller International, among many other organisations, and more recently, advisory roles with them and AusAID and the World Bank.

Earlier this year, Ian's efforts were recognised when he was awarded an AO (Officer in the general division of the Order of Australia) for his distinguished service to the international community, particularly in the areas of public health and nutrition, disease prevention and health promotion, and as a physician, academic and educator.

"[The award] is recognition that Australians can have a career in international health and that it will be seen as a valid career path, which certainly wasn’t the case when I was a student", says Dr Darnton-Hill.

Although Dr Darnton-Hill has retired from his work with UN agencies, he continues to have a busy professional life, which sees him split his time between Sydney and New York.

He is currently adjunct professor at the Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders at the University of Sydney, as well as an adjunct professor at Tufts University in the United States.

Dr Darnton-Hill singles out a stint with the WHO from 1990 to 1995 as one of the highlights of his career. As regional adviser in nutrition for the Western Pacific region, he helped countries in the region develop their first national nutrition plans.

In 2001, he undertook a senior global health leadership fellowship with the WHO in Geneva, focusing on non-communicable diseases, and later worked for 5 years as a UNICEF global adviser on micronutrient nutrition.
COMMUNITY-BASED DIABETES PREVENTION: THE SYDNEY DIABETES PREVENTION PROGRAM

The global diabetes epidemic continues unabated with the number of people with diabetes predicted to increase from 366 million in 2011 to 552 million by 2030 and this is also evident in Australia.

Researchers at the Boden Institute led by Professor Stephen Colagiuri and Philip Vita have been involved in the Sydney Diabetes Prevention Program – a translational research study targeting 50-65 year olds at high risk of type 2 diabetes with a lifestyle modification program aimed at preventing or delaying the onset of diabetes. Just over 1,200 participants from the Sydney and Sydney South West region were recruited into the Prevent Diabetes Live Life Well program by General Practitioners in 2008/9. Participants were offered an individual session, three group sessions and follow up phone calls at 3, 6 and 9 months, with a final review at 12 months. The five goals of the program were to increase physical activity and fibre, decrease fat and saturated fat and achieve a modest 5% weight loss after 12 months (see figure below). Of the 850 participants who completed the program there was a significant mean weight loss of 2.0 kgs and a decrease of 2.6cms in waist circumference. This has been estimated to equate to a risk reduction of 30%.

The participants who completed the program are being followed up for another three years to compare diabetes incidence rates with a comparative sample from the Australian Diabetes, Obesity and Lifestyle (AusDiab) study.

For more information about the Sydney Diabetes Prevention Program, please contact Mr Philip Vita on philp.vita@sydney.edu.au or 0411 235 029.

MOTIVATIONAL ENHANCEMENT THERAPY FOR OBESE PATIENTS AND SUPPORT PARTNERS

Dr Clare Manns instructs support partners of obese patients in the use of motivational enhancement skills.

The critical challenge for all obesity treatments is improving the maintenance of weight loss. As one of the most common barriers to successful weight management reported by individuals is “staying motivated”, this study aims to assess the effectiveness of Motivation Enhancement Therapy (MET) combined with a behavioural weight loss approach (BWL) for improving weight loss maintenance. MET aims to increase participant’s self-motivation to change problematic behaviours (such as excessive calorie intake and insufficient physical activity), thereby enabling them to make difficult long-term lifestyle changes that lead to sustained weight loss.

Combining MET and BWL treatment frameworks is designed to produce patients who are both highly motivated to change (MET) and have the tools to successfully change (BWL). The effectiveness of MET in this study will be augmented by instructing patient’s support partners in the practice of motivational enhancement strategies. Participants in this trial are between the ages of 18-70 years, have a body mass index (BMI) between 30-60 and are not currently undertaking any treatment for weight loss. Please note: recruitment for this trial has finished.

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