

EDGAR DIABETES AND OBESITY RESEARCH

A University of Otago Research Centre

ANNUAL REPORT 2013



Edgar Diabetes and Obesity Research Annual Report 2013*

Including reflections on the first ten years of the Edgar National Centre for
Diabetes and Obesity Research

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RESEARCH PROFILE

The Edgar National Centre for Diabetes Research was established ten years ago and became the Edgar National Centre for Diabetes and Obesity Research in 2010, acknowledging the importance of obesity as a determinant of type 2 diabetes and a disease entity associated with a range of other comorbidities in its own right. A further name change was made in 2014 to Edgar Diabetes and Obesity Research, to align with the University of Otago marketing strategy for its preeminent Research Centres.

The Centre includes four core staff, who are funded at least partially by the Centre, and 14 members from eight different departments on the Dunedin and Wellington campuses (Appendix 1). Our Advisory Board Chair and founding benefactor is Sir Eion Edgar.

The vision of the Centre is “to make a significant contribution to reducing the global burden of diabetes and obesity through research and dissemination of knowledge”. We believe that our research activities relating to the dissemination and translation of knowledge have made a considerable impact over the first decade of the Centre.

1. Research Funding

A total of \$27,358,207 of research funding has been awarded to core staff from external grant sources during the period 2003-2013.

2. Research Achievements

2.1 *Published research*

A total of one hundred and twenty papers have been published in international medical and scientific journals. Details are provided in Appendix 2. We regard the following as highlights:

(i) The APPLE Study (A Pilot Programme for Lifestyle and Exercise Study)

This was one of the first controlled studies internationally to clearly demonstrate the potential of a community-based intervention to reduce the risk of excessive weight gain in childhood. Six papers have been published including two in the American Journal of Clinical Nutrition, the world’s leading nutrition journal. The project has formed the basis of intervention programmes in New Zealand and the United Kingdom.

* This report relates to the years 2011-2013. Detailed reports are available for years 2005-2010 on our website (<http://www.otago.ac.nz/diabetes/about/otago051601>)

(ii) The Ngati and Healthy Prevent Diabetes Project

With partner Ngati Porou Hauora (NPH) the ENCDOR has developed and implemented the first community prevention programme aimed at reducing the rates of diabetes, obesity, and cardiovascular disease amongst Maori who have diabetes rates which are amongst the highest in the world. The programme which involved novel interventions and included new approaches to evaluation was the overall Supreme Award winner as well as winner of the Whānau Whanui category at the Whanau Ora Award ceremony in Wellington in November 2006. These awards are a biannual celebration of successful Maori initiatives in the health and disability sector. The Ngati and Healthy Programme was also a finalist in the 2006 New Zealand Health Innovation Awards.

Publications include:

- Tipene-Leach DC, Coppell KJ, Abel SA, Pāhau HLR, Ehau T, Mann JI. Ngāti and Healthy: Translating Diabetes Prevention Evidence into Community Action. *Ethnicity and Health* 18(4):402-14 (2013)
- Coppell KJ, Tipene-Leach DC, Pahau HLR, Williams SM, Abel S, Iles M, Harre' Hindmarsh J, Mann JI. Two-year results from a community-wide diabetes prevention intervention in a high risk indigenous community: The Ngati and Healthy project. *Diabetes Research and Clinical Practice* 85(2):220-227 (2009)
- Mann J, Tipene-Leach D, Pahau H, Joseph N, Abel S, McAuley K, Coppell KJ, Booker C, Williams S. Insulin resistance and impaired glucose metabolism in a predominantly Maori community. *Diabetes Research and Clinical Practice* 72: 68-74 (2006)
- Tipene-Leach D, Pahau H, Joseph N for Ngati Porou Hauora. Coppell K, McAuley K, Booker C, Williams S, Mann J for the Edgar National Centre for Diabetes Research. Insulin resistance in a rural Maori community. *New Zealand Medical Journal* 117(1207):U1208 (2004)

(iii) Unexpectedly high prevalence of prediabetes in New Zealand

The opportunity to examine the prevalence of diabetes (diagnosed and undiagnosed) and prediabetes in the 2008/9 National Nutrition Survey using measurement of HbA1c has confirmed the expected high prevalence of diabetes in adult New Zealanders (7.0%), especially in Maori (9.8% adults) and Pacific (15.4%) adults populations, and has in addition demonstrated for the first time an even higher than predicted rate of prediabetes (25.5%) (Coppell et al, 2013, see Appendix 2).

(iv) The importance of sleep as a risk factor for obesity in children

Although several papers have demonstrated that low amounts of sleep is related to higher body mass index (BMI) in children, this had rarely been examined longitudinally and none have used objective measures of sleep and physical activity. Our FLAME study collected measures of accelerometry at multiple time points from 3 to 7 years of age to demonstrate that each additional hour of sleep at 3-5 years of age was associated with a 0.39 kg/m² difference in BMI at age 7, even after adjustment for a multitude of confounding factors. This research was published in the BMJ (Carter et al 2011, see Appendix 2).

(v) Definition of Overweight and Obesity in New Zealand Māori

The BMI cut offs for defining overweight and obesity in Māori who are at exceptionally high risk of developing diabetes has been a highly controversial issue with some researchers suggesting that higher cut offs than used for Europeans are appropriate given that Māori have a greater lean body mass than Europeans. We believe that we have been able to refute this suggestion by studying body composition and diabetes risk in a large group of people of Māori and European ethnicity. In a widely

acknowledged paper published in the American Journal of Clinical Nutrition we have made the case for similar cut offs to be used for the two ethnic groups (Taylor et al, 2010, AJCN, 92(2):390-7).

(vi) The LOADD Study (Lifestyle Over and Above Drugs in Diabetes)

This randomised control trial published in the British Medical Journal in 2010 (Coppell et al, 2010, BMJ, 341:c3337) has convincingly shown that even when drug treatment for type 2 diabetes has been optimised intensified dietary advice has the potential to further improve glycaemic control to the extent that might be expected to reduce diabetes related morbidity and mortality.

(vii) Macronutrient composition of diets designed to reduce progression of diabetes in Māori and European New Zealanders with the metabolic syndrome or at high risk of type 2 diabetes.

A series of studies has been undertaken by two Masters students and two PhD students, all of whom have now completed their degrees, to determine the macronutrient composition most likely to reduce diabetes risk. Māori typically do not choose high carbohydrate high fibre foods generally recommended for this purpose. This research has shown that a diet relatively high in protein is appropriate for this high risk group. A high protein diet is not only more compatible with the food preferences of Māori, but is associated with a greater degree of weight loss and in particular a reduction in centrally distributed adiposity.

(viii) Free sugars as a determinant of weight gain and cardiometabolic risk

A series of systematic reviews published in the British Medical Journal and American Journal of Clinical Nutrition (Te Morenga et al, 2013, see Appendix 2) have helped to explain the roles free sugar have as a cause of overweight and obesity. These reviews demonstrated that free sugars have a small but statistically and clinically significant effect on cardiometabolic risk, which is independent of their effect on body weight.

(ix) Sodium, Blood Pressure and Cardiovascular Disease in New Zealanders

Dietary sodium reduction has been identified by WHO as an important target for the prevention and control of non-communicable disease. Our research has focussed on quantifying New Zealand population sodium intake using data from the 2008/09 New Zealand Adult Nutrition Survey, as well as a survey of adults who provided 24 hour urine collections for assessment of sodium and iodine content. We have recently published on the feasibility of different methods of interpreting spot urine data for ongoing monitoring of population sodium intake (McLean et al, 2013, see Appendix 2). Current research involves examination of sodium content in the New Zealand food supply in order to identify suitable public health approaches to sodium reduction.

(x) MINT

The introduction of height and weight measurements to the B4 School check in all 4-year old NZ children, and widespread reluctance by health professionals to proactively broach the subject of child obesity to parents led to the development of this project. MINT screened more than one thousand 4-8 year old Dunedin children, with parents of overweight participants then randomised to receive feedback on their child's weight status either by usual care or motivational interviewing (Dawson et al 2013, see Appendix 2). Our results indicated that a traffic light concept was an excellent way to talk to unsuspecting parents about this sensitive issue. A variation of our traffic light is now under development for incorporation into the B4 School Check.

2.2. Current Research

The projects listed here are those which are led or co-led by core staff members. Further collaborative research projects are underway and additional projects have been proposed in conjunction with the National Science Challenges. Current research continues to focus on childhood obesity, prediabetes, non-alcoholic fatty liver disease (a condition closely related to obesity and type 2 diabetes) and the effects of dietary sugars.

(i) POI

The Prevention of Overweight in infancy study is a large randomised controlled trial in 802 families investigating whether additional support and guidance around breastfeeding, food, sleep and physical activity during the first two years of life reduces excessive weight gain in young children. Novel measurements of interest include examination of the gut microbiota and its role with infant feeding and growth and the use of accelerometers to objectively measure physical activity and sleep at this age.

(ii) PLAY

Sixteen schools in Dunedin and Auckland participated in a novel intervention examining whether inexpensive alterations to school environments that stimulated explorative play (rolling hills, fallen logs) and allowed children to experience reasonable levels of managed risk (climbing trees, playing bull-rush) influenced a variety of behaviours of interest, including physical activity, bullying and growth. An important related project concerns an in-depth qualitative examination of how one school community (children, parents and teachers) found their new "risky" playground.

(iii) BLISS

It is feasible that the current approach to introducing solids in which infants are spoon-fed puréed foods (then mashed and then chopped foods) results in poor energy self-regulation as infants learn to rely on *external* (i.e. parental) rather than *internal* cues to decide when they have “had enough”. BLISS (Baby-Led Introduction to SolidS) is a randomised controlled trial examining whether a novel approach to introducing solids in which the infant is given foods that they can feed themselves can reduce excessive weight gain without compromising iron status or promoting inadequate growth.

(iv) SWIFT

Any diet/exercise programme resulting in caloric deficit should lead to weight loss, regardless of the macronutrient composition of that diet or nature of the physical activity. The main challenge in obesity research is how to support adherence to these behavioural changes. The Support strategies for Whole-food diets, Intermittent Fasting and Training (SWIFT) project is a 5-arm randomised controlled trial in 250 overweight adults evaluating four support mechanisms (daily self-weighing, regular brief support, hunger training, e-health). Participants will choose which diet and exercise plan might suit them best (from various options including modified paleo, mediterranean, intermittent fasting, high intensity interval training, walking), which is both pragmatic and should promote better outcomes. Measurements at baseline, 4, 12 and 24 months include weight, body composition, inflammatory markers, dietary intake, physical activity and adherence.

(v) Non-alcoholic fatty liver disease (NAFLD)

NAFLD has emerged as an important obesity-related condition, affecting up to 30% of adults in western countries. NAFLD can progress to more severe liver disease, but cardiovascular disease is the most common problem for these patients. Lifestyle modification is the only current treatment option, but the most effective longterm approach is not known. Following completion of a dietary descriptive study, we aim to compare the effect of usual NAFLD treatment with an intensive evidence-based

nutritional approach for the treatment and prevention of diabetes and a diet using short term partial meal replacements in patients with NAFLD.

(vi) Prediabetes Intervention Package In (PIPI) Primary Care Study

Good clinical trial evidence has demonstrated that lifestyle advice prevents progression from prediabetes to diabetes, but how similar results can be achieved in ‘real world’ settings is lacking. In collaboration with Health Hawkes Bay Primary Health Organisation we aim to compare the effect of a multilevel primary care based prediabetes lifestyle intervention with current practice on weight and HbA1c in patients with prediabetes at 6 months and 12 months, and to undertake a process evaluation.

(vii) Health consequences of dietary sugars

Following our reviews and meta-analysis relating to the health consequences of dietary sugars, a series of intervention studies is examining the effect of different sugars, when consumed in drinks or fruit, on cardiometabolic risk factors in people at risk of type 2 diabetes.

(viii) Other studies

A number of other studies are in progress and include DOC (Pacific intervention: Diabetes, Obesity and the Church), and an international collaboration examining glycaemic control among people with type 1 diabetes. Details of these and other studies can be found on the Centre website (www.otago.ac.nz/diabetes).

3. Dissemination and Translation of Knowledge

We regard dissemination of knowledge relating to diabetes and obesity as a critically important component of our activities and in this respect believe we have accepted a leadership role.

3.1 National Symposia

On June 7, 2013, we held the third in our series of National Symposia, aimed at highlighting the importance of diabetes and obesity, and measures required to deal with these related epidemics. The symposium entitled “NZ’s waistline: what will it take to fix it?” was held in Wellington at the Nordmeyer Lecture, University of Otago, Wellington. More than two hundred participants (including health professionals, senior politicians and academics) from throughout New Zealand attended. Colleagues from the University of Otago in Wellington, University of Auckland, Massey University, Te Oranganui Iwi Health Authority, and members of the Centre presented on a range of relevant topics. Keynote speaker, Professor Trisha Greenhalgh (previous deputy editor of the BMJ, now Co-Director of the Global Health, Policy and Innovation Unit at Barts and the London School of Medicine and Dentistry, London, UK) delivered a video presentation followed by a live video link for questions. A panel discussion involving representatives from the major New Zealand political parties was chaired by Professor Robert Beaglehole. As with the previous symposia there was extensive national media coverage, as well as a great deal of positive reaction from the participants (Professor Greenhalgh’s presentation is available on our website).

3.2 Press releases

With the help of the University of Otago’s Media and Communications office, we have issued regular press releases following publication of our own and other important research results and on issues relevant to our areas of expertise. These have invariably been of national importance and widely covered in the national media. Of particular importance was the release we issued on behalf of nine national agencies (Agencies for Nutrition Action, the Australian and New Zealand Obesity Society (ANZOS); Nutrition Society of New Zealand; Dietitians NZ; the New Zealand Nutrition Foundation;

the Cancer Society of New Zealand; Diabetes NZ; the New Zealand Society for the Study of Diabetes (NZSSD); and the NZ Stroke Foundation) relating to the promotion, in British and NZ professional (including the BMJ) and lay media, of a high fat, low carbohydrate diet for weight loss and cardioprotection. See Appendix 3 for a copy of this release.

3.3 Public opinion survey

We undertook a national survey on New Zealand public attitudes to obesity, and on measures the public perceived would be most effective in addressing this issue. The data have been presented at two international conferences, winning an award at one of these meetings. This work has been submitted to a leading international obesity journal.

3.4 Guideline development and Advisory Roles

Members of the Centre have continued to play a major role in guideline development, and the provision of relevant advice at the national and international level. See Appendix 4 for a list of these activities.

4. Other Activities

Our contribution to research workforce development is demonstrated by the number of postgraduate students supervised by staff in the centre (see Appendix 5). We have been actively involved in relevant community organisations, notably Diabetes New Zealand, National Heart Foundation NZ, Diabetes New Zealand Otago and various professional and relevant charitable trusts. These activities have also received considerable local and national media coverage. We continue to host international and national visitors. Recent visitors include Professor Edwin Gale, Emeritus Professor of Diabetes, School of Clinical Sciences, University of Bristol; Professor Dennis Bier, Editor of the American Journal of Clinical Nutrition; and Dr Kieren Hollingsworth from the Newcastle Magnetic Resonance Centre, Newcastle University.

5. Evidence of Quality

The quality of our academic performance may be judged by our research outputs and the standing of journals in which we publish (see Appendix 2). Requests to write editorials and commentaries for leading journals, as well as invitations to present invited and keynote lectures at major international conferences, provide further indication of the esteem with which our work is held. However, given that dissemination and translation of knowledge were also important justifications for the establishment of the Centre, we believe that our service role to health professionals, the scientific community and the community at large, is also of considerable relevance.

6. The Future

Looking forward to 2014, the centre has a reasonable level of research funding with several Health Research Council grant applications to be submitted for the upcoming round. Clearly future activities are largely dependent upon our ability to continue to attract outside research funding but our track record offers some justification for optimism. The involvement of colleagues from the University of Otago, Wellington, and the University of Auckland, has enhanced our research potential and we intend to apply jointly for a programme grant as well as project grants from the HRC this year. We envisage close collaboration with the National Science Challenges, especially the Better Start,

Healthier Lives and High Value Nutrition Challenges, in which several members of the Centre expect to be involved. Most of our work continues to be related to type 2 diabetes and obesity but through Dr Rachael McLean we have extended our interests into the sodium and blood pressure area, which is highly relevant to people with diabetes. We continue to seek ways of extending our research activities to include type 1 diabetes.

7. Appendices

1. Centre members in 2013

Core staff are those directly funded by the Centre in 2013.

CORE STAFF	
Professor Jim Mann	Departments of Medicine, and Human Nutrition, Dunedin
Dr Kirsten Coppell	Department of Medicine, Dunedin
Assoc Prof Rachael Taylor	Department of Medicine, Dunedin
Dr Cherie Stayner	Department of Medicine, Dunedin
CENTRE MEMBERS	
Professor Janet Hoek	Department of Marketing, Dunedin
Dr Christine Jasoni	Department of Anatomy, Dunedin
Dr Gabrielle Jenkin	Department of Public Health, Wellington
Dr Jeremy Krebs	Department of Medicine, Wellington
Dr Kim Meredith-Jones	Department of Medicine, Dunedin
Assoc Prof Tony Merriman	Department of Biochemistry, Dunedin
Assoc Prof Sally McCormick	Department of Biochemistry, Dunedin
Dr Rachael McLean	Departments of Preventive and Social Medicine, and Human Nutrition, Dunedin
Dr Lisa Te Morenga	Department of Human Nutrition, Dunedin
Dr Amber Parry-Strong	Department of Medicine, Wellington
Assoc Prof Michael Schultz	Department of Medicine, Dunedin
Assoc Prof Louise Signal	Department of Public Health, Wellington
Professor Barry Taylor	Department of Women's and Children's Health, Dunedin
Assoc Prof Sheila Williams	Department of Preventive and Social Medicine, Dunedin

2. Research Publications from Core Staff

A total of one hundred and twenty papers have been published by core staff in international medical and scientific journals since the inception of the Centre. Those published since the 2010 Annual Report of the Edgar National Centre for Diabetes and Obesity Research are listed below.

2013

Bradbury KE, Williams SM, Mann JI, Brown RC, Parnell W, Skeaff CM. (2013) Estimation of Serum and Erythrocyte Folate Concentrations in the New Zealand adult population within a voluntary folic acid fortification. *J Nutr.* Oct 30. [Epub ahead of print] PMID: 24174623.

Cameron SL, Heath A-LM, Taylor RW. (2013) Parent-led or baby-led? Associations between complementary feeding practices and health-related behaviours in a survey of New Zealand families. *BMJ Open* 3:e003946 doi:10.1136/bmjopen-2013-003946.

Coppell KJ, Mann JI, Williams SM, Jo E, Drury PL, Miller J and Parnell WR. (2013) Prevalence of diagnosed and undiagnosed diabetes and prediabetes in New Zealand: Findings from the 2008/09 adult nutrition survey. *New Zealand Medical Journal.* 126:1370.

Haszard JJ, Williams SM, Dawson AM, Skidmore PML, Taylor RW. (2013). Factor analysis of the comprehensive feeding practices questionnaire in a large sample of children. *Appetite.* 62:110-8.

Krebs JD, Parry-Strong A, Gamble E, McBain L, Bingham LJ, Dutton ES, Tapu-Ta'ala S, Howells J, Metekingi H, Smith RBW, Coppell KJ. (2013) An observational study of a structured, group-based diabetes self-management education (DSME) programme for people, families and whanau with type 2 diabetes (T2DM) in New Zealand. *Primary Care Diabetes.* 7:151-8.

McLean RM, Williams S, Mann JI, Miller JC and Parnell WR. (2013) Blood pressure and hypertension in New Zealand: Results from the 2008/09 Adult Nutrition Survey. *New Zealand Medical Journal.* 126:1372.

Mann JI, Coppell KJ. (2013) Obesity revisited, yet again. *New Zealand Medical Journal.* 126 (1386):6-8.

Mann J, McLean R, Te Morenga L. (2013) Evidence favours an association between saturated fat intake and coronary heart disease. *BMJ.* 347:f6851.

Mann JI, Te Morenga L. (2013) Diet and diabetes revisited, yet again. *Am Clin Nutr.* 97 (3):453-54.

Taylor RW, Robinson A, Espinel PR, Baur LA, Wake M, Sabin M. (2013) Research priorities in 2012 for the effective management of childhood obesity – Original Brief Communication. *Clin Obesity.* 2:3-6.

Taylor RW, Williams SM, Dawson AM, Taylor BJ, Meredith-Jones K, Brown DA. (2013). What factors influence uptake into family-based obesity treatment after weight screening? *Journal of Paediatrics.* 163(6):1657-1662.

Te Morenga L, Mallard S, Mann J. (2013) Dietary sugars and body weight: Systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ.* 346:e7492.

Tipene-Leach DC, Coppell KJ, Abel S, Pahau HLR, Ehau T, Mann JI. (2013) Ngati and healthy: Translating diabetes prevention evidence into community action. *Ethnicity and Health.* 18(4):402-14.

2012

Brooking LA, Williams SM, Mann JI. (2012) Effects of macronutrient composition of the diet on body fat in indigenous people at high risk of type 2 diabetes. *Diabetes Research & Clinical Practice*. 96 (1):40-6.

Braatvedt GD, Cundy T, Crooke M, Florkowski C, Mann JI, Lunt H, Jackson R, Orr-Walker B, Kenealy T, Drury PL. (2012) Understanding the new HbA1c units for the diagnosis of Type 2 diabetes. *New Zealand Medical Journal*. 125:1362.

Cameron CM, Coppell KJ, Fletcher DJ, Sharples KJ. (2012) Capture-Recapture Using Multiple Data Sources: Estimating the Prevalence of Diabetes. *Australian and New Zealand Journal of Public Health*. 36:223-8.

Cameron SL, Heath A-LM, Taylor RW. (2012) How feasible is baby-led weaning as an approach to infant feeding? A review of the evidence. *Nutrients*. 4:1575-609.

Cameron SL, Heath A-LM, Taylor RW. (2012) Healthcare professionals' and mothers' knowledge of, attitudes to, and experiences with, baby-led weaning: a content analysis study. *BMJ Open*. 2:e001542.

Hutchins E, Coppell KJ, Morris A, Sanderson G. (2012) Diabetic retinopathy screening in New Zealand requires improvement: results from a multi-centre audit. *Australian and New Zealand Journal of Public Health*. 36:257-62.

Krebs JD, Elley CR, Parry-Strong A, Lunt H, Drury PL, Bell DA, Robinson E, Moyes SA, Mann JI. (2012) The Diabetes Excess Weight Loss (DEWL) Trial: a randomised controlled trial of high-protein versus high-carbohydrate diets over 2 years in type 2 diabetes. *Diabetologia*. 55(4):905-14.

Te Morenga L, Mann J. (2012) The role of high-protein diets in body weight management and health. *British Journal of Nutrition*. 108:S130-S138.

Williams SM, Taylor RW, Taylor BJ. (2012) Secular changes in BMI and the associations between risk factors and BMI in children born 29 years apart. *Pediatric Obesity*. 8(1):21-30.

2011

Carter PJ, Taylor BJ, Williams SM, Taylor RW. (2011) A longitudinal analysis of sleep in relation to BMI and body fat in children: the FLAME study. *BMJ*. 342:d2717.

Coppell KJ, Lee JEH, Williams SM, Mann JI. (2011) Progression of glycaemia and cardiovascular risk factors in patients of different age groups with new type 2 diabetes over 5 years of follow-up in a diabetes quality improvement initiative. *Diabetes Research & Clinical Practice*. 93(3):357-362.

Coppell KJ, Anderson K, Williams SM, Lamb C, Farmer VL, Mann JI. (2011) The quality of diabetes care: A comparison between patients enrolled and not enrolled on a regional diabetes register. *Primary Care Diabetes*. 5:131-137.

Coppell KJ. (2011) In people with newly diagnosed type 2 diabetes an intensive dietary intervention, with or without an activity programme, improves glycaemic control over 12 months compared with usual care. *Evidence Based Medicine*. 17(3):85-6.

Coppell KJ, Lee J (EH), Williams S, Mann J. (2011) Progression of glycaemia and cardiovascular risk factors in patients of different age groups with new type 2 diabetes over 5 years of follow-up in a diabetes quality improvement initiative. *Diabetes Research and Clinical Practice*. 93:357-362.

McAuley K. (2011) Independent cohort cross-validation of the real-time DISTq estimation of insulin sensitivity. *Computer Methods and Programs in Biomedicine*. 102(2):94-104.

McAuley KA, Berkeley JE, Docherty PD, Lotz TF, Te Morenga LA, Shaw GM, Williams SM, Mann JI. (2011) The dynamic insulin sensitivity and secretion test: A novel measure of insulin sensitivity. *Metabolism*. 60(12):1748-1756.

McLean RM, Mann JI, Hoek J. (2011) World Salt Awareness Week: more action needed in New Zealand. *New Zealand Medical Journal*. 124(1332).

Meredith-Jones K, Waters D, Legge M, Jones L. (2011) Upright water-based exercise to improve cardiovascular and metabolic health: A qualitative review. *Complementary Therapies in Medicine*. 19(2):93-103.

Taylor RW, Farmer VL, Cameron SL, Meredith-Jones K, Williams SM, Mann JI. (2011) School playgrounds and physical activity policies as predictors of school and home activity. *International Journal of Behavioural Nutrition and Physical Activity*. 8:38-43.

Taylor BJ, Heath A-LM, Galland BC, Gray AR, Lawrence JA, Sayers R, Dale K, Coppell KJ, Taylor RW. (2011) Prevention of Overweight in Infancy (POI.nz) study: a randomised controlled trial of sleep, food and activity interventions for preventing overweight from birth. *BMC Public Health*. 11:942.

Taylor RW, Williams SM, Carter PJ, Goulding A, Gerrard D, Taylor DF. (2011) Changes in fat mass and fat-free mass during the adiposity rebound: FLAME study. *Int J Pediatr Obes*. 6(2-2):e243-51.

Taylor RW, Williams SM, Grant AM, Taylor BJ, Goulding A. (2011) Predictive ability of waist-to-height in relation to adiposity in children is not improved with age and sex-specific values. *Obesity*. 19:1062-8.

Te Morenga LA, Levers MT, Williams SM, Brown RC, Mann J. (2011) Comparison of high protein and high fibre weight-loss diets in women with risk factors for the metabolic syndrome: A randomized trial. *Nutrition Journal*. 10:40.

Venn BJ, Williams SM, Perry T, Richardson S, Cannon A, Mann J. (2011) Age-related differences in postprandial glycaemia and glycaemic index. *Age and Ageing*. 40(6):755-758.

Book Chapters

Cummings J, Mann J. Carbohydrates. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 21-48.

Heath A-LH, Taylor RW. Childhood and adolescent nutrition In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 554-571.

Hesketh K, Campbell K, Taylor R, Epidemiology of obesity in children and adolescents in Australia, New Zealand, and the Pacific region, in *Epidemiology of obesity in children and adolescents*, Moreno L, Pigeot I, and Ahrens W, Editors. 2011, Springer: New York. p. 111-26.

Mann J, Bingham S. Dietary assessment. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 491-504.

Mann J, Chisholm A. Cardiovascular diseases. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 326-358.

Mann J. Diabetes mellitus and the metabolic syndrome. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 375-395.

Mann JI, Truswell AS (eds) *Essentials of Human Nutrition*, 4th edition. Oxford: Oxford University Press, 2012. 42 chapters.

Mann J. Chapter 19: Cardiovascular Disease. In: Geissler C, Powers H, editors. *Human Nutrition*. Elsevier Limited: 2011. p. 383-399.

Skeaff CM, Mann J. Lipids. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 49-69.

Te Morenga L, Mann JI. Nutrition: Its relevance in development and treatment of the metabolic syndrome. In: CD Byrne & SH Wild (Eds). *The metabolic syndrome* (2nd ed), Chichester, West Sussex: Wiley-Blackwell, 2011, pp 297-326.

Te Morenga L, Mann J. Nutrition: its relevance in Development and Treatment of the Metabolic Syndrome. In: *The Metabolic Syndrome* Second Edition. Byrne C, Wild S (eds), Blackwell Publishing Ltd. Chichester, UK, 2012. Chapter 17, pp 297-326.

Truswell S, Mann JI. Vitamins C and E. In *Essentials of Human Nutrition*, 4th edition. JI Mann and AS Truswell (eds), Oxford: Oxford University Press, 2012. pp. 236-245.

3. Multigroup Press release



media release

MARKETING & COMMUNICATIONS Tel 64 3 479 8263 / 64 3 479 5016 / 64 3 479 5452 or Fax 479 5059

Wednesday 30 October 2013

Experts caution on dietary advice purporting to show fat is good

The international media response to a BMJ opinion piece claiming to debunk the “myth” of saturated fat as a cause of coronary heart disease could undermine public confidence in lifestyle changes that

have resulted in appreciable health benefits, say a group of experts in public health and nutrition representing a number of New Zealand health-related organisations.

They have also expressed concern regarding recent promotion in New Zealand of exceptionally low carbohydrate/high fat diets aimed at weight loss and reduced risk of some chronic diseases.

The group's spokesman, University of Otago Professor in Human Nutrition Jim Mann, says avoiding and treating obesity is central to advice about food and physical activity for people of all ages aimed at reducing chronic diseases, including several of the most commonly occurring cancers in New Zealand; type 2 diabetes, coronary heart disease and stroke.

The groups include: the University of Otago's Edgar National Centre for Diabetes and Obesity Research, the Agencies for Nutrition Action, the Australian and New Zealand Obesity Society (ANZOS); Dietitians NZ; the New Zealand Nutrition Foundation; the Cancer Society of New Zealand; Diabetes NZ; the New Zealand Society for the Study of Diabetes (NZSSD); and the NZ Stroke Foundation.

WHO has commissioned studies, also published in the BMJ, that have confirmed the importance of total fat reduction (typically also involving a reduction in saturated fat) as well as the reduction of sugars in helping to reduce overweight and obesity. "There is no evidence that this is achieved in the long term by very low carbohydrate- high fat diets," says Professor Mann.

In western countries a reduction in saturated fats has occurred in parallel with a reduction in blood cholesterol levels and coronary heart disease.

Professor Mann adds that although heart disease has many causes, in western countries coronary heart disease risk is directly related to cholesterol levels.

"In New Zealand the reduction in fat consumption from more than 40% towards 30% (and saturated fat towards 10%) since the 1970's has been associated with a reduction in coronary heart disease death rates by more than two thirds," he says.

"In parts of Sweden the trend towards reducing cholesterol levels has been reversed in association with the promotion and adoption of high fat diets."

Most people tend to think of what they eat in terms of foods rather than nutrients and the expert group supports the concept that different dietary patterns are compatible with calorie balance, a healthy body weight and reduced risk of type 2 diabetes, coronary heart disease and several cancers. **(See footnote below)**

However, the group suggests that those who advocate for radical new dietary approaches have a responsibility to provide convincing peer-reviewed evidence of long term benefit as well as absence of harm. Such evidence does not exist for diets high in saturated and total fat, and very low in carbohydrate.

Footnote about current and validated dietary advice:

A variety of fruits, coloured vegetables, lean meat, fish, legumes, pulses, nuts, appropriate unsaturated oils, reduced fat dairy products and whole grain cereals can be combined in various ways in suitable dietary patterns. These foods and wholegrain varieties of breads and cereals are certainly in preference to other carbohydrate containing foods that are highly processed like white rice, pasta, and flour. A

range of fat intakes is acceptable provided that there is emphasis on appropriate types of fat, but some degree of fat restriction is universally recommended by experts. Substantial limitation of “free” or “added” sugars is advised because they confer no health benefits and like alcoholic drinks may contribute substantially to calorie excess and deficits in some nutrients.

The BMJ article: <http://www.bmj.com/content/347/bmj.f6340#ref-13>

4. Guideline Development/Advisory roles of Core Staff, 2011-2013

Name	Organisation	Years
Prof Jim Mann	Chair, Diabetes Advisory sub-group, Atlas of Healthcare Variation, Health Quality & Safety Commission, NZ	2013-
	Chair, Health Promotion Agency, (HPA) Nutrition and Physical Activity Technical Advisory Group	2013-
	Member, Ministry of Health National Diabetes Services Improvement Group. (Chair 2011 – 2012)	2011-
	Member, WHO Expert Advisory Panel on Nutrition	2011-
	Member, WHO Nutrition Guidance Expert Advisory Group (NUGAG)	2009-
	Member, Advisory Group on Nutrition, Physical Activity and Cancer, World Cancer Research Fund	2002-2009
	Chairperson, Nutrition Guidelines Group of the European Association for the Study of Diabetes	1980-
	Member, Advisory Group of the Otago University International Health Research Network - Centre for International Health.	2008-
	Member, Steering Committee, District Health Board Research Fund (DHBRE) Translational Research Initiative	2008-
	Chairperson, New Zealand Guidelines Group, Diabetes Guideline Revision	2008-2011
	Member, Steering Group for the Diabetes/Cardiovascular Disease (CVD) Programme, DHB/Ministry of Health initiative	2008 -
	Convenor, International Union of Nutritional Sciences (IUNS)-Committee “Evidence-based nutrition”	2005-
	Academy Member of New Zealand Food Safety Authority (NZSFA)	2005 -
Dr Kirsten Coppel	Member, National Diabetes Services Improvement Group	2011-
	Member, Health Workforce NZ Diabetes Review Group	2011-
	Member, National Cervical Screening Advisory Group	2007-2013
	Member, New Zealand Cardiovascular Guidelines Revision Team, NZ Guidelines Group	2008-2009
Associate Professor Rachael Taylor	Associate Editor, Pediatric Obesity	2013-

	Australian and New Zealand Obesity Society, Secretary and Executive Member of Council, Leader of the NZ subcommittee	2012-
	Invited Member, Health Promotion Agency, Nutrition and Physical Activity Advisory Group	2012-
	Australasian Child and Adolescent Obesity Research Network, co-leader of the Management stream	2011-
	Sector Reference Group for Unhealthy Weight – Nutrition and Physical Activity Actions	2009-

5. Graduate Students of Core Staff, 2011-2013

Twenty-nine graduate students who have been fully or partially supervised by core staff of the Centre have been awarded masters or PhD degrees. Nine are currently enrolled. Those completed or enrolled since the 2010 report are listed in the table below.

Student	Degree	Title of Project	Years	Supervisors
Andrew Reynolds	PhD	Postprandial influences on glycaemic variability in type 2 diabetics	2013-	Prof Jim Mann, Dr Bernard Venn
Devonia Kruimer	PhD	Sugars and health	2013-	Prof Jim Mann, Dr Lisa Te Morenga
Victoria Farmer	PhD	Improving school playgrounds to enhance physical activity and health in children - the PLAY Study	2012-	A/Prof Rachael Taylor, Prof Jim Mann, A/Prof Sheila Williams
Dara Shearer	PhD	Longitudinal associations between periodontal disease and glycaemic control	2011-	Prof Jim Mann, Prof Murray Thomson, Prof Richie Poulton
Christine Spencer	PhD	Measuring physical activity in infancy	2010-	A/Prof Rachael Taylor, Prof Barry Taylor, Dr Kim Meredith-Jones.
Sonya Cameron	PhD	Is baby-led weaning a feasible method for introducing complementary foods to infants in New Zealand	2010-	Dr Anne-Louise Heath, A/Prof Rachael Taylor
Rebecca Cooke	PhD	Characteristics of Obesity Resistance and Susceptibility	2009-	Dr Rachel Brown, Dr Paula Andrews, A/Prof Rachael Taylor
Philippa Carter	PhD	Predictors of obesity in young children: the FLAME study	2006-2013	A/Prof Rachael Taylor, Prof Barry Taylor.
Anna Dawson	PhD	Motivational interviewing for weight feedback	2008-2013	A/Prof Rachael Taylor, Prof Barry Taylor, Dr Deirdre Brown.
Rachael McLean	PhD	Sodium in New Zealand, intake, consumer perceptions and implications for chronic disease	2010-2013	Prof Jim Mann, Prof Janet Hoek, A/Prof Sheila Williams
Jill Haszard	PhD	Parental feeding practices in New Zealand	2009-2012	A/Prof Rachael Taylor, Dr Paula Andrews
Chris Booker	PhD	Inflammatory markers and	2006-2012	Prof Jim Mann,

		adipokines in type 2 diabetes		Prof Dave Grattan
Kathryn Bradbury	PhD	Folate status of women of child-bearing age: the effect of fortifying the food supply with folic acid	2010-2012	Prof Jim Mann, Prof Murray Skeaff
Claire Smith	PhD	Food security: relationship with family food environment and socioeconomic status	2010-2011	Prof Jim Mann, A/Prof Winsome Parnell
Amber Strong	PhD	The Diabetes Excess Weight Loss (DEWL) Trial: a randomised controlled trial of high-protein versus high-carbohydrate diets over 2 years in type 2 diabetes	2006-2010	A/Prof Rachael Taylor, Prof Jim Mann, Dr Jeremy Krebs
Lisa Te Morenga	PhD	Nutritional determinants of insulin sensitivity	2006-2010	Prof Jim Mann, A/Prof Sheila Williams
Brittany Morison	MSc	Does a “baby led” approach to complementary feeding have an impact on intake of selected nutrients, food preference and food variety in 12 month old infants?	2012-	Dr Anne-Louise Heath, A/Prof Rachael Taylor
Liz Williams	MSc	Introducing complementary foods: the effect of different methods on infant food and nutrient intakes at seven months	2012-	Dr Anne-Louise Heath, A/Prof Rachael Taylor
Peter Crutchley	MSc	The effect of sugars on serum uric acid in the metabolic syndrome	2011-2013	Prof Jim Mann, Dr Lisa Te Morenga, A/Prof Sheila Williams
Amy McColl	MPH (dist)	The Development and Implementation of a Family and Home-Based Pilot Programme for Preventing Child Obesity in Pacific Families in Dunedin, New Zealand	2012-2013	Dr Kirsten Coppell Dr Tai Sopoaga
Minako Kataoka	MSc	Glycaemic index of rice in Asian and Caucasian consumers	2009-2012	Prof Jim Mann, Dr Bernard Venn, A/Prof Sheila Williams
Eirean Gamble	MSc	Diabetes: Your life, your journey. Development of a structured New Zealand focused group-based diabetes self-management (DSME) programme for people, families and whanau with type 2 diabetes	2009-2012	Prof Jim Mann, Dr Jeremy Krebs
Virginia Mills	MSc	The validation of dietary patterns of toddlers: the EAT study	2011-2012	Dr Anne-Louise Heath, A/Prof Rachael Taylor,
Emily Watson	MSc	Validation of a multi-nutrient food frequency questionnaire to determine nutrient intakes of New Zealand toddlers 12-24 months old	2011-2012	A/Prof Rachael Taylor, Dr Anne-Louise Heath
Megan Somerville	MSc	The effect of a nutrition intervention at 7 months of age on nutritional intake at 12 months of age	2011-2012	A/Prof Rachael Taylor, Dr Anne-Louise Heath

Alana Newlands	MSc	The impact of a sleep education programme on breastfeeding rates	2009-2010	A/Prof Rachael Taylor, A/Prof Barbara Galland
Claire Schramm	MDiet	The feasibility of a modified approach to introducing solids to infants	2012-2013	Dr Anne-Louise Heath, A/Prof Rachael Taylor
Kiri Sharp	MDiet	The New Zealand Coeliac Health Survey	2011-2012	Dr Kirsten Coppel