

# Diabetes & Obesity Research Review™

Making Education Easy

Issue 87 - 2014

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### Abbreviations used in this issue

**BMI** = body mass index  
**CV** = cardiovascular  
**GP** = general practitioner  
**HbA<sub>1c</sub>** = glycosylated haemoglobin  
**HR** = hazard ratio



## Welcome to issue 87 of Diabetes and Obesity Research Review.

This issue includes an interesting meta-analysis looking at bodyweight loss associated with different named diets. Research from the UK has reported that the risk of developing a number of cancers is increased when BMI is high. The findings have been reported of a survey of Wellington GPs' thoughts on bodyweight interventions in their region. This issue concludes with research showing that sports drinks, which are the subject of aggressive marketing campaigns, are important contributors to weight gain among adolescents.

I hope you find these and the other papers selected for this issue of interest, and I welcome your comments and suggestions.

Best regards,  
**Dr Jeremy Krebs**  
[jeremykrebs@researchreview.co.nz](mailto:jeremykrebs@researchreview.co.nz)

## Effect of reversible intermittent intra-abdominal vagal nerve blockade on morbid obesity

**Authors:** Ikramuddin S et al.

**Summary:** Outcomes were reported for 239 morbidly obese patients with a BMI of 40–45 or 35–40 kg/m<sup>2</sup> and ≥1 obesity-related condition who were randomised to receive either an active vagal nerve block device (n=162) or a sham device (n=77), along with bodyweight management education, in the ReCharge randomised controlled trial. In an intent-to-treat analysis, vagal nerve block was associated with a mean 24.4% excess weight loss (9.2% loss of initial bodyweight) compared with 15.9% (6.0%) in the sham group. Although the mean difference in the percentage of the excess weight loss between groups (8.5 percentage points) did not meet the 10-point target margin described in the primary efficacy objective, the greater weight loss in the vagal nerve block group was statistically significant in a *post hoc* analysis (p=0.002). At 12 months, 52% of patients in the vagal nerve block group achieved ≥20% excess weight loss and 38% achieved ≥25% excess weight loss; the respective values in the sham group were 32% and 23%. Vagal nerve block therapy was well tolerated; the rate of serious adverse events was 3.7% (relating to the device, procedure or therapy). Adverse events that occurred more frequently with this treatment included heartburn or dyspepsia and abdominal pain attributed to therapy; all were mild or moderate in intensity.

**Comment:** With obesity still increasing in NZ, effective treatments are desperately needed. I have covered many studies on dietary interventions and bariatric surgery in Diabetes Research Review. The present study looks at a novel(ish) approach, by blocking the vagal nerve using a reversible device as opposed to a vagotomy, which has been previously described. Although the primary outcome determined before the study started was negative, the device did enable meaningful weight loss, and was more effective than lifestyle advice alone. Beware when reading this paper of the use of 'excess bodyweight, which tends to exaggerate weight loss, rather than total bodyweight, which we are more familiar with in the medical literature. Because of the low side effect rate and reversibility of this device, it may well become a useful addition to our treatment options.

**Reference:** *JAMA* 2014;312(9):915–22

[Abstract](#)

## Diabetes & Obesity Research Review

### Independent commentary by Dr Jeremy Krebs,

an Endocrinologist with a particular interest in obesity and diabetes. He is a Senior Clinical Lecturer with the University of Otago, and Director of the Clinical Research Diploma at Victoria University. As well as clinical and teaching activities, Dr Krebs maintains active research interests in the area of obesity and diabetes, with a focus on nutritional aspects, bariatric surgery and diabetes service delivery.

For full bio [CLICK HERE](#).



## Comparison of weight loss among named diet programs in overweight and obese adults

**Authors:** Johnston BC et al.

**Summary:** This meta-analysis of 48 randomised controlled trials (n=7286) investigating popular self-administered named diets in overweight or obese adults found that compared with no diet, low-carbohydrate and low-fat diets were associated with significant bodyweight losses at 6 months (8.73 and 7.99kg, respectively) and 12 months (7.25 and 7.27kg). Only minimal differences in weight loss were seen among individual diets. Differences in weight loss were seen between 6 and 12 months for behavioural support (3.23 vs. 1.08kg) and exercise (0.64 vs. 2.13kg).

**Comment:** Over the last 30–40 years as obesity has become such a major health issue, debate over what the most effective dietary prescriptions to promote weight loss is has increased. There have been a vast number of books written and fortunes made by people claiming the best diet, often with very little scientific evidence to support the claims. I often joke that my ‘Pink Diet’ is the best – if you only eat pink food, you will lose weight. I’ve never tested it, but I’m sure it would work – perhaps unless you only consumed pink candyfloss! This meta-analysis looked at the evidence for popular diets and concluded that most are effective and that there is very little difference between them in weight lost. Once again it reinforces the importance of adherence as the key factor and the one we really need to understand in order to turn around the obesity epidemic at a population level.

**Reference:** *JAMA* 2014;312(9):923–33

[Abstract](#)

## Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013

**Authors:** Ng M et al.

**Summary:** This systematic analysis of 1769 studies (n=19,244) estimated global, regional and national prevalences of overweight/obesity during 1980–2013 for the Global Burden of Disease Study 2013. Globally, the respective proportions of men and women with a BMI of  $\geq 25$  kg/m<sup>2</sup> increased from 28.8% and 29.8% in 1980 to 36.9% and 38.0% in 2013. Overweight/obesity also increased in children and adolescents to reach rates of 23.8% and 22.6% for boys and girls, respectively, in 2013 in developed countries, and also increased from 8.1% to 12.9% in boys and 8.4% to 13.4% in girls from developing countries over the evaluation period. The estimated obesity prevalence was >50% in Tongan men, and women from Kuwait, Kiribati, Federated States of Micronesia, Libya, Qatar, Tonga and Samoa. The increase in adult obesity in developed countries has slowed since 2006.

**Comment:** We talk about the ‘global obesity epidemic’ and unfortunately the impact of this concept has rather worn off. Well hopefully this paper will reignite those fears. The data for NZ are worse than the mean for developed countries, with almost 30% of both boys and girls aged under 20 years being either overweight or obese – that’s a third of our youth! As my daughter would say, OMG! We simply must work together to reverse this. It is not only the health consequences directly attributable to obesity that are concerning, but also the indirect effects of obesity on delayed diagnoses, difficulties with procedures and investigations, etc. that will have an even bigger impact on the future health, and cost of it, for our nation.

**Reference:** *Lancet* 2014;384(9945):766–81

[Abstract](#)

## Body-mass index and risk of 22 specific cancers

**Authors:** Bhaskaran K et al.

**Summary:** These researchers used primary-care data in the UK-based Clinical Practice Research Datalink to identify 5.24 million individuals aged  $\geq 16$  years who were cancer-free and followed them for an average of 7.5 years. The risk of developing 22 of the most common cancers diagnosed in the UK was measured according to BMI after adjusting for potential confounders. A total of 166,955 people developed cancers of interest. BMI was associated with 17 of the 22 cancers, with effects varying substantially by site. Each 5 kg/m<sup>2</sup> increase in BMI resulted in higher risks of uterine, gallbladder, kidney, cervical and thyroid cancers and leukaemias (HRs 1.09–1.62 [ $p \leq 0.0081$ ]). BMI was also positively associated with liver, colon, ovarian and postmenopausal breast cancers overall (HRs 1.05–1.19 [ $p < 0.0001$  for all]), with these effects varying according to underlying BMI or individual-level characteristics (e.g. sex, menopausal status). The researchers estimated inverse associations with prostate and premenopausal breast cancer risk, both overall (HRs 0.98 and 0.89, respectively) and in never-smokers (0.96 and 0.89). In contrast, there was no association for lung and oral cavity cancers in never smokers; inverse associations overall were driven by current smokers and ex-smokers, which the researchers surmised was probably due to residual confounding by smoking amount. Based on their data, the researchers estimated that excess bodyweight could account for 41% of uterine and  $\geq 10\%$  of gallbladder, kidney, liver and colon cancers. They also estimated that a population-wide 1 kg/m<sup>2</sup> increase in BMI would result in an additional 3790 cases of these ten cancers annually in the UK.

**Comment:** There is an abundance of epidemiological literature showing an association between obesity and cancer. There are also many plausible reasons why obesity may be causal in this association. Typically, bowel and pancreatic cancer have been two of these. This present study reports on real-world primary-care data from the UK. Whilst the association with cancer is still strong, the particular relationship with specific cancers is somewhat different than might have been predicted. This emphasises just how complex this relationship is and how much more there is for us to understand it. More work is required.

**Reference:** *Lancet* 2014;384(9945):755–65

[Abstract](#)

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Research Review publications are intended for New Zealand health professionals.

## Effects of low-carbohydrate and low-fat diets

**Authors:** Bazzano LA et al.

**Summary:** In this study, 148 men and women without clinical CV disease and diabetes were allocated to a low-carbohydrate diet (<40 g/day) or low-fat (<30% of daily energy intake from total fat [<7% saturated fat]) diet for 1 year; both groups received dietary counselling at regular intervals throughout the trial. The study sought to determine the effects of each diet on bodyweight and CV risk factors. Sixty participants (82%) in the low-fat group and 59 (79%) in the low-carbohydrate group completed the intervention. At 12 months, participants on the low-carbohydrate diet had greater decreases in bodyweight (mean difference in change -3.5 kg [p=0.002]), fat mass (-1.5% [p=0.011]), total-HDL (high-density lipoprotein) cholesterol ratio (-0.44 [p=0.002]) and triglyceride level (-0.16 mmol/L [-14.1 mg/dL; p=0.038]) and greater increases in HDL cholesterol level (0.18 mmol/L [7.0 mg/dL; p<0.001]) than those on the low-fat diet.

**Comment:** Focusing on reducing dietary carbohydrate has been very fashionable over recent years in the latest trend of manipulating dietary macronutrients. This study is another of these. There were reasonable numbers of participants, with ~20% dropout over 12 months. There are already plenty of data for low-carbohydrate diets over 6 and 12 months, so I'm not sure just how much more this study really adds to our knowledge. It is useful to know the impact on cholesterol profile. What we really need is a study that assesses hard CV clinical endpoints over a much longer timeframe, and what the rates of adherence to the diet are and factors determining that. So these are more short-term data adding to the question rather than providing the real answers.

**Reference:** *Ann Intern Med* 2014;161(5):309-18

[Abstract](#)

## Effect of hospital-based telephone coaching on glycaemic control and adherence to management guidelines in type 2 diabetes

**Authors:** Varney JE et al.

**Summary:** Adults with type 2 diabetes and HbA<sub>1c</sub> level >7% (>53 mmol/mol) were randomised to receive usual care with or without 6 months of telephone coaching on achieving treatment targets and complication screening. There were significant between-group interaction effects at 6 months showing improvements in HbA<sub>1c</sub> level, fasting glucose level, diastolic blood pressure, physical activity and compliance with foot examinations and pneumococcal vaccination with the intervention, but these were not sustained at 12 months. Improvements in compliance with retinal screening were seen out to 12 months.

**Comment:** Enabling individuals to better manage their diabetes is an important component of good diabetes care. There are many ways of facilitating this, including using face-to-face sessions or technology-based communication in either individual or group settings. It is clear that traditional individual face-to-face sessions with specialist diabetes nurses are not a sustainable way to provide support with an ever growing population of people with diabetes. This study reports on a telephone coaching programme, and showed significant improvements in diabetes parameters over the 6 months of the intervention compared with usual care. However, the effect was rapidly lost after the contact was stopped. This finding is common to other programmes promoting self-management. Unfortunately, ongoing support appears to be required. What are needed are studies to address the most cost-effective way of doing this.

**Reference:** *Intern Med J* 2014;44(9):890-7

[Abstract](#)



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## General practitioner opinion of weight management interventions in New Zealand

**Authors:** Claridge R et al.

**Summary:** These researchers conducted a series of 12 semistructured interviews with GPs in Wellington to gauge their opinions on bodyweight management interventions in their region. The identified the following five key themes: i) GPs' perceptions of what they can do; ii) the roots of the obesity problem; iii) why GPs don't succeed; iv) current primary-care interventions; and v) bariatric surgery. The respondents felt responsible for their patients' obesity treatments, but expressed a sense of disempowerment regarding their ability to make this happen, citing the following barriers: i) a society where overweight is viewed as normal; ii) complex situations in which bodyweight management is rooted in personal issues; iii) stigma associated with being overweight and its management; iv) lack of efficacious interventions; and v) low availability of resources. In general, the respondents had a cautious view of bariatric surgery, despite reports of some positive results and a desire for increased access.

**Comment:** It is an interesting philosophical debate whether obesity is 'health's problem' or whether only the consequences of obesity are our domain. The findings of this qualitative study of primary care in NZ speak in part to this. It is clear that GPs feel that treating obesity is their responsibility, but perhaps because factors that contribute to the development of obesity sit largely outside of those we can readily influence in the health sector, there is also frustration at the common inability to change the course of obesity and its consequences at an individual level. I was also interested to see the cautious approach to bariatric surgery, which may continue to be influenced by historical operations and outcomes.

**Reference:** *J Prim Health Care* 2014;6(3):212–20

[Abstract](#)

## Reduced testing frequency for glycated hemoglobin, HbA<sub>1c</sub>, is associated with deteriorating diabetes control

**Authors:** Driskell OJ et al.

**Summary:** The relationship between HbA<sub>1c</sub> testing frequency and diabetes control was explored in 79,409 patients who had undergone 400,479 HbA<sub>1c</sub> tests. The optimal testing frequency for maximising the downward trajectory in HbA<sub>1c</sub> level was every 3 months, particularly among patients with an initial HbA<sub>1c</sub> level of  $\geq 53$  mmol/mol ( $\geq 7\%$ ). Compared with annual testing, quarterly testing was associated with a greater HbA<sub>1c</sub> level reduction than annual testing ( $-3.8\%$  vs.  $+1.5\%$ ) and a significantly lower proportion of patients with a significant increase in HbA<sub>1c</sub> level (7–10 vs. 15–20%); no additional benefit was seen with testing more frequently than every 3 months.

**Comment:** This is an interesting observational study. Monitoring of HbA<sub>1c</sub> is central to the management of the glucose aspects of diabetes. Therefore it is intuitive that the more frequently you monitor this, the more likely it is that glucose control will improve. This is the finding of this study, but does this mean that simply measuring HbA<sub>1c</sub> 3 monthly will improve control? As with any observational study there are so many potential confounders to consider. The most obvious being that those who engage with their diabetes and turn up to their GP and get blood tests done are more likely to also engage with the necessary behaviours to improve their control. That is not to say that we shouldn't be promoting 3 monthly testing to our patients, but it doesn't in itself ensure success!

**Reference:** *Diabetes Care* 2014;37(10):2731–7

[Abstract](#)

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## Time to do more: addressing clinical inertia in the management of type 2 diabetes mellitus

**Authors:** Strain WD et al.

**Summary:** The potential causes of clinical inertia (the tendency for maintenance of current treatment despite indications for escalation) were explored using a 20-minute online survey of 652 adults with diabetes and 337 treating physicians. The physicians reported low expectations for their patients, despite believing that they had adequately conveyed the importance of good glycaemic control via lifestyle and pharmacological interventions. Conversely, patients with diabetes exhibited, at best, a rudimentary understanding of complications and their risks and the importance of good glycaemic control, with only a small proportion believing lifestyle changes were important and most indicating lack of intention to comply.

**Comment:** This study sits nicely with the previous study of HbA<sub>1c</sub> monitoring frequency and glycaemic control that I have also included this month. The findings of this survey of both people with diabetes and their doctors show a mismatch that is common to this type of study. The authors have concluded that it is an impairment of communication, which is possibly true at the highest level, but does not mean that it is the fault of either party alone. Some of the interesting factors brought out here include adequacy of basic health literacy and engagement and motivation for behaviour change. As discussed in the previous paper, simply measuring HbA<sub>1c</sub> level 3 monthly will not overcome these issues. However, those who are engaged and understand the importance of good control will be more inclined to monitor their HbA<sub>1c</sub> level regularly. There is lots of food for thought in this paper.

**Reference:** *Diabetes Res Clin Pract* 2014;105(3):302–12

[Abstract](#)

## Association of sports drinks with weight gain among adolescents and young adults

**Authors:** Field AE et al.

**Summary:** The relationship between 'sports drinks' and BMI was assessed in 7559 individuals aged 9–16 years from the Growing Up Today Study II. Each daily serving of a sports drink was associated with BMI increases that were of 0.3 and 0.33 units greater than their peers over the next 2–3 years among females and males, respectively. Males who increased their intake of sports drinks over the 2–3 year period also had a significantly greater BMI increase than their peers during the same timeframe.

**Comment:** Don't get me started! The findings of this paper highlight the major problem we have trying to fight the rise in prevalence of obesity. The food industry have artfully adapted to the growing public awareness of the negative health effects of regular full sugar-sweetened beverages by producing so called sports drinks. It is a very clever marketing move, associating the benefits of participation in sport, with consumption of a drink that purports to improve performance. Add in high-profile sports icons in advertisements and what do we see? The result is in this paper. For the vast majority of those consuming these drinks in the quantities being consumed, there is no physiological justification for the claims (real or implied) being made. How do we fight such a slick, well-funded marketing juggernaut?

**Reference:** *Obesity* 2014;22(10):2238–43

[Abstract](#)