

# Diabetesity Digest

Diabetesity Digest summarises recent key papers published in the area of coexistent diabetes and obesity – diabetesity. To compile the digest a PubMed search was performed for the 3 months ending June 2013 using a range of search terms relating to type 2 diabetes, obesity and diabetesity. Articles have been chosen on the basis of their potential interest to healthcare professionals involved in the care of people with diabetesity. The articles were rated according to readability, applicability to practice, and originality.



## Are the results from the Look AHEAD study “futile”?

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Weight loss studies are widely diverse, but they always show that weight loss is tough and weight loss maintenance is tougher still unless surgeons become involved. The Counterweight programme shows that significant weight loss across populations is achievable, but extremely difficult (Counterweight Project Team, 2008); other studies have shown barely any benefit to weight loss at all. It is in this context that the Look AHEAD (Action for Health in Diabetes) Research Group demonstrated much superior weight loss that was well maintained and translated into significant improvements in cardiovascular risk factors. It was halted for “futility” after nearly 10 years.

Apart from the Swedish Obese Subjects study, and the SCOUT (Sibutramine Cardiovascular Outcome) study of the withdrawn drug sibutramine, there has never been evidence that a specific weight management regime reduces mortality (Sjöström, 2008; Caterson et al, 2012). Studies such as the Diabetes Prevention Program (DPP) and Diabetes Prevention Study have done the next best thing: both showed a massive 58% reduction in the cumulative incidence of diabetes with apparently minor weight loss (DPP Research Group, 2002; Lindström, 2003). Others, such as the Paris Prospective Study (Fontbonne and Eschwège, 1991), linked obesity with cardiovascular mortality, allowing the sensible assumption that weight loss reduces outcomes. Look AHEAD was, therefore, exciting and eagerly anticipated, being a large, long, well-designed, decently funded trial of weight loss, cardiometabolic parameters and mortality. For the first time, a study (summarised alongside) would answer the question whether there was any point in losing weight. It recruited >5000 overweight or obese individuals with diabetes over a predicted 13.5 years, and offered intensive calorie restriction plus physical activity versus conventional management (outcomes being cardiovascular mortality, non-fatal myocardial

infarction/stroke or hospitalisation for angina). The result was a resounding success: weight reduction of 8.6% at one year maintained at an unheard-of 6% at study end. This was particularly impressive given that spouse studies have shown that patients with diabetes lose approximately half as much weight as normoglycaemic patients on lifestyle regimes. Results also showed greater reductions in HbA<sub>1c</sub>, as well as improvements in fitness and all cardiovascular risk factors. The use of antihypertensive agents, e.g. statins, and insulin was lower in the intervention group than the control group. Remarkably, after 9.6 years the study was prematurely halted for reasons of “futility”, demonstrating the gulf between the responsibility of researchers compared to clinicians. Pronouncing such impressive results as “futile” shows academics’ lack of respect and grasp of the efforts practitioners go to in order engage and motivate patients, and improve their glycaemic control and weight, alongside other cardiometabolic risk factors on a daily basis.

Some commentators point to the fact that a hypocaloric rather than a low-carbohydrate or Mediterranean diet was used as the intervention as the reason for the lower than expected outcomes, but what is more likely is the fact that cohesive care of co-existing risk factors today is so good that long duration studies now seem universally underpowered because their design is based on contemporary mortality rates prior to the study starting.

Other benefits included reductions in urinary incontinence, sleep apnoea and depression, and improvements in quality of life, physical functioning and mobility. Are these results futile!?

Caterson ID et al (2012) *Diabetes Obes Metab* **14**: 523–30  
Counterweight Project Team (2008) *Br J Gen Pract* **58**: 548–54  
Diabetes Prevention Program Research Group (2002) *Diabetes Care* **25**: 2165–71  
Fontbonne and Eschwège (1991) *Diabetes Care* **14**: 461–9  
Lindström J (2003) *J Am Soc Nephrol* **14**(7 Suppl 2): S108–13  
Sjöström L (2008) *Int J Obes (Lond)* **32**(Suppl 7): S93–7

## New England Journal of Medicine

### The effect of intensive lifestyle intervention in people with type 2 diabetes

Readability ////  
Applicability to practice ////  
Originality ////

1. This multicentre, randomised trial aimed to determine whether intensive lifestyle interventions decreased cardiovascular morbidity and mortality in obese or overweight individuals with T2D.
2. A total of 5145 participants were assigned either to the intensive lifestyle intervention group (decreased caloric intake and increased physical activity) or the control group (received diabetes support and education).
3. The aim was to achieve and maintain at least 7% weight loss through intensive interventions.
4. At the 1-year follow-up, a weight loss of 8.6% versus 0.7% (intervention versus control group) was achieved, as well as decreased waist circumference, and improved fitness and HbA<sub>1c</sub> levels; gradual weight regain followed.
5. After 9.6 years, the study was terminated on the basis of a futility analysis as there was no significant between-group difference in the primary clinical outcome, and the probability of observing a significant positive result at the original study end of 13.5 years was estimated at 1%.
6. The authors concluded that intensive lifestyle interventions did not reduce cardiovascular morbidity or mortality, but individuals in this study group had lifestyle improvements in various areas of life.

Look AHEAD Research Group (2013) *N Engl J Med* **396**: 145–54

## J Hum Nutr Diet

### HbA<sub>1c</sub> improved by the Mediterranean diet

|                           |      |
|---------------------------|------|
| Readability               | ✓✓✓✓ |
| Applicability to practice | ✓✓   |
| Originality               | ✓✓   |

1. This systematic review and meta-analysis of eight articles aimed to compare the effectiveness of the Mediterranean diet (regular intake of vegetables, fruits, lean meat, fish, olive oil and moderate consumption of wine with food) with other diet strategies in altering glucose parameters in individuals with, or at a high risk from, T2D.
2. Controlled clinical trials were included where all major components of the Mediterranean diet were included in the intervention group (the control arm included written advice, education, weekend retreats and usual care).
3. The Mediterranean diet was not superior in lowering fasting blood glucose or fasting insulin compared to other diets, but did decrease HbA<sub>1c</sub> levels when compared to usual care, but not compared to the Paleolithic diet.

Carter P et al (2013) *J Hum Nutr Diet* 22 Jun [Epub ahead of print]

## British Journal of Nutrition

### Tomato juice reduces systemic inflammation

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|---------------------------|------|
| Readability               | ✓✓✓  |
| Applicability to practice | ✓✓✓  |
| Originality               | ✓✓✓✓ |

1. This clinical trial of over 100 women found that intake of tomato juice (330 mL/day) reduced systemic inflammation in overweight and obese females.
2. Lycopene, which is a carotenoid and known to reduce inflammation, is found in tomato juice.
3. The researchers found that overweight individuals in the intervention group had reduced TNF-alpha and IL-8 serum concentrations, and obese individuals had reduced IL-6, suggesting that overweight individuals are more responsive to tomato juice.
4. However, the decrease in inflammation can not be attributed solely to lycopene as other nutrients in the whole juice are also likely to have a beneficial effect.

Ghavigour M et al (2013) *Brit J Nutr* 109: 2031–35

## Alternative Therapies

### Using yoga as an intervention for weight loss

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|---------------------------|------|
| Readability               | ✓✓✓✓ |
| Applicability to practice | ✓✓   |
| Originality               | ✓✓   |

1. The quality of 17 clinical trials using yoga as an intervention for weight loss were examined in this narrative review.
2. Research into the effectiveness of yoga against obesity is limited as sample sizes are usually very small, and trials vary widely in length and in the intensity of the yoga intervention.
3. Of the 17 articles assessed for this narrative review, 10 included participants diagnosed with, or at risk of, obesity, cardiovascular disease, diabetes and hypertension.
4. Yoga intervention was defined by the inclusion of 12 possible components: postures, breathing techniques, diet, meditation, relaxation, chanting, cleansing practices, sensory withdrawal, hand gestures, energy locks, social support and yogic philosophy.
5. Sessions of 75–90 minutes including breathing techniques and deep relaxation at a minimum frequency of three times a week for no less than 3 months were found to be the optimum yoga intervention for gradual weight loss and reductions in BMI.
6. Psycho-social, as well as biological, parameters were measured in the reviewed trials, using questionnaires to test aspects such as participants' quality of life and feelings of anxiety and self-esteem.
7. Yoga as an intervention for weight loss should be considered as a lifestyle change rather than a narrower behavioural change; however, no follow-up data were collected in these studies.
8. Yoga should be considered as a tool as it is economical, is non-invasive, can be practised at home, and has few adverse side effects.

Rioux J, Ritenbaugh C (2013) *Altern Ther Health Med* 19: 32–46

*“The authors concluded that intensive lifestyle interventions did not reduce cardiovascular morbidity or mortality, but individuals in this study group had lifestyle improvements in various areas of life.”*

## Obesity Reviews

### Reviewed: The link between sugar-sweetened beverages and weight gain

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|---------------------------|------|
| Readability               | ✓✓✓✓ |
| Applicability to practice | ✓✓✓✓ |
| Originality               | ✓✓✓✓ |

1. This review examined the current research linking the consumption of sugar-sweetened beverages (SSBs) to the prevalence of obesity and T2D, and emphasised that action should be made before waiting for absolute scientific proof of the link.
2. Observational and clinical trial evidence supported the association between SSB intake with increased weight gain and increased BMI in children, and with chronic

diseases (e.g. hypertension and coronary heart disease).

3. A particular meta-analysis of eight prospective cohort studies included in this review found that regular servings of SSBs (one to two a day) compared to occasional consumption (less than one a month) was associated with a 26% greater risk of developing T2D.
4. Based on the research reviewed, the author argues that a reduction of 25% in annual weight gain could be achieved by removing one SSB serving a day.
5. Multiple international scientific bodies, including the World Health Organization, agree a reduction in SSB consumption is recommended.
6. Recommended healthier alternatives include plain water, and 100% fruit juices and diet sodas in moderation, as they include natural sugars and sweeteners respectively.

Hu FB (2013) *Obes Rev* 14: 606–19