Obesity

Who is for a very-low-calorie diet?

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Obesity is a daunting problem in the diabetic clinic, and is associated with poorer long-term outcomes. In Liverpool, only 15% of patients with type 2 diabetes attending a hospital diabetic clinic had a 'normal' body mass index (BMI <25), whereas about 25% had a BMI >35 and nearly 8% had a BMI >40 (Daousi and Pinkney, 2003).

Despite provocative data on the benefits of weight loss, there is no consensus on how this can be achieved. A very-low-calorie diet (VLCD) is one potential strategy. In short-term studies, a variety of types of VLCD have produced major metabolic improvements. However, in studies with longer follow-up, results were less impressive (Paisey et al, 2002), although this may signal the need for better support after the VLCD treatment.

In this study, Dhindsa and her colleagues from Derby report their experiences with a VLCD in morbidly obese patients with type 2 diabetes. The VLCD was well tolerated, and important metabolic and cardiovascular benefits were realised. However, insulin-treated patients had resumed insulin at 1 year, and glycaemic control was relapsing.

This study confirms that a VLCD can make major short-term metabolic impacts, but like its predecessors underlines the problem of relapse after the VLCD phase — is it all worth it in the long run? As the authors state, this is a 'difficult-to-treat patient population', who have few other options (except, perhaps, bariatric surgery; Pinkney et al, 2001), and so a VLCD may be worth considering.

This article highlights some key questions:

- What is the optimum protocol, intensity and duration of a VLCD?
- Can better strategies be developed for long-term weight maintenance?

Daousi C, Pinkney JH (2003) The impact of obesity on the prevalence of cardiovascular disease and diabetic complications in a hospital population. *Diabetic Medicine* **20** (Suppl. 2): 102, 266

Paisey R, Frost J, Harvey P et al (2002) Five-year results of a prospective very low calorie or conventional weight loss programme in type 2 diabetes. *Journal of Human Nutrition and Diet* **15**:121–7

Pinkney JH, Sjöström CD, Gale EAM (2001) Should surgeons treat diabetes in severely obese people? *Lancet* **357**:1357–9

PAEDIATRICS

Maternal obesity increases risk for birth defects

Readability	✓ ✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓ ✓ ✓

1 This study explored the relationship between maternal prepregnancy obesity and several birth defects.

2 Data from the Atlanta Birth Defects Risk Factor Surveillance Study were used to conduct a population-based, case-control study of selected major birth defects during 1993–97.

3 All mothers of case and control infants completed a telephone interview regarding weight and health.

4 Maternal body mass index was based on the mothers' self-reported height and prepregnancy weight. Women with known pre-existing diabetes were excluded. The risks for obese women and overweight women were compared with those for average-weight women.

5 Obese women were more likely than average-weight women to have an infant with spina bifida, omphalocele, heart defects and multiple anomalies. Overweight women were more likely than average-weight women to have infants with heart defects and multiple anomalies.

6 Efforts to prevent obesity are needed to increase the number of women who are of healthy weight before pregnancy.

Watkins ML, Rasmussen SA, Honein MA, Botto LD, Moore CA (2003) Maternal obesity and risk for birth defects. *Paediatrics* **111**(5): 1152–8

DIABETIC MEDICINE

A very-low-calorie diet for type 2 diabetes

Readability	✓ ✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓
WOW! factor	✓ ✓ ✓

1 The clinical management of obese patients with type 2 diabetes can be particularly difficult.

2 This study evaluated the short-term and 1-year outcomes of an intensive, very-low-calorie-diet (VLCD) on metabolic and cardiovascular variables in obese patients with type 2 diabetes.

3 Forty obese patients with hyperglycaemic symptoms and poorly controlled type 2 diabetes received 8 weeks of a VLCD followed by a standard diet and exercise advice at 2–3-month intervals up to 1 year.

4 Any insulin was discontinued at the start of the VLCD, and medication for patients' diabetes was adjusted individually throughout the study.

5 Immediate improvements in symptoms and early weight loss reinforced good compliance and patient satisfaction. After 8 weeks of the VLCD, patients' body weight and body mass index had fallen significantly, with reductions in serum total cholesterol, blood pressure and fructosamine.

6 Sustained improvements were evident after 1 year, with minimal weight regain. Glycaemic control tended to deteriorate after 1 year.

7 The results indicate that 8 weeks of VLCD treatment may be effective and well tolerated in symptomatic obese patients with type 2 diabetes in secondary failure, producing sustained cardiovascular and metabolic improvements after 1 year.

Dhindsa P, Scott AR, Donnelly R (2003) Metabolic and cardiovascular effects of very-low-calorie diet therapy in obese patients with type 2 diabetes in secondary failure: outcomes after 1 year. *Diabetic Medicine* **20**: 319–24

'Adding behavioural counselling via e-mail to a basic Internet weight loss intervention significantly improved weight loss in adults at risk of type 2 diabetes.'

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Internet behavioural counselling reduces weight in patients

Readability	✓ ✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓ ✓

1 This article compared the efficacy of an Internet-based weight loss program alone with the addition of behavioural counselling via e-mail for a population at risk of type 2 diabetes.

2 Overweight adults were randomised to a basic Internet program or to an Internet plus behavioural counselling program via e-mail.

3 The Internet weight loss program with the addition of behavioural counselling via e-mail produced significantly more weight loss at 1 year than the Internet program alone.

4 Adding behavioural counselling via e-mail to a basic Internet weight loss intervention significantly improved weight loss in adults at risk of type 2 diabetes.

Tate DF, Jackvony EH, Wing RR (2003) Effects of Internet behavioural counselling on weight loss in adults at risk for type 2 diabetes. *Journal of the American Medical Association* **289**: 1833–6

AMERICAN JOURNAL OF CLINICAL NUTRITION

Heavy alcohol intake contributes to weight gain

Readability	✓ ✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓

1 The relation between alcohol intake and body weight was examined in a cohort of men aged 40–59, and followed-up over 5 years.

2 Mean body mass index (BMI) and the prevalence of men with a high BMI increased significantly from the light–moderate alcohol intake group to the very heavy alcohol intake group.

3 After 5 years, stable and new heavy drinkers showed the greatest weight gain and had the highest prevalence rates of high BMI.

4 Heavy drinking associated with increased weight gain was most apparent in men who had never smoked.

5 Heavy alcohol intake (≥30g per day) contributes directly to weight gain and obesity, irrespective of the type of alcohol consumed.

Wannamethee SG, Shaper AG (2003) Alcohol, body weight and weight gain in middle-aged men. *American Journal of Clinical Nutrition* **77**: 1312–17

ARTERIOSCLEROSIS, THROMBOSIS AND VASCULAR BIOLOGY

Weight loss reduces inflammatory markers in obesity

Readability	✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓ ✓ ✓

1 Obesity is closely linked to the insulin-resistance syndrome (IRS), type 2 diabetes and cardiovascular disease, the primary cause of morbidity and mortality in these patients.

2 Elevated levels of C-reactive protein (CRP) and interleukin-6 (IL-6), indicating chronic subclinical inflammation, have been associated with features of the IRS and incident cardiovascular disease.

3 This study explored the cross-sectional and longitudinal relation of CRP, IL-6 and tumour necrosis factor-α (TNF-α) with features of the IRS in 37 morbidly obese patients with different stages of glucose tolerance before and 14 months after gastric surgery.

4 Weight loss after gastric surgery induced a significant shift from diabetes to impaired glucose tolerance and normal glucose tolerance.

5 Concentrations of CRP and IL-6 decreased after weight loss, whereas serum levels of TNF-α remained unchanged. The decrease in insulin resistance remained independently and significantly correlated with the decrease in IL-6 concentrations, and the decrease in body mass index with the decrease in CRP.

6 Weight loss in morbidly obese patients induces a significant decrease in CRP and IL-6 concentrations in association with an improvement of the IRS.

Kopp HP, Kopp CW, Festa A et al (2003) Impact of weight loss on inflammatory proteins and their association with the insulin resistance syndrome in morbidly obese patients. *Arteriosclerosis, Thrombosis and Vascular Biology* **23**: 1042–7

'Time spent watching the TV was positively associated with risk of obesity and type 2 diabetes.'

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Watching television increases risk of obesity and diabetes

Readability	✓ ✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓
WOW! factor	✓ ✓

1 This study examined the relationship between various sedentary behaviours, such as prolonged television (TV) watching, and risk of obesity and type 2 diabetes in women after a 6-year follow-up.

2 During 6 years of follow-up, 3757 of 50 277 women who had a body mass index (BMI) <30 at baseline became obese. Overall, 1515 new cases of type 2 diabetes were documented.

3 Time spent watching the TV was positively associated with risk of obesity and type 2 diabetes.

4 There was strong evidence that sedentary behaviours, especially prolonged TV watching, are directly related to obesity and diabetes risk. In contrast, even light–moderate intensity activity substantially lowers this risk.

Hu FB, Li TY, Colditz GA, Willett WC, Manson JE (2003) Television watching and other sedentary behaviours in relation to risk of obesity and type 2 diabetes mellitus in women. *Journal of the American Medical Association* **289**: 1785–91