

Obesity

Diabetes under the knife: The SOS ten years on



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Serious obesity – grade 2 (BMI > 35 kg/m²) and grade 3 (BMI > 40 kg/m²) – is commonplace with type 2 diabetes, and such people are sometimes stigmatised as ‘heart sink’ patients. Neither good glycaemic control nor cardiovascular disease prevention is readily achieved with

conventional medical therapy, and as we well know, treatment with insulin usually only exacerbates weight gain still further.

Although bariatric surgery (gastrointestinal surgical procedures to reduce body weight) is known to be the only treatment that fundamentally alters the natural history of, and often cures, type 2 diabetes in obese people, there have been few clinical trials in this area, and bariatric surgery is seldom used expressly for this purpose.

The Swedish Obese Subjects (SOS) study, abstracted on the right, recently reported 10-year follow-up data; the data of special interest to *Diabetes Digest* readers will be those relating to the subgroup with diabetes. Bariatric surgery was associated with about a three-fold greater chance of recovery from diabetes at 10 years, compared with patients not undergoing surgery.

What does this mean for clinical practice, should we advocate more bariatric surgery for obese people with diabetes? First, take SOS with a pinch of salt because it was not a randomised trial, and was not designed to recruit, or examine

the best way to treat, obese people with diabetes. However, SOS is in broad agreement with other studies that long-term diabetes remissions are frequent after bariatric surgery (Pinkney and Kerrigan, 2004).

Two other recent studies (Dixon and O’Brien, 2002; Schauer et al, 2003) also help to identify patients who may enjoy the best responses; greater weight loss, recent onset of diabetes and lowest treatment requirements (i.e. adequate control with diet alone) are predictive of the best improvements in insulin sensitivity and beta cell function, and, therefore, the greatest chances of a diabetes remission. Gastric bypass surgery appears to achieve remission more rapidly than gastric banding, and in a somewhat higher percentage of patients.

In summary, for selected individuals, with good operative risk, and in experienced hands, bariatric surgery, while offering no guarantees of cure, is nevertheless a safe and realistic treatment option to control diabetes, and one which usually delivers many other medical and quality of life benefits as well. If it is to be used, it has most to offer in the earliest stages of diabetes.

Dixon JB, O’Brien PB (2002) Health outcomes of severely obese type 2 diabetic subjects 1 year after laparoscopic adjustable gastric banding. *Diabetes Care* 25(2): 358–63

Pinkney J, Kerrigan DK (2004) Current status of bariatric surgery in the treatment of type 2 diabetes. *Obesity Reviews* 5(1): 69–78

Schauer PR, Burguera B, Ikramuddin S (2003) Effect of laparoscopic Roux-en-Y gastric bypass on type 2 diabetes mellitus. *Annals of Surgery* 238(4):467–84

NEW ENGLAND JOURNAL
OF MEDICINE



The SOS ten years on

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

1 In the short term, lifestyle changes that result in weight loss can improve or even prevent diabetes, insulin resistance, lipid disturbances and hypertension.

2 It is not known, however, if the short-term benefits to metabolic and cardiovascular risk of weight loss remain in the long term.

3 The Swedish Obese Subjects (SOS) study compared severely obese patients receiving gastric surgery with severely obese control patients receiving non-surgical treatment, 2 and 10 years after surgery. Diabetes indicators as well as lifestyle factors were analysed.

4 Two years after surgery, weight had decreased by 23.4% in the surgery group and increased by 0.1% in the control group ($P < 0.001$). Ten years after surgery, weight had decreased by 16.1% in the surgery group and increased by 1.6% in the control group ($P < 0.001$).

5 Recovery rates for patients with diabetes were 72% vs 21% at 2 years for surgery and control patients, respectively ($P < 0.001$; odds ratio of 8.42); and 36% vs 13% at 10 years for surgery and control patients, respectively ($P = 0.001$; odds ratio of 3.45).

6 The surgically treated patients also showed more physical activity and lower energy intake than control patients over 10 years.

7 Bariatric surgery thus appears to provide better long-term benefits than conventional (non-surgical) treatment for obese people in terms of weight loss and improvements in certain risk factors such as diabetes.

Sjöström L, Lindroos A-K, Peltonen M et al (2004) Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *New England Journal of Medicine* 351(26): 2683–93

THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM

Postmenopausal women with type 2 need exercise to lose visceral fat

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

1 This study placed 33 women on three different diets: hypocaloric high monounsaturated fat diet only (D); exercise only (EX); and D+EX for 14 weeks.

2 Obesity indicators measured pre- and post-intervention included abdominal fat distribution, glucose tolerance and insulin sensitivity.

3 Visceral adipose tissue (VAT) was significantly lowered with the D+EX and EX alone interventions, whereas only body weight and per cent body fat were lowered with D alone.

4 In conclusion, the investigators state that for VAT loss diet and exercise is important.

Giannopoulou I, Ploutz-Snyder LL, Carhart R et al (2005) Exercise is required for visceral fat loss in postmenopausal women with type 2 diabetes. *The Journal of Clinical Endocrinology & Metabolism* 90(3): 1511–8

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Popular diets and their effectiveness at reducing the risk of heart disease

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

- Popular diets (e.g. Atkins, Ornish, Weight Watchers and Zone) are increasingly being tailored and used by healthcare professionals to provide obese patients with an eating plan to help in weight loss; yet there is a lack of controlled data reflecting the health implications of such diets.
- This trial focused on the adherence to the four diets and their effectiveness at aiding weight loss and in reducing cardiac risk factors.
- The trial was carried out in a single centre and was randomised, with a total of 160 participants split equally between the four diets. The participants had a mean BMI of 35 kg/m² (range 27–42 kg/m²), were aged from 22 to 72 years and had already presented with hypertension, dyslipidaemia and fasting hyperglycaemia.
- All four diets were found to reduce weight but not to any significant levels. The insignificance was due to non-adherence; in those that adhered, weight loss was significantly higher.
- In conclusion, weight loss in adherents and non-adherents, was associated with a reduction in cardiac risk factors for each diet. This reduction was especially significant for the participants who adhered for lengthy periods.

Dansinger ML, Gleason JA, Griffith JL et al (2005) Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction. *Journal of the American Medical Association* **293**(1): 43–53

LANCET

Fast food increases the risk of obesity and type 2 diabetes

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

- On average USA residents visit fast food establishments between 1.3 times (white women) and about twice (other ethnic–sex groups) a week.
- No previous studies into diet-related obesity have analysed diabetes and related conditions as endpoints. The CARDIA (Coronary Artery Risk Development in Young Adults) study aimed to follow young black and white adults over a 15-year period, comparing their fast food habits with weight gain, diabetes and related conditions.
- Change in the frequency of visits to fast food establishments was found to be directly related to changes to weight in white participants of the study ($P<0.0001$), but less so in black individuals ($P=0.001$). These changes were also related to insulin resistance in both black and white participants ($P=0.0015$ and $P<0.0001$, respectively).
- Compared to baseline (visits to fast food restaurants less than once a week) those who visit more than twice a week had gained on average 4.5 Kg over the 15 years and had double the incidence of insulin resistance ($P=0.0054$ and $P=0.0083$, respectively).
- In conclusion, the study states that the increasing levels of fast food consumption show a strong and significant relationship with weight gain and insulin resistance, suggesting a strong correlation between increased fast food consumption and obesity and type 2 diabetes.

Pereira MA, Kartashov AI, Ebbeling CB et al (2005) Fast-food habits, weight gain, and insulin resistance (the CARDIA study): 15-year prospective analysis. *Lancet* **365**(9453): 36–42

PREVENTIVE MEDICINE

Survey on the quality of advice received by obese people

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

- Previous studies have been done in which primary care physicians (PCPs) have had their attitudes and characteristics of their advice towards obese patients analysed; but very little is known about what the patients think of the advice given to them.
- This study aimed to increase our knowledge on this matter. It was a small randomised clinical trial involving 255 patients from 18 different PCPs (the Primary Care Weight Control Project [PCWC]), of whom 12.2% had type 2 diabetes, and the total study population had an average BMI of 34.9 kg/m².
- The data for this study were obtained from medical chart reviews and patient self-reporting and also a statistical approach which controlled for potential clustering within a PCP's patients.
- Interestingly, only 66.4% of the total study population were told they were overweight, 65.1% discussed the benefits of weight loss with their PCPs, 36.6% were given advice to lose weight, 28.2% were given advice on increasing their levels of exercise, 14.0% were given weight control referral, and 8.0% were given medication to help in weight loss.
- The study concluded that patients were more likely to receive advice on weight loss if they presented with obesity-related comorbidities, including type 2 diabetes, compared to those with no related risk factors.

Simkin-Silverman LR, Gleason KA, King WC et al (2005) Predictors of weight control advice in primary care practices: Patient health and psychosocial characteristics. *Preventive Medicine* **40**(1): 71–82

‘Very little is known about what the patients think of the advice given to them.’

‘Patients were more likely to receive advice on weight loss if they presented with obesity-related comorbidities, including type 2 diabetes’