

## Management & prevention of type 2 diabetes

INT J CLIN PRACT

### HRQoL and weight loss perception in adults with T2D

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

**1** Although previous research has shown a positive association between weight loss and health-related quality of life (HRQoL), data examining the benefits of weight loss in people with T2D are scarce.

**2** The aim of this study was to investigate changes in HRQoL in adults with T2D, taking into account each individual's perception of weight loss compared to their actual weight loss.

**3** The authors analysed data from participants who were enrolled in the US Study to Help Improve Early evaluation and management of risk factors Leading to Diabetes (SHIELD) 2008 survey.

**4** A total of 792 participants reported weight loss, of whom 75.4% actually lost weight. People who reported weight loss and actually lost weight had the same HRQoL as individuals who reported weight loss but gained weight ( $P>0.05$ ), with the exception of a difference in self-esteem ( $P=0.004$ ).

**5** No difference in HRQoL was detected between participants who reported and experienced weight gain compared to people who reported weight gain and but actually lost weight ( $P>0.20$ ).

**6** Significantly better HRQoL was observed in people who perceived weight loss compared to people who perceived weight gain.

**7** The authors concluded that perceptions of weight change could have the same impact as actual weight change on HRQoL in adults with T2D.

Grandy S, Fox KM, Bazata DD et al (2013) Health-related quality of life association with weight change in type 2 diabetes mellitus: perception vs reality. *Int J Clin Pract* **67**: 455–61

### Targeting weight in diabetes: Deserving of more attention?



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**C**linical experience for many healthcare professionals would indicate that only a minority of our patients with T2D achieve meaningful and sustained weight loss. Consequently, many consultations pay less attention to weight and more to glycaemic control, in addition to

other risk factors. Nevertheless, in recent years, the mechanisms linking weight gain to the development of diabetes have begun to be better understood. In susceptible individuals, the gain of ectopic fat within the liver and muscle, as well as potentially other tissues, promote insulin resistance and via this, accelerate the development of hyperglycaemia. Ectopic fat may also partially be responsible for pancreatic insufficiency though more work is needed to confirm this latter possibility. Consequently, it should be no surprise to see reversal of diabetes upon major calorie restriction, when parallel reductions in ectopic fat are evident, particularly in the liver (Lim et al, 2011). These insights have provided a much needed boost to better target weight change to prevent/delay diabetes and have also helped promote a research agenda to test diabetes reversal (and critically, determine its sustainability) in the NHS clinical setting.

In light of this recent attention on weight change, the paper by Grandy et al (summarised alongside) suggests that weight change in diabetes may deserve an even wider focus. Using the results of a 5-year survey, the authors demonstrated that self-perception of weight change impacts upon health-related quality of life (HRQoL) in the same manner as actual weight loss or weight gain among adults with T2D. Whilst the methodology for this study could have been stronger, and other factors will also contribute to HRQoL, a strong association between weight loss and improved HRQoL was clearly evident.

Why are the results of this study interesting? We know that by targeting blood pressure and cholesterol we can lower cardiovascular mortality and lengthen life expectancy (Sattar, 2013), but such treatments do not to improve HRQoL. Yet, we

spend a considerable amount of time in diabetes clinics targeting glycaemia, lipids and blood pressure. However, we feel less able and therefore perhaps concentrate less, on tackling weight change, despite its potential benefits to HRQoL. Of course, weight management education is something that has only recently begun to be introduced into doctors' training, and weight management requires time (limited in clinics) and expertise, as well as willingness from the individual to want to change their lifestyle. Interestingly, a recent high-quality randomised controlled trial showed that in fact weight loss was more successful in the hands of a commercial provider than within the NHS, though admittedly most of the participants in these trials did not have diabetes (Jebb et al, 2011). Nevertheless, this and related trials suggest commercial providers are a better resource to help patients achieve meaningful weight loss.

A similar trial in people with diabetes would, therefore, be interesting, and perhaps in the interim we should not be averse to referring or directing our patients, especially earlier in the course of their diabetes, to commercial providers. This statement may be controversial, but the rising incidence of diabetes, in part fuelled by higher obesity levels (Holden et al, 2013), as well as the observations linking improved quality of life to weight loss suggests it is timely to refocus our efforts on weight loss in diabetes.

Holden SH, Barnett AH, Peters JR et al (2013) The incidence of type 2 diabetes in the United Kingdom from 1991 to 2010. *Diabetes Obes Metab* **15**: 844–52

Jebb SA, Ahern AL, Olson AD et al (2011) Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial. *Lancet* **378**: 1485–92

Lim EL, Hollingsworth KG, Aribisala BS et al (2011) Reversal of type 2 diabetes: normalisation of beta cell function in association with decreased pancreas and liver triacylglycerol. *Diabetologia* **10**: 2506–14

Sattar N (2013) Revisiting the links between glycaemia, diabetes and cardiovascular disease. *Diabetologia* **56**: 686–95

## DIABETES

### Early benefits of Roux-en-Y gastric bypass surgery: Similar to VLCD?

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

- The authors aimed to establish whether the improvement in glycaemic control associated with RYGB is caused by caloric restriction or the surgical intervention itself.
- A total of 11 participants who had undergone RYGB surgery were compared to 14 individuals that were matched on mean BMI, HbA<sub>1c</sub> and diabetes duration. Those who did not undergo RYGB were admitted to an inpatient research unit and provided with a very low calorie diet (VLCD) consisting of 500 kcal/day, which had a similar macronutrient content to the diet that was given to individuals after RYGB.
- There was no significant difference in the amount of weight lost between the two groups over the mean study period of 21 days.
- Both groups also showed similar improvement in insulin sensitivity, beta-cell function (measured by disposition index) and acute insulin secretion after the administration of intravenous glucose.
- No significant difference was observed between the two groups with regard to changes in fasting glucose and fructosamine.
- The authors concluded that short-term improvements in insulin sensitivity and beta-cell function were similar with RYGB surgery when compared to a VLCD.

Jackness C, Karmally W, Febres G et al (2013) Very low calorie diet mimics the early beneficial effect of roux-en-Y gastric bypass on insulin sensitivity and beta-cell function in T2D patients. *Diabetes* 22 Apr [Epub ahead of print]

## DIABETES OBES METAB

### Increase in T2D incidence over 20 years

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

- Evidence shows that both the incidence and prevalence of T2D has been rising in adults, children and adolescents living in the UK. Research also suggests that the age of diabetes diagnosis is decreasing.
- The authors performed a retrospective cohort analysis to determine the incidence of T2D in the UK between 1991–2010 and to identify trends in the diagnosis of T2D in people aged 40 years or younger.
- Medical history data, including diagnoses, test results and prescriptions information, was identified from people with T2D who were included in the UK Clinical Practice Research Datalink (CPRD) registry.
- The incidence of T2D was 515 per 100 000 population in 2010. Standardised incidence ratios (SIR) were 158 (95% CI, 157–160;  $P < 0.001$ ), 237 (235–238;  $P < 0.001$ ) and 275 (273–276;  $P < 0.001$ ) for 1996–2000, 2001–2005 and 2006–2010.
- In all age groups, the incidence of T2D increased with each 5-year calendar period. T2D incidence was higher in both males aged over 40 years and females aged  $\leq 40$  years.
- The authors concluded that T2D incidence increased between 1991–2001, with a notable rise in the number of people diagnosed  $\leq 40$  years of age.

Holden SH, Barnett AH, Peters JR et al (2013) The incidence of type 2 diabetes in the United Kingdom from 1991 to 2010. *Diabetes Obes Metab* 15: 844–52

# Type 2 diabetes

## DIABETES CARE

### Beta-cell function in the Asian Indian population

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

**1** Beta-cell exhaustion resulting from insulin resistance and elevated insulin production has been implicated in the aetiology of diabetes.

**2** The Asian Indian population has a high prevalence of diabetes despite low BMI and age. Therefore, the authors of this study aimed to investigate beta-cell function in a cohort of Asian Indian people with different levels of glycaemia.

**3** Of 1264 participants, 341 were found to have normal glucose tolerance (NGT), 672 had impaired fasting glucose, impaired glucose tolerance or impaired fasting glucose and 251 were diagnosed with diabetes.

**4** Trends in insulin resistance and sensitivity did not significantly differ across glycaemic categories.

**5** In those displaying mild dysglycaemia, differences in oral disposition index ( $DI_o$ ) were larger than the differences observed in Homeostasis Model of Assessment – Insulin Resistance ( $P < 0.0001$ ), regardless of age or sex. After adjustments for age, sex, BMI and family history, the chance of mild dysglycaemia was significantly greater with each standard deviation of  $DI_o$ .

**6** The authors concluded that Asian Indian people with mild dysglycaemia displayed reduced beta-cell function, irrespective of factors such as adiposity, age and previous family history.

Staimez LR, Weber MB, Ranjani H et al (2013) Evidence of reduced beta cell function in Asian Indians with mild dysglycemia. *Diabetes Care* 17 Apr [Epub ahead of print]

## DIABETES CARE

### BMI near diagnosis and mortality risks

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

**1** The aim of this study was to determine the relationship between BMI and mortality in a large population of people with T2D.

**2** The authors analysed medical record data from 106 640 people living in Scotland. Cox proportional hazards regression was applied to investigate the association between BMI recorded near the time of diagnosis and mortality. Individuals with a BMI under 25 to  $<30 \text{ kg/m}^2$  were the referent group.

**3** Between 2001–2007, a total of 9631 deaths occurred.

**4** In comparison to the referent group, mortality risk was elevated in participants with a BMI between 20 to  $<25 \text{ kg/m}^2$  (hazard ratio [HR] 1.22; 95% CI, 1.13–1.32 in men and HR 1.32; 1.22–1.44 in women).

**5** All cause mortality risk was also increased in people with  $\text{BMI} \geq 35 \text{ kg/m}^2$  and vascular mortality was higher by 24% (15–35%) for each  $5 \text{ kg/m}^2$  increase in  $\text{BMI} > 30$ .

**6** These findings were not significantly altered by adjusting for  $\text{HbA}_{1c}$ , blood pressure, lipid levels, socioeconomic status or year of diagnosis.

**7** The authors concluded that people classified as normal or overweight within a year of T2D diagnosis have a greater mortality risk.

Logue J, Walker JJ, Leese G et al (2013) Association between BMI measured within a year after diagnosis of type 2 diabetes and mortality. *Diabetes Care* 36: 887–93