

## Paediatrics

### **Accuracy of perceptions of overweight among parents and adolescents with diabetes in relation to self-care behaviour**



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**T**ype 2 diabetes is a serious comorbidity of childhood overweight and obesity. Emerging data suggest that the condition is difficult to treat and that both micro- and macrovascular complications are more common and present earlier

than in young people with type 1 diabetes (for a review see Pinhas-Hamiel and Zeitler, 2007). Data from studies of adults suggest that weight loss can provide significant metabolic benefits both in terms of glycaemia as well as cardiovascular risk. Currently there are no robust studies in the paediatric population that suggest these findings may be extrapolated to children, but weight loss is one of the goals of management of childhood type 2 diabetes.

Recent studies suggest that it can be difficult for families to accurately assess whether their child may have a problem with excess weight. It is likely that the reasons for these difficulties will be complex, but recent demographic shifts in the weight of the childhood population may mean that playground comparisons of weight among peer groups could provide a false sense of security. It may be anticipated that the development of a serious weight-related comorbidity should provide evidence for families that weight issues need to be tackled. Yet this study by Skinner et al (2008) suggests that even adolescents with type 2 diabetes and their parents underestimate the

severity of the weight problem. The mean body mass index (BMI) of 104 adolescents with diabetes was 36.4 kg/m<sup>2</sup>, and 87% were overweight by North American guidelines. Yet only 41% of parents and 35% of adolescents considered that the adolescent was 'very overweight'. Forty per cent of parents whose child had a BMI >95th centile felt that their child's weight was 'about right', and 55% of adolescents with a BMI >95th centile were happy with their weight. Adolescents were more likely to underestimate their weight if their parents did the same. Not surprisingly, these misperceptions do have an impact on approach to lifestyle changes. Both parents and adolescents who underestimated weight had poorer dietary and physical activity behaviours than those who were more perceptive.

Although this is a small study, these results are staggering given the degree of excess weight in a group of adolescents with type 2 diabetes attending a paediatric diabetes service. It is difficult to know the reasons for this lack of understanding. Good communication is essential and must be tailored to the level of understanding of individual patients and their families. Lack of insight may be important, and it would have been interesting to know the BMI of the parents/carers of the adolescents taking part in this study. Engagement of adolescents in their diabetes management can be difficult: the challenge of changing familial perceptions is a much more daunting prospect.

Pinhas-Hamiel O, Zeitler P (2007) Acute and chronic complications of type 2 diabetes mellitus in children and adolescents. *Lancet* **369**: 1823–31

### DIABETES CARE

### **Many adolescents with diabetes do not perceive they are overweight**

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

- 1 As more than 80% of children with type 2 diabetes are overweight, it is critical that the children and parents are aware of the serious negative health consequences and the importance of self-care behaviours.
- 2 In order to determine perceptions of overweight, 104 adolescents with type 2 diabetes and their parents were interviewed about their views on the adolescents' weight, diet and level of physical activity, as well as their perceived barriers to healthy behaviour.
- 3 Based on the Centres for Disease Control guidelines, 87% of the adolescents were determined as overweight, with a further 5.9% of adolescents at risk of being overweight.
- 4 Typically, most adolescents and their parents underestimated the adolescents' weight, with only 41% of the parents and 35% of the adolescents considering the adolescent 'very overweight'.
- 5 Families who underestimated the adolescents' weight were more likely to have a poorer diet and a low level of physical activity; they also had perceived barriers to healthy behaviour in terms of diet and exercise.
- 6 Clinicians should be aware that overweight adolescents with type 2 diabetes and their parents may not always recognise the presence of a weight problem and may not understand the related adverse risk to the adolescents' health.

Skinner A, Weinberger M, Mulvaney S, Schlundt D, Rothman RL (2008) Accuracy of perceptions of overweight and relation to self-care behaviours among adolescents with type 2 diabetes and their parents. *Diabetes Care* **31**: 227–9

## DIABETOLOGIA

### IIT improves endothelial function

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

**1** Endothelial dysfunction has been shown to occur early in the development of type 1 diabetes; abnormalities present in children with type 1 diabetes are related to glycaemic control and diabetes duration.

**2** This study examined whether intensive diabetes management in young people with type 1 diabetes can improve markers of endothelial function and skin microvascular reactivity, which are related to glycaemic control.

**3** In total, 92 young people with type 1 diabetes (aged 8–18 years) were randomised to receive conventional insulin therapy (CIT;  $n=28$ ), CIT and 'Sweet Talk' (a text messaging support;  $n=33$ ) or intensive insulin therapy (IIT) and 'Sweet Talk' ( $n=31$ ).

**4** HbA<sub>1c</sub> and vascular measurements were performed at the start of the study and after 12 months.

**5** Glycaemic control deteriorated in the group receiving CIT, but significantly improved in the group receiving intensive diabetes management (IIT and 'Sweet Talk';  $P=0.007$ ).

**6** Additionally, young people receiving IIT showed significantly greater improvements in E-selectin levels ( $P<0.0001$ ) and had improved vascular responses to acetylcholine ( $P=0.017$ ), independent of HbA<sub>1c</sub> level.

**7** Intensive diabetes management improved metabolic control, endothelial function and microvascular reactivity in young people with type 1 diabetes; as changes were independent of HbA<sub>1c</sub>, IIT may offer additional vascular protection.

Franklin VL, Khan F, Kennedy G, Belch JJJ, Greene SA (2008) Intensive insulin therapy improves endothelial function and microvascular reactivity in young people with type 1 diabetes. *Diabetologia* **51**: 353–60

## DIABETIC MEDICINE

### Most young people with diabetes on ICT

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

**1** The study analysed data from 26687 young people (mean age 13.6 years) with type 1 diabetes to establish prevailing treatment regimens for prandial insulin substitution.

**2** In total, 73% of the young people were treated with intensified

conventional treatment (ICT;  $\geq$  four daily insulin injections), 14% with continuous subcutaneous insulin infusion and 13% with conventional treatment (one to three daily insulin injections).

**3** Duration of diabetes, increasing age, female gender, insulin analogues and ICT were significantly associated with higher prandial insulin doses; mean HbA<sub>1c</sub> did not markedly improve over the study (mean 8%).

Knerr I, Hofer SE, Holterhurst PM et al (2007) Prevailing therapeutic regimes and predictive factors for prandial insulin substitution in 26687 children and adolescents with type 1 diabetes in Germany and Austria. *Diabetic Medicine* **24**: 1478–81

## DIABETES CARE

### Insulin aspart CSII is as efficacious as insulin lispro CSII

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

**1** Young people (aged 4–18 years) with type 1 diabetes treated for  $\geq 3$  months with continuous subcutaneous insulin infusion (CSII) therapy were randomised to either insulin aspart CSII ( $n=198$ ) or insulin lispro CSII ( $n=100$ ) for 16 weeks to compare their efficacy and tolerability.

**2** Efficacy was determined as change in HbA<sub>1c</sub> from baseline to end of study at 16 weeks; tolerability was assessed by reporting of adverse events and clinical findings.

**3** HbA<sub>1c</sub> goals at baseline and at 16 weeks were met by 50.3% and 59.7%, respectively, of the aspart group and by 40.4% and 43.8%, respectively, of the lispro group.

**4** There were no significant differences in fasting and self-monitored plasma glucose and adverse events between treatment groups.

**5** Both insulin aspart CSII and insulin lispro CSII are efficacious and safe.

Weinzimer SA, Ternand C, Howard C et al (2008) A randomised trial comparing continuous subcutaneous insulin infusion of insulin aspart versus insulin lispro in children and adolescents with type 1 diabetes. *Diabetes Care* **31**: 210–15

## DIABETIC MEDICINE

### Insulin glargine is well tolerated in children

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

**1** The study determined the long-acting effects and tolerability of insulin glargine in 17 prepubertal children (median age 10.2 years) with type 1 diabetes.

**2** Participants were randomised into three, 3-week treatment blocks of

three insulin injections daily; all included insulin glargine pre-bed, with different morning insulins (soluble, soluble plus insulins NPH and aspart plus NPH).

**3** Compared with the 2-week run in period on NPH insulin, the three insulin glargine treatment regimens resulted in lower and more constant morning glucose concentrations, with an 8–15% reduction in total daily insulin dose.

**4** Risk of nocturnal hypoglycaemia was lowest with a reduced dose of insulin glargine pre-bed plus insulins aspart and long-acting NPH in the morning.

Fröhlich-Reiterer EE, Ong KK, Regan F et al (2007) *Diabetic Medicine* **24**: 1406–11

**‘Risk of nocturnal hypoglycaemia was lowest with a reduced dose of insulin glargine pre-bed plus insulins aspart and long-acting NPH in the morning.’**