

# DIABULIMIA

by Dr Warren Lee, paediatric endocrinologist

SPECIAL FEATURE

**D**id you know that diabetes is associated with increased risk for eating disorders?

Disordered eating is often seen in people with diabetes, but the type of disordered eating behaviour varies with the type of diabetes and the profile of the patient.<sup>1</sup>

Disordered eating and associated behaviours in diabetes can be dangerous, because it can lead to severe hypoglycaemic episodes and recurrent diabetic ketoacidosis.

People with type 1 diabetes and disordered eating patterns and behaviour patterns may skip meals, skip insulin, or exercise excessively while not eating enough carbohydrate and thus experience hypoglycaemia, hyperglycaemia or recurrent unexplained ketoacidosis.

People with this problem may be overweight or slim or have normal weight but they often have poorly controlled diabetes because the erratic dosing, exercise and food intake make it very difficult for the diabetes team to make the correct recommendations for insulin doses and because very often there is a strong element of denial. Sometimes the patient is supposedly on enormous doses of insulin (e.g., 1.5-2 u/kg/day) but has been skipping one or more doses so the real insulin dose per day is far less. If they are actually admitted to hospital and given all the prescribed insulin, they could have severe hypoglycaemia.

People with type 2 diabetes mellitus seem to exhibit more of binge eating disorders and some may intentionally omit oral hypoglycaemic drugs, resulting in poor glycaemic control, and weight loss. In some ways, it is the same with both type 1 and type 2 diabetes.

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## What happens when a patient does not take enough insulin or oral medication?

There will not be enough insulin to allow glucose to enter the cells. The body then switches to the use of fat, which encourages loss of fat tissue, but at the same time, because the signal goes out to increase glucose production, the body will also break down muscle in order to produce more glucose.

Eventually, the body composition changes such that the percentage body fat increases and overall muscle bulk and physical fitness will suffer. The blood ketones will go up, sometimes because of starvation ketones and sometimes because of insufficient insulin. The patient's energy levels tend to fall, where there may be hair loss, and possibly an increase in the size of the liver due to fatty infiltration while the muscle bulk and muscle tone falls drastically. This is called Mauriac Syndrome.

A recent Australian study of 124 teenagers with type 1 diabetes aged 13 to 18 showed that disturbed eating behaviour was reported by approximately one-third of participants (32.3%) and was common in females and males (37.9% versus 25.9%).

Binge eating (17.7%), driven exercise (13.0%) and dietary restraint (8.9%) were the most common disturbed eating behaviours, although restraint was not evident in males. Insulin manipulation/omission (5.6%), vomiting (3.3%), laxative (0.8%) or diuretic use (0.8%) were less common.<sup>2</sup>

Another Canadian study among 98 teenage girls with type 1 diabetes, studied at nine to 14 years at baseline and five years later at 14 to 18 years, showed that depression and disturbed eating behaviour were common and frequently concurrent in this cohort. It was encouraging that poor metabolic control was not yet strongly associated with either depression or DEB. At year five, 12.2% of girls reported current depressive symptoms, 49.0% reported current DEB, and 13.3% had a full or subthreshold eating disorder (ED), and 75.0% of girls with depression also endorsed DEB versus 45.3% of girls without depression ( $p=0.05$ ).<sup>3</sup>

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## Risk Factors & Clinical Signs

Risk factors for the development of eating disorders in type 1 and type 2 diabetes include female gender, increased body weight, dissatisfaction with one's own body, a history of dieting, and a history of depression. Patients tend to be in denial of the problem.<sup>1</sup> This causes lots of problems for the treating doctor.

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If you are checking their blood glucose patterns, look out for patterns of highs and lows and unexplained persistent ketones in the blood (blood ketones strips are available which can be used in certain brands of blood glucose metre). There may be a history of always wanting to go to the gym and extreme avoidance of carbohydrates in the daily diet.

It is important that doctors, caregivers and loved ones be aware and open about this problem. Management of disordered eating behaviour in this group needs to be a multi-disciplinary effort. Greater awareness and, hence, early detection and frank discussion in interactive sessions have shown to be effective. Often, the doctor has to work with a psychiatrist or psychologist experienced in eating disorders.

Some patients will also have problems with schoolwork and school attendance. Some have argued that prevention includes not being obsessive about dietary restrictions and portions when the patient is younger, so that there is less risk of rebound later. This is also a strong argument for the use of basal bolus therapy or insulin pump therapy rather than twice a day mixed insulin injections, because the dietary restrictions in basal bolus therapy would be less onerous.

However, people with diabetes and disordered eating can recover and get better with regard to their eating patterns and diabetes control. It takes effort, it takes time and it requires that the patient, the care team and the family members develop insight and a determination to face the problem squarely.

References:

<sup>1</sup> Curr Diab Rep. 2012 Dec 25, Epub ahead of print] Eating Disorders in Adolescents with Type 2 and Type 1 Diabetes. Pinhas-Hamiel O, Levy-Shraga Y.)

<sup>2</sup> J Paediatr Child Health. 2012 Dec 2. Disturbed eating behaviours and thoughts in Australian adolescents with type 1 diabetes. d'Emden H, Holden L, McDermott B, Harris M, Gibbons K, Gledhill A, Cotterill A.)

<sup>3</sup> Pediatr Diabetes. 2013 Feb 19. doi: 10.1111/pedi.12016. [Epub ahead of print] Depression, disturbed eating behavior, and metabolic control in teenage girls with type 1 diabetes. Colton PA, Olmsted MP, Daneman D, Rodin GM.

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