

Using a low energy formula diet in obese patients with long-standing type 2 diabetes treated with insulin produces significantly greater weight loss, improvement in glucose control and insulin reductions compared to gold standard clinical care over a 12-week period.

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AC Brown¹, S Taheri², A Dornhorst¹, N Kapoor¹, B McGowan³, AR Leeds^{4,5} & G Frost¹

1. Nutrition and Dietetic Research Group, Faculty of Medicine, Imperial College, London, UK
2. Department of Medicine and Clinical Research Core, Weill Cornell Medical College in New York USA, and Doha, Qatar
3. Diabetes and Endocrinology Department, Guy's & St Thomas' NHS Trust, London, UK
4. Diabetes and Endocrinology Department, Central Middlesex Hospital, London, UK
5. Nutrition, Exercise and Sports, Faculty of Science, University of Copenhagen, Denmark

Background: Insulin is the most potent therapy for glycaemic control, in the management of Type 2 diabetes, but its use is associated with weight gain. Acute energy restriction may have a role in weight loss and reduction of insulin requirements.

Aims: To investigate the short-term (12-weeks) effects of a low energy formula diet (LED) compared with gold-standard clinical care (GSC) on weight loss, glycaemic control and reduction in insulin dose in patients with long-standing insulin-treated Type-2 diabetes.

Methods: Twenty obese patients with Type 2 diabetes treated with insulin (mean age 55.8±9.1 years, weight 100.1±10.4kg, diagnosis duration 13.6±7.2years, duration on insulin 4.7±3.0 years, insulin doseage 63.5± 37.3 units) were randomised into either LED (808-836kcal/day) or GSC (600kcal deficit diet) for 12-weeks (n=10, each group). Both received additional behaviour change and physical activity advice. Results shown are mean ± SD.

Results: Weight loss was greater using an LED compared to GSC (9.8±4kg vs. 2.2±2.2kg; p<0.0001). Percentage total insulin fell in both groups (-75.7% LED, -46.1% GSC; p=0.0001). Four patients using an LED discontinued insulin compared with none on GSC. HbA1c was reduced by 11.3mmol/mol (1.0%) following LED (p=0.009) and by 7.0mmol/mol (0.63%) following GSC (p=0.09). Fat mass was significantly reduced in both LED and GSC (p=0.011 & p=0.004, respectively) with a greater reduction in the LED group (3.67kg; p=0.023). Lean mass loss was not significantly different in both LED and GSC (p=0.053 and p=0.398).

Conclusions: Using a LED for 12-weeks produces significantly greater weight loss, reduction in insulin dosage and improvement in HbA1c within long-standing insulin-treated Type 2 diabetes compared with gold-standard clinical care.

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