

# Obesity wars: a pilot study of very low calorie diets in obese patients in general practice

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## SUMMARY

*In this study we aimed to determine whether very low calorie diets (VLCDs) can be an effective means of weight reduction in obese patients in general practice. Twenty-six patients showed a mean reduction in weight of 15kg and in body mass index (BMI) of 6.1% within a 12-month period. VLCDs with regular monitoring and feedback were shown to be effective in reducing and maintaining weight loss for up to a year with no reported serious side effects.*

*Keywords: obesity; BMI; very low calorie diets.*

## Introduction

At least 50% of adults in the United Kingdom (UK) are overweight (Body Mass Index [BMI] >25) and 15% are obese (BMI >30).<sup>1</sup> Obesity is a significant contributor to morbidity, including cardiovascular disease, diabetes, hypertension, hyperlipidaemia, cholelithiasis, osteoarthritis, postoperative complications, and psychological stress.<sup>2</sup> The cost of treating the complications of obesity in the United States (US) has been estimated at 8% of all health costs.<sup>3</sup>

Very low calorie formulation diets (VLCDs) are one method of reducing obesity. Recommendations for optimal VLCDs for obese men are intakes of 500 kcal/day, including 50 g protein. Ketogenic diets such as VLCDs have a protein-sparing effect and also reduce the hunger drive. VLCDs have been successfully used for weight reduction in the US.<sup>4</sup> One UK study of VLCDs in primary care noted an average weight loss of 1.24 kg per week. However, this was only assessed on a 12-week programme.<sup>5</sup> A similar study at the Cambridge Nutrition Unit showed mean weight losses of 15 kg over eight weeks using a VLCD of 400 kcal/day.<sup>6</sup> However, this study also failed to provide long-term follow-up data. Energy restriction as a tool for inducing weight loss is highly effective in obese subjects.<sup>7</sup> There are no published studies on the use of VLCDs and follow-up over a 12-month period in UK general practice.

## Method

The study took place from August 1994 to July 1996. Male and female patients aged 16 to 75 years, with a BMI >30, attending a general practice in South Croydon were opportunistically invited to take part in a trial of a VLCD. The VLCD was explained to the patient and a medical history and examination were obtained to ensure suitability for inclusion in the study. Exclusion criteria included myocardial infarction or unstable angina within the past six months, history of ventricular tachycardia, cerebrovascular accident within the past three months, history of appetite disorders such as anorexia nervosa, congestive cardiac failure, pregnancy or lactation, insulin dependent diabetes, renal or hepatic

impairment, active carcinoma, epilepsy, major surgery, trauma, or general anaesthetic within the past 12 months.

All participants were invited to attend an introductory lecture with general practitioners and practice nurses present. Those interested were invited for a general practice appointment where informed consent was obtained and initial weight, height, and BMI were recorded. Previous medical history, smoking status, and family history of cardiovascular disease were also noted. Patients were given a target weight equivalent to a BMI of 25. Once this was achieved the VLCD was stopped and eating patterns resumed based on a healthy diet.

The VLCD used (Lipotrim) was a total meal replacement based on a reconstituted drink and a cereal bar, taken three times each day. This was only available as a private prescription costing £30 per week to the patient and supplied from a local chemist. Patients were also advised to drink between 2 and 4 litres of fluid each day.

Patients were weighed weekly by the practice nurses, and compliance with diet was checked and supplemented by further patient education and advice on exercise. Patients were also reviewed monthly by their general practitioner.

## Results

Twenty-four females and two males were recruited from 490 eligible patients (compiled from a computer search for patients with BMI >30). The mean age was 46.6; range 27 to 83. Twenty-five patients completed the programme for a minimum of 12 months. One female patient dropped out at two months as she was unable to comply with diet.

The mean initial weight was 102.9 kg (SD = 19.1). After 12 months, the mean reduction in weight was 15.0 kg (95% CI = 11.3 to 18.8) and in BMI was 6.1 (95% CI = 4.6 to 7.5);  $P < 0.001$  (Table 1). Three patients reached a target BMI of 25. Two further patients successfully underwent hip and knee replacement surgery after reducing BMI by approximately 15%.

There were no serious adverse side effects reported. Common minor side effects included headache, constipation, nausea, and diarrhoea, usually due to inadequate fluid intake.

## Discussion

In this pilot study, VLCDs paid for by the patients with regular monitoring and feedback were effective in reducing and maintaining weight loss for up to one year. However, these were selected patients who were likely to be highly motivated as they were prepared to pay for the diet. Most patients reported that the cost of the VLCD diet was similar to the cost of their normal eating habits. Only one of the 26 patients failed to complete the programme.

There was a small increase in practice workload; however, both practice team and patients felt the time invested was worthwhile. Incorporation of behavioural therapy and physical activity in VLCD treatment may further enhance outcome.<sup>4</sup> Patients completing the VLCD programme were all offered continuing dietary support and monthly appointments with the nurse for lifestyle advice and weight monitoring. Continued follow-up of this group will determine if the weight loss is sustained beyond 12 months.

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**Table 1.** Reductions in weight and BMI in 25 obese patients on a very low calorie diet programme over 12 months.

	Weight in kg		BMI in kg/m <sup>2</sup>	
	Mean (SD)	Reduction from baseline (95% CI)	Mean (SD)	Reduction from baseline (95% CI)
Initial	102.9 (19.1)		38.7 (6.6)	
3 months	90.7 (19.9)	12.2 (8.5 to 16.0)*	34.1 (7.0)	4.6 (3.2 to 6.0)*
6 months	88.2 (19.3)	14.8 (10.4 to 19.2)*	33.1 (6.9)	5.5 (3.9 to 7.2)*
12 months	87.9 (19.8)	15.0 (11.3 to 18.8)*	32.6 (5.9)	6.1 (4.6 to 7.5)*

\* $P < 0.001$  by one sample  $t$ -test for all reductions from baseline in weight and BMI.

This study suggests that VLCD's may be effective in medium-term weight loss in some obese and severely obese patients in primary care. The long-term value and wider application needs further evaluation.

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