

INITIAL VERY LOW CALORIE DIET (VLCD) IMPROVES ULTIMATE WEIGHT LOSS

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Thirty-eight consecutive obese persons were treated as outpatients. The treatment commenced with VLCD formula diet NUPO (females 388 kcal, 1600 kJ, 56 g protein; males 446 kcal, 1864 kJ, 69 g protein). VLCD had no untoward effects and was continued for as long as the patient would accept. After that the formula diet was supplemented with ordinary items of food and drink to the level of 1000 kcal (4200 kJ) for women and 1100 kcal (4600 kJ) for men. After 5 months the data were analyzed separately according to the duration of VLCD: group 1 (n = 20): VLCD for less than 2 months, and group 2 (n = 18): VLCD for 2 months or more. The two groups were comparable with regard to height, absolute weight and percentual overweight, but group 2 was somewhat older than group 1 (49.5 vs 38.3 years, $P < 0.01$). Group 2 lost significantly more weight, both totally (17.1 kg (7.8–40.1)) and on VLCD alone (12.3 kg (4.1–28.8)), than group 1 (8.7 kg (–1.1 to 19.1), $P = 0.008$; and 7.3 kg (0.9–18.2 $P = 0.01$). Weight losses in both groups eliminated or strongly reduced the need for a wide variety of expensive drugs: antidiabetics, diuretics, antihypertensives, analgetics, etc. It is concluded that VLCD is an effective and encouraging way of starting a dieting program, and that it should be continued for at least two months, as the length of the initial VLCD period related significantly to the amount of weight eventually lost.

Introduction

Very low calorie diet (VLCD), if it is of an adequate composition, especially with regard to protein, has long been a safe way of bringing about a considerable weight loss in obese persons within a reasonable time^{1,2}.

A Danish preparation (NUPO) has been used by us as a VLCD in the proper sense of the word, i.e. as the sole source of nutrition, for monthly periods³. Furthermore, we use it as the mandatory base in diets of higher energy contents, usually 1000 kcal (4.2 MJ). One major reason for this is our experience that many patients do not follow a traditional diet instruction and, having done so, try to remedy this by eating less of the diet's valuable components. Alternatively, they try to keep within the traditional diet's overall energy frame by inserting grossly insufficient periods of total or near total starvation. Risks such as these are avoided if the obligatory daily ration of nutrition powder (388 kcal for women, 446 for men) is adhered to.

In our diets the nutrition powder is supplemented with iso-energetic units of ordinary food and drink, each of about 63 kcal, and the portions are visualized as small pictures ('counters') of which there are three colours^{4,5}: blue for items rich

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Table 4. Total group divided according to duration of initial VLCD. Group 1, VLCD for less than 2 months; group 2, VLCD for 2 months or more.

Group	Number of patients	Females	Males	Age	Initial weight (kg)	Initial overweight (%)
1	20	16	4	34.9 (15-63)	112.4 (77.6-175.1)	72 (27-150)
2	18	16	2	49.5 (27-68)	110.5 (84.7-157.9)	78 (43-144)
Total	38	32	6	41.8 (15-67)	115.5 (76.6-175.1)	75 (27-150)

Table 4. They were comparable with regard to height, initial absolute weight and percentage overweight, but group 2 was significantly older than group 1 (49.5 vs 38.3 years, $P = 0.01$).

Results

The weight losses of the two groups are shown in Table 5. It will be seen that group 1, who had given up VLCD early, lost much less weight, both in absolute and relative terms, than group 2, who had more faithfully stuck to the initial VLCD regimen. The differences are significant with regard to both total weight loss and weight loss on VLCD.

Table 5. Weight loss 5 months after initiation of study.

Group	Weight loss on VLCD (kg)	Total weight loss (kg)	Total reduction of overweight (%)
1 VLCD < 2 months	7.3 (0.9 to 18.2)	8.7 (-1.1 to 19.1)	15 (3 to 30)
2 VLCD \geq 2 months	12.3 (4.1 to 28.8)	17.1 (7.8 to 40.1)	27 (10 to 60)
Significance of difference	$P = 0.01$	$P = 0.0008$	$P = 0.001$

In all cases where control values were obtained, elevated values for serum cholesterol, triglyceride and fasting blood glucose became normal without drug therapy.

As weight loss progressed, it became possible to withdraw or drastically reduce much costly medication in both groups (Table 6). Drop-out rate, or adherence to the program, as evidenced by total treatment time, was significantly different in the two groups: in group 1 the duration of total treatment was 2.8 months

Table 6. Weight loss reduces the need for drugs.

Antidiabetics, antihypertensives, diuretics, analgesics	Medication at entry	Medication discontinued	Dose reduced
Number of patients (n = 38)	13	10	3

- 4 Hey, H., Petersen, H. D., Andersen, T. & Quaade, F. (1987): Formula diet plus free additional food choice up to 1000 kcal (4.2 MJ) compared with an isoenergetic conventional diet in the treatment of obesity. A randomized clinical trial. *Clin. Nutr.* **8**, 195-199.
- 5 Quaade, F. & Astrup, A. (1988): Is a good quality of life compatible with a slimming diet? *Medicographia* **10**, 21-23.