

*The challenge of translating nutrition research into public health nutrition, University College, Dublin, 18–20 June 2008*

## An assessment of very-low-calorie diets in Ireland

S. M. Gallagher, M. A. T. Flynn and S. J. Burke

*Food Safety Authority of Ireland, Lower Abbey Street, Dublin 1, Republic of Ireland*

Very-low-calorie diets (VLCD) are complete meal-replacement diets for weight reduction comprising liquid shakes, soups and possibly snack bars that provide between 1884 kJ (450 kcal)/d and 3349 kJ (800 kcal)/d. The average weight loss on these diets is between 1.5 kg/week and 2.5 kg/week<sup>(1)</sup>. The recent increase in overweight and obesity may lead to a greater uptake of VLCD in Ireland. Temporary side effects of VLCD use include hair loss, fatigue, constipation, oedema and changes in menses<sup>(2)</sup>. However, more serious adverse effects have included the development of cardiac arrhythmias and gallstones and the exacerbation of gout and osteoporosis<sup>(2)</sup>. Commission Directive 96/8/EC regulates foods intended for use in energy-restricted diets for weight reduction with an energy content of 3349 kJ (800 kcal)–5024 kJ (1200 kcal)<sup>(3)</sup>. However, the need for specific legislation relating to VLCD is recognized<sup>(3)</sup>. The lack of such legislation results in uncertainty about the essential composition of VLCD products. In the absence of EU regulation the Codex standard for formula foods for use in very low energy diets for weight reduction<sup>(4)</sup> can be applied to VLCD. The purpose of the present paper is to carry out an assessment of VLCD on the Irish market.

A selection of VLCD available in Ireland was compared with the appropriate standards. For the purpose of this analysis four daily menu plans were chosen from three varieties of VLCD. Published reports<sup>(2)</sup> on the side effects of VLCD were used to project the possible adverse effects among the overweight and obese population in Ireland should VLCD gain widespread use. ‘Widespread use’ was defined as 10% of those overweight and obese individuals who reported modifying their diet to lose weight in a nationally-representative sample (adults 18–64 years).

In a comparison with the Codex standard VLCD (*n* 4) do not comply in terms of the level of energy (*n* 2), protein (*n* 2), carbohydrates (*n* 3), Cu (*n* 1) and Mg (*n* 1). The Codex standard does not give recommendations for fibre; however, Commission Directive 96/8/EC for low-energy diets sets the fibre requirement at 10–30 g/d. None of the diets assessed met this recommendation. Two of the brands do provide a fibre-supplemented drink; however, this product is optional. There are 1.56 million adults who are overweight and obese in Ireland<sup>(5)</sup>. Analysis of the North/South Ireland Food Consumption Survey database found that 33% of overweight and obese adults reported modifying their eating habits in the past year because of weight concerns (i.e. 514 620 adults). Assuming 10% of those modifying their diets to lose weight use a VLCD (i.e. ‘widespread use’) the following side effects were projected: 5146 dieters with hair loss; 124 with acute gout; thirty-one with diabetic ketoacidosis; forty-seven hospitalizations as a result of cardiac arrhythmias.

VLCD currently available in Ireland do not meet the standard for the essential composition for VLCD. This finding is of concern, given the availability of such products without medical supervision or selection of suitable clients. Furthermore, VLCD are reportedly not any more effective in long-term weight-loss treatment than standard low-energy diets providing a minimum of 3349 kJ (800 kcal)/d.<sup>(1)</sup>

1. National Task Force on the Prevention and Treatment of Obesity, National Institutes of Health (1993) *JAMA* **270**, 967–974.
2. Kirschner MA, Schneider G, Ertel NH & Gorman J (1988) *Int J Obes (Lond)* **12**, 69–80.
3. European Commission (1996) Commission Directive 96/8/EC on foods intended for use in energy-restricted diets for weight reduction. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0008:EN:HTML>
4. Codex Alimentarius Commission (1995) The Codex standard for formula foods for use in very low energy diets for weight reduction. Codex Stan 203–1995. [www.codexalimentarius.net/download/standards/296/CXS\\_203e.pdf](http://www.codexalimentarius.net/download/standards/296/CXS_203e.pdf)
5. North/South Food Consumption Survey, IUNA, Summary report (2001) <http://www.iuna.net/documents/Food%20Survey%202001.pdf>