

CONFERENCE REPORT

Scientific conference on "very-low-calorie diets"

Downing College at the University of Cambridge, England, was a most appropriate venue for the meeting on "very-low-calorie diets" which was held between March 28 and March 30, 1989. The ex-Master, Lord John Butterfield, welcomed the delegates in the company of the Cambridge protagonists of very-low-energy diets — Dr Alan Howard and Dr Stephen Kreitzman. Workshop contributors, who are well-known in obesity research, included John Garrow and John Munro (United Kingdom), George Blackburn (United States), Fleming Quaade (Denmark), Per Bjorn-torp (Sweden) and Marion Apfelbaum (France). The meeting, which was sponsored by the Howard Foundation, was an official satellite meeting of the second European Congress on Obesity that was held at the University of Oxford between March 30 and April 1, 1989.

The scientific basis for "very-low-calorie diets" (also known as the protein-sparing modified fast, the liquid protein diet, the "Cambridge" diet and, in Australia, the very-low-energy diet) in the treatment of moderate-to-severe obesity has been studied for 60 years.^{1,2} Only in the last 16 years has the concept been "packaged" and marketed very effectively, under the trade names "Modifast" (Wander Australia Pty Ltd, Sydney) and "Optifast" (in the United States).³

The principles of very-low-energy diets include marked energy restriction (1250–1800 kJ [300–430 kcal] per day) but with a sufficient intake of high-grade protein to minimize a negative nitrogen balance and a loss of lean body mass. Additionally, very-low-energy diets include all essential vitamins and minerals to conform to the recommended daily allowances, and carbohydrate which serves to spare protein, to reduce ketonaemia and to conserve electrolytes.

The importance of high-grade protein intake from egg and milk sources was highlighted in 1977 by the "liquid protein diet scandal" in the United States.⁴ In users of the diet, an extremely high mortality rate (17 deaths per 100 000 users — 40-times the expected rate) was attributed to arrhythmias and myocarditis that were caused by a protein intake of poor nutritional quality (collagen and gelatin from animal hide), an inadequate intake of vitamins and minerals and possibly a toxic component.⁴

Alan Howard (Howard Foundation, Cambridge) reported that since then there have been an estimated 15 million users of modern very-low-energy diets in Europe and America. When administered in a research setting with close supervision and regular medical review, the general experience is that very-low-energy diets are very effective in the short term with weight losses of 1.0 to 1.5 kg per week; are safe with no serious complications and, indeed, no abnormally high reported mortality; are economical compared with many other avenues of obesity treatment; provide an aid to compliance by allowing no ambiguity in energy consumption; and promote a sense of well-being.

The stated safety of very-low-energy diets presumes that the users have obtained medical consent to proceed with treatment, or that they are patients under direct medical supervision. In the United Kingdom, Scandinavia and some states of the United States, very-low-energy diets are distributed to users by lay "counsellors" who are involved in marketing the product. In France and Australia, medical supervision is necessary and a doctor's prescription is required to undertake very-low-energy diets. Subjects for whom very-low-energy diets are relatively contraindicated include those with certain chronic diseases, including cardiovascular and/or renal

Timothy A. Welborn and Mark L. Wahlqvist

diseases, insulin-dependent diabetes mellitus, patients with substance abuse, and so on. Harold Shapiro (Hope Hospital, Salford, England) reported that the dosage of medications is likely to require adjustment, and particular problems may be encountered in those who take lithium. Also, the use of these diets is discouraged in children, pregnant or lactating women, elderly persons and those who are not significantly overweight.

The report of the Working Group on Very Low Calorie Diets reiterated these contraindications and recommended that very-low-energy diets should be used only when conventional diets fail; with a doctor's approval; and when they incorporate a minimum of 40 g of protein for women and 50 g of protein for men a day, plus the recommended dietary intakes of vitamins, minerals and essential fatty acids.⁵

General agreement about the safety and efficacy of very-low-energy diets was tempered by the uniform findings of a loss of fat-free mass, including a loss of protein from blood and skin and a reduction of heart mass, as reported by Michael Stock (Department of Physiology, St George's Hospital Medical School, London). In most studies, this was not considered excessive and indeed was considered equivalent to a negative nitrogen balance in ordinary low-energy diets. Mr A. Lemons from the University of Cambridge, and Wim Saris from the University of Limburg in The Netherlands, demonstrated an increase in physical work capacity and strength after very-low-energy diets.

The loss of fat-free mass and a parallel lowering of the metabolic rate occur in spite of various manipulations of protein and carbohydrate intake, and in spite of various exercise regimens, as was shown by Stephen Kreitzman (Cambridge Science Park, Cambridge) and Arne Astrup (Royal Veterinary and Agricultural University, Rolighedsvvej, Denmark). However, Markolf Hanefeld (Medical Academy, Carl Gustav Carus, Dresden, East Germany), showed a predictable decrease in blood pressure and blood lipid levels and an increase in insulin sensitivity in all subjects who lost weight, especially in cases of type-2 diabetes.

Compliance and efficacy are reported quite variably in studies of very-low-energy diets. John Munro (Eastern General Hospital, Edinburgh) quoted Professor V. Vertes of the Mount Sinai Medical Center in Cleveland, Ohio, USA, that at best, only one-third of obese subjects is able to complete more than two months of therapy and, at best, only 10% of subjects maintain their initial weight loss over a 12- to 18-month period.

Numerous adjuncts to very-low-energy diets alone were reported. These included: group therapy (Jackie Cox, University of Cambridge); behavioural modification (Gary Foster, Pennsylvania University, Philadelphia, USA); the newer anorectic drugs, dexfenfluramine and fluoxetine, both of which are serotonin agonists (Nicholas Finer, Guy's Hospital, London); exercise programmes including anaerobic resistance training which is preferred for obese persons (A. Lemons, Cambridge); and the addition of dietary fibre which appears to reduce hunger (Arne Astrup). All these measures appear to have some success in the short term in research settings.

Finally, a formal debate was staged — "Should very-low-calorie diets be used?" Dr Jacqueline Stordy (Biochemistry Department, University of Surrey, England) spoke for the case and outlined the positive aspects of their safety and efficacy. She accepted that nutritional loss does occur but stated that it is not considered excessive, and reiterated that very-low-energy diets assist compliance by providing a very precise energy intake. She concluded that very-low-energy diets should be used by obese persons who wish to lose weight

Sir Charles Gairdner Hospital, The Queen Elizabeth II Medical Centre, Verdun Street, Nedlands, WA 6009.

Timothy A. Welborn, FRACP, PhD(Lond.), Physician, Department of Endocrinology.

Monash Medical Centre, Prince Henry's Hospital, St Kilda Road, Melbourne, VIC 3004.

Mark L. Wahlqvist, BS, MD, FRACP, FAIFST, Professor of Medicine.

No reprints will be available.

under medical supervision.

Speaking against the case, Professor John Garrow (Department of Human Nutrition, St Bartholomew's Hospital Medical School, London) stated that it was preferable for obese persons to eat "food" rather than to follow "packaged" diets; that an energy deficit could be achieved as easily by supervised energy restriction; and, in this setting, that education of the patient may improve the possibility of continued sensible eating habits. He highlighted the fact that, in many countries, very-low-energy diets were distributed by "counsellors" with a commercial interest in the product, and he was concerned that the lack of direct medical supervision invited abuse. Medical supervision or otherwise, the great challenge for those

who treat and research cases of obesity continues to be how to help obese patients to maintain their hard-won weight loss for any reasonable period of time. If only there were a marketable "package" for this stage of treatment that compared favourably with the short-term benefits of very-low-energy diets!

References

1. Blackburn GL, Bray GA, eds. Management of obesity by severe caloric restriction. Littleton, Massachusetts: PSG Publishing, 1985.
2. Wadden TA, Stunkard AJ, Brownell KD. Very low calorie diets: their efficacy, safety, and future. *Ann Intern Med* 1983; 99: 675-684.
3. Valenta LJ, Elias AN. Modified fasting in treatment of obesity. Effects on serum lipids, electrolytes, liver enzymes, and blood pressure. *Posgrad Med* 1986; 79: 263-267.
4. Felig P. Four questions about protein diets. *N Engl J Med* 1978; 298: 1025-1026.
5. Committee on Medical Aspects of Food Policy. Report of the Working Group on Very Low Calorie Diets. The use of very low calorie diets in obesity. London: HMSO, 1987.

THE BEST OF BEST

A slow weekend in Beverly Hills

Across the road from the Beverly Wilshire Hotel is Rodeo Drive — the central artery of the Beverly Hills organism. My memory of Rodeo Drive is of a little girl of about 10-winters-old, encased in furs, being driven slowly up Rodeo Drive in a dark Cadillac limousine — the smoked window was wound down just far enough for her dark eyes to see the *hoi polloi* sauntering up and down the Drive.

This time it was summer and the temperature across the country was lingering around the 38°C mark. The stores on Rodeo Drive were having their July 4 sale. Ted Lapidus had dropped his suit prices from US\$1000 to just US\$450. The rest of the stores had similar bargains, and the children of the wealthy — their perfectly corrected dentition being on show as they chewed gum with amazing grimaces — were there to buy.

Rodeo Drive is the epitome of American affluence — the Beverly Wilshire Hotel had just redecorated its rooms and, in this pampered environment, I saw the smile of a young woman whose sole function was to press the lift button with a white-gloved hand and to be polite to each person as they stepped into and out of the lift. Staff members were everywhere, and yet there was that curious custom that is found always in the service industry — nobody knows any information outside the confines of their job. Their knowledge of the outside world is minimal, but they have so many ways of not admitting their ignorance such as: "I've heard of the name some place, but..." and their words dissolve into shrugs, smiles and the "Have a nice day!" valediction.

The Beverly Wilshire Hotel does not have anything as crass as a brochure on display: after all, it is not part of the package-deal, 'bus-tour circuit — Disneyland-United Artists Studios-Homes of the Stars. However, there is a public 'bus which stops just outside the Beverly Wilshire Hotel. The street persons of Rodeo Drive do not ride on this 'bus. Instead, it is crowded with Central Americans and old people. The old lady who struggled onto the 'bus with her hat tied down by a misty mauve scarf turned in profile as I wondered abstractedly whether I had ever seen her in the chorus line of one of those lush dancing extravaganzas — a black-and-white film of 1933 that now is shown on late-night television.

There were so many wistful old people on the 'bus admixed with the rest of us — old people who once may have been fringe-dwellers on the prewar equivalent of the "beautiful people" and who now gaze at their memories as the 'bus whisks them through the concrete expanses to Santa Monica.

Santa Monica has a wide beach, and the sun was still high as I walked along the tree-lined promenade with its expanse of lawn littered with people. In Santa Monica there is a by-law which bars people from sleeping on the promenade between midnight and 5 a.m. However, there were a good many people sleeping on the grass at four o'clock in the afternoon: people of all ages, with their worldly belongings stuffed into shopping-trolleys. One girl was asleep with her toy giraffe as a pillow — she had no other possessions in sight.

The Santa Monica pier has been featured in a number of films. At this time, it was being lengthened and the girders overshadowed the old wooden structure with its fun parlours and bars; here one can be photographed alongside a cardboard cut-out of Paul Hogan, his hand prising open the jaws of a crocodile while retaining that smile of success.

The wooden expanse of the pier with its tawdry coating of the Sunday crowd reminded me of that film, "They shoot horses don't they" — the film about marathon dancing in which Jane Fonda kept Michael Sarrazin on his feet with a backdrop of a tacky carnival by the sea. The boy fishing from the end of the pier commented that he really did not expect to catch any fish, that he did not know whether there were any fish there. He was there wasting time — a comment which Jean-Paul Sartre would have appreciated.

By contrast, the accent of the pretzel-seller was distinctly antipodean. He was a New Zealander originally and had graduated to the world by way of Bondi. That was some years ago, he said from under his battered straw-hat. He was a "sun and surf" nomad — he had just returned from Hawaii where he had been selling pornographic material to the tourists, particularly to the Japanese. He gave no reason for his return from the Hawaiian sunshine to the Californian sunshine. We had no "deep" conversation about employment or the need for "green cards"; he existed on the margins and still had his health. For him, America truly was the land of opportunism! Wandering around the United States is never boring. However, it is best to wander when you are healthy.

There is a veneer of a caring and concerned society — that in itself breeds contradictions. Sometimes their concerns seem trivial when compared with another act which, to the disinterested observer, has the potential to deliver a catastrophe.

As a case in point, traditionally, the fourth of July is celebrated by a cracker night, but it also was the middle of summer. There were media reports of many accidents and fires that were caused by fireworks. "Nothing ain't going to stop the fireworks" — that was a taxi-driver's response when I mildly queried the extreme temperature, high winds, dry brush and fireworks being lit "every which way". For instance, the city of Denver experienced three days in a row in early July this year when the temperature topped 38°C — this had never happened in Denver before. Being used to "total fire bans" on days like that, it made me wonder.

Yet at the same time, the local Denver newspaper reported that the environmental enforcement officer in the nearby university city of Boulder had forced the lone ice-cream vendor to lower the level of his bell to 55 dB to reduce the moral hazard of his being able to entice children into the street to buy ice-creams. Later this past summer, the city of Boulder briefly was threatened by brush fires from the Rocky Mountains, in the shadow of which the city stands — almost a case of the muffled bell tinkling while Boulder burned!

This epitomizes the quirkiness of the United States. They have a health system which is consuming more and more of their gross domestic product yet also have approximately 37 million persons with no health insurance, including those on the Santa Monica