

EDITORIAL

Higher-protein diets for health?

European Journal of Clinical Nutrition (2012) 66, 763–764;
doi:10.1038/ejcn.2012.46

Almost everyone, doctor, scientist or layman, has his or her opinion on the obesity pandemic: what causes it and how to correct it. The simple, pragmatic answer promoted by our dietary guidelines is to eat less energy-dense refined foods, consume optimal amounts of nutrient-dense natural foods and exercise more. Unfortunately, for an increasingly large number of individuals in the developed and developing world, present-day society does not appear conducive for the application of such lifestyle recommendations.

Since the middle of the last century the observation that dietary saturated fats were associated with increased blood cholesterol and cardiovascular disease,^{1,2} and that their reduction was accompanied by a decrease in the incidence of CVD,² the emphasis has been to reduce the fat content of our diet as much as possible. Intuitively one would expect that by reducing the energy-dense component of our diet it would also prevent the development of obesity and related metabolic disorders. However, in spite of this the prevalence of obesity and diabetes, with which CVD is strongly associated, has increased dramatically over the last 30 years and is projected to increase even more in the future.

Dietary recommendations propose 0.8–1 g protein per kg body weight per day providing 220–280 kcal per day, and with fats providing $\leq 30\%$ energy, carbohydrates will provide $\sim 60\%$ daily energy intake. Such high-carbohydrate diets have been challenged by an increasing number of individuals who have observed that they promote insulin resistance and heart disease, and that hyperglycemia, even in non-diabetic individuals, is considered a risk factor for CVD, while others question the relationship between dietary saturated fat and cardiovascular disease, and the validity of reducing saturated fats to minimal levels. If high-carbohydrate diets are being challenged and high-fat diets are not an option for optimal health, what about high-protein diets? Such diets championed by Robert Atkins in the 1970s and relegated to 'fad diets' involved the virtual removal of carbohydrates to lose body weight, followed by its gradual re-introduction to maintain weight loss, and was very similar to the diets used to treat type 2 diabetes before the discovery of insulin.

Although there has been recurrent interest in low-carbohydrate diets over the years, it was not until the publication of a number of studies in 2003 that attention focused on their potential benefits for the treatment of obesity, diabetes and heart disease. In spite of their positive findings the aforementioned studies cautioned that more studies should be performed to assess the long-term safety and efficacy of low-carbohydrate, high-protein diets. In the present issue of the Journal, Santesso *et al.*³ have performed a systematic review and meta-analysis on the health outcomes of individuals following high- versus low-protein diets. Most of the 74 studies included in their review have been published since 2003, which indicates the increased interest and potential use of high-protein diets as an aid to correct metabolic disorders. Owing to lack of information concerning the effect of diets on direct patient outcomes, more available and usually reported surrogate outcomes such as anthropometry and blood biomarkers were used for their analyses. Their results indicate that diets higher in

protein have beneficial effects on BMI, waist circumference, systolic and diastolic blood pressure, high-density lipoproteins (HDL), fasting insulin and triglycerides; however, the effects were small to moderate and when analyzed for lower risk of bias the effects on some parameters such as HDL, fasting insulin and triglycerides were annulled.

For those who consider that the macronutrient composition of the diet may potentially have a role in curbing energy intake, influencing energy metabolism and providing health benefits, the results of the meta-analysis by Santesso *et al.*³ are moderately satisfying and supportive, but may unfortunately be rendered less convincing by reports from the POUNDS LOST trial,^{4–6} which purportedly studied differences between high- and low-protein, high- and low-fat and high- and low-carbohydrate diets.

As far as the protein diets are concerned, the experimental differences in protein energy intake were not sufficient, $\sim 3\%$ rather than the intended 10%, to expect any differences to be observed and although the authors allude to this in the abstract and discussion in one of their articles,⁶ it is not evident from the titles and abstracts of their other publications,^{4,6} which if taken at face value are incorrect and misleading. In their defense they suggest that larger contrasts in protein intake may be required for selective changes in body composition, but that such diets would fall outside the Institute of Medicine's Acceptable Macronutrient Distribution Range. While this is not strictly true, as a reduced energy diet providing 1500 kcal/day and composed of 35% protein, 20% fat and 45% carbohydrate still meets the Institute of Medicine's AMDR, as well as the average minimum carbohydrate intake of 130 g/day, are the AMDRs cast in stone and should they not be challenged if dietary macronutrient compositions outside the AMDRs are demonstrated to provide health benefits?

There is a considerable amount of controversial literature concerning the effect of different diets on weight control and other health outcomes, and every diet promoter argues the advantages of his or her particular diet. It is often stated that there is no single diet suitable for all individuals and consequently an individual may have to try several diets before finding one appropriate for his, or her, lifestyle. If increasing the protein content of the diet helps some to lose weight and improve their quality of life while decreasing the financial burden on our health services, I believe it is worth trying, despite the confusing message(s) emanating from the POUNDS LOST trial.

CONFLICT OF INTEREST

KJ Acheson is an employee of Nestec Ltd and does not have any conflict of interest.

KJ Acheson

Department of Nutrition & Health, Nestlé Research Center,
Lausanne, Switzerland
E-mail: kevin.acheson@rdls.nestle.com

REFERENCES

- 1 KEYS A, GRANDE F. Role of dietary fat in human nutrition. III. Diet and the epidemiology of coronary heart disease. *Am J Public Health Nations Health* 1957; 47: 1520–1530.

- 2 Stamler J. Diet and coronary heart disease. *Biometrics* 1982; **38** (Suppl): 95–118.
- 3 Santesso N, Akl EA, Bianchi M, Mente A, Mustafa R, Heels-Ansdell D *et al.* Effects of higher versus lower protein diets on health outcomes: a systematic review and meta-analysis. *Eur J Clin Nutr* 2012; **66**: 1–10.
- 4 Bray GA, Smith SR, Dejonge L, de Souza R, Rood J, Champagne CM *et al.* Effect of diet composition on energy expenditure during weight loss: the POUNDS LOST Study. *Int J Obes (Lond)* 2012; **36**: 448–455.
- 5 Sacks FM, Bray GA, Carey VJ, Smith SR, Ryan DH, Anton SD *et al.* Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates. *N Engl J Med* 2009; **360**: 859–873.
- 6 de Souza RJ, Bray GA, Carey VJ, Hall KD, LeBoff MS, Loria CM *et al.* Effects of 4 weight-loss diets differing in fat, protein, and carbohydrate on fat mass, lean mass, visceral adipose tissue, and hepatic fat: results from the POUNDS LOST trial. *Am J Clin Nutr* 2012; **95**: 614–625.