

EDITORIAL

Dietary recommendations: how do we move forward?

In this edition, we have decided to make a departure from our normal single-author editorial and have invited a food-policy writer and two scientists who are interested in the problems of nutrition communication to contribute their individual views on a topical issue: dietary recommendations. Almost every facet of this simple-sounding yet complex issue is hotly debated. Are recommendations valuable in the first place? If they have value, what advice should they convey? Should it be qualitative or quantitative? (Mr Cannon rightly makes the distinction between guidelines, which are qualitative and goals, which are quantitative.) If quantitative, what is the basis for the figures quoted? How can they apply to individuals when individuals have different physiologies and different requirements? If we can agree on the messages conveyed by recommendations, how can we be sure they are understood and, more importantly, acted upon? Three different views are presented here, followed by some comments by the past chairman of the editorial board.

D. A. T. SOUTHGATE

Improving public health with good food

Cardiovascular diseases, breast and colon cancer, adult-onset diabetes, obesity and other disagreeable, debilitating or deadly non-infectious diseases that taken together affect all systems of the body, have emerged as public-health problems of increasing significance in Western and Westernized countries during the last half-century (Trowell & Burkitt, 1981).

Many now agree that while a number of non-infectious diseases can be treated effectively by drugs or surgery, their underlying causes are environmental and thus beyond the scope of medical intervention (McKeown, 1979); that these causes include change, notably during this century, in the pattern of Western food supplies and thus diet; and that consequent morbidity and mortality can be reduced by implementation of national and international food and nutrition policies, framed with public health in mind (National Research Council, 1989; World Health Organization, 1990).

Recommendations to this end are contained in many expert reports commissioned by governments of most major Western countries, and by reputable medical and scientific bodies during the last 30 years. Analysis of over seventy-five such reports (Cannon, 1990) shows a consensus of agreement on what constitutes a healthy food supply. A new report, with a global remit (World Health Organization, 1990) summarizes this consensus, stating; 'The health needs of the population are best met by a high-carbohydrate, low-fat diet, rich in starchy foods (e.g. cereals, tubers and pulses), including a substantial intake of vegetables and fruit' and recommending 'Discussions between the government, the food industry and consumers to ensure development of food products low in fat, sugars and salt'. Such views are not new. The recent change in Western food, its ill-effects and the health benefits of a diet to which human beings are biologically well adapted, have been understood certainly since the 1970s.

Three statements made in expert reports can be taken as characteristic.

First, from Sweden, describing the effects of industrialization. 'Cereal consumption has dropped to a low level, while at the same time, the consumption of fat and sugar had exhibited a remarkable increase. The generally enjoyed fat-rich and sweetened foods which

people in earlier days only consumed and could mostly only enjoy at the times of great feasts of the year are nowadays to be had in abundant quantities every day, all year round. Fats and sugars cover together some 55% of the total energy of our diet' (Blix *et al.* 1973).

Second, from the USA, in response to sceptics. 'The diet we eat today was not planned or developed for any particular purpose. It is a happenstance related to our affluence, the productivity of our farmers and the activities of the food industry. The question to be asked, therefore, is not why we should change our diet but why not? What are the risks associated with eating less meat, less fat, less saturated fat, less cholesterol, less sugar, less salt and more fruits, vegetables, unsaturated fats and cereal products – especially whole grain cereals? There are none that can be identified and important benefits can be expected' (Select Committee on Nutrition and Human Needs, 1977).

Third, from the UK, giving general guidelines on eating for health. 'A more prudent diet would include less of the visible fats – cream, butter, margarine, the fat on meat, fried foods – and less of the invisible fats in cakes, biscuits, puddings, pastry and ice cream. Less sugar would be eaten – fewer sweets, chocolates, puddings – and less sugar added to fruit, soft drinks, tea, coffee and other beverages. To replace the food energy lost by these changes, the amount of bread and potatoes, fruits and vegetables in the diet would be increased' (Department of Health and Social Security, 1978).

As a rule, food supplies are functions not of demand but of available technology. When agricultural economies are displaced, convulsive change in the quality of food is created. For example, fat and saturated fat production and thus consumption sharply increased in the USA, the UK and other industrialized countries in the late nineteenth and early twentieth centuries as a result of new technology, such as assembly-line abattoirs (Giedion, 1948) and the hydrogenation process (van Stuyvenberg, 1969); and much mass-produced fat is made palatable with sugar (Cannon, 1987).

Major expert reports designed to make Western food more suitable for human consumption now usually not only recommend general guidelines but also specific goals: targets, with figures, for constituents of the food supply identified as most relevant to public health. The new World Health Organization report is orthodox in this respect. For example, the global goals recommended for total dietary fats are a range between 15 and 30% of total energy; and for saturated fatty acids and also refined sugars, between 0 and 10% of total energy. The report breaks new ground in recommending a minimum daily figure of at least 400 g vegetables and fruit, in addition to starchy vegetables such as potatoes.

Nutritionists with an interest in public health may now devise research programmes designed to consolidate the biological rationale for dietary guidelines and goals deriving from a scientific consensus that now has worldwide expression.

G. CANNON

Dietary recommendations: consideration of individual needs and of nutrient interactions

'The consumer should, as far as is possible, eat a varied diet, choosing foods from all major groups, in amounts appropriate for activity and lifestyle. In this way the problems of both deficiency and excess will be avoided.'

Probably most nutritionists would be able to support the above statement. Unfortunately, it is vague almost to the point of being useless, apart from raising basic questions such as the meaning of 'varied' or 'appropriate'. As nutrition science has moved from simple observation to controlled experiment, efforts have been made to formulate dietary recommendations in greater detail to keep pace with the advance in knowledge. As might be expected, each new step has been accompanied by argument and controversy. Most sets of recommendations are a compromise reached after prolonged debate and

reflect mainstream thought avoiding (it is to be hoped) both excessive conservatism and ephemeral fashion.

An obvious need is for more knowledge. We are not in a position to prescribe exactly for every individual the diet that will result in perfect health and well-being, and it would be foolish to pretend otherwise. The need is for well-designed and controlled experiments – not to add another decimal place to average requirement but to cast light upon areas where information is sketchy or controversial.

One aspect of dietary recommendations that is often forgotten is that they are recommendations *for populations* but have to be applied *by individuals*. A blanket injunction to increase fibre intake may be appropriate for a teenager who rarely eats fresh fruit or vegetables, but pointless or even unwise for the health-conscious individual ingesting his or her breakfast muesli. More work is needed on individual variation and group variation: we all know that a teenage girl has dietary needs that differ from those of a middle-aged man, but we know less about the needs of different teenage girls or different middle-aged men.

There are encouraging signs that the importance of dietary interactions is already appreciated. The enthusiasm with which some urge the importance of their own specialities, be they fibre, calcium, zinc, iron, vitamin C, sodium or whatever, may distract attention from the total diet and the fact that no change takes place in isolation. If we increase our consumption of whole grains, should we also increase our mineral intake? If we reduce fat consumption, do we need to pay more attention to its composition? Like all areas of endeavour, nutrition needs both its enthusiasts and those who say, 'Yes, but...'

Finally, it is the duty of us all to be frank both about the present state of knowledge and its limitations, and to communicate that knowledge. There is little point in complaining about the misuse of recommended daily allowances or oversimplification of dietary advice if we make no effort to educate or to put forward another view.

B. A. ROLLS

The disadvantages of quantitative dietary recommendations

Dietary recommendations are issued by government in the belief that modification or management of dietary trends will reduce the prevalence of diet-related risk factors for coronary heart disease. This is a welcome intervention in our lives if the advice is correctly formulated to achieve the goals set, and if the assumptions of the relationships between diet and risk factors and between risk factors and disease are correct. The latter assumptions are frequently the focus of debate. However, the accuracy, feasibility and applicability of the formulations themselves received little or no attention in the nutrition literature.

The US Federal Authorities have twice rejected the issuing of quantitative dietary recommendations and have opted for the qualitative approach, couched in phrases such as 'avoid too much fat' or 'eat foods with adequate starch or fibre' (Miller & Stephenson, 1985). There is no definition of what 'too much' or 'adequate' is. This does not seem to have been a problem on this side of the Atlantic, where most EC States and the World Health Organization Regional Office for Europe have issued quantitative dietary recommendations where 'too much fat' is defined as, say, above 35% of dietary energy from fat and where 'adequate' fibre is set at 30 g/d. There are certain drawbacks to quantitative dietary recommendations which are rarely discussed, the first of which is a clear explanation of the basis on which the figure was selected.

We know that diseases of the large bowel are associated to one degree or another with abnormal faecal output, several of them being associated with a chronically low output. We also know that there is a linear relation between faecal output and dietary fibre intake over the range studied in the literature. That is the extent of our knowledge. By choosing a value

of 30 g dietary fibre/d, we are immediately implying that the faecal output at 30 g/d is better, in some way not defined, than that at 25 g/d, and we are implying that the superior qualities of the faecal output at 30 g/d are related to a lower incidence of disease than for lower faecal outputs. We know little or nothing of such interrelationships, certainly not sufficient to opt for a single figure of any kind. 'Eat foods with adequate starch and fibre': the US approach is at least intellectually more honest.

The same problems exist for fat, where the percentage of energy from fat is the basis of the goal. The percentage of energy from fat is confounded by the percentages of energy from alcohol and sugars, where the former is normally distributed and the latter two skewed heavily towards the lower intakes. Therefore, identifying groups in any society with a high percentage of energy from fat will be confounded by inadvertent selection of groups with low intakes of both sugar and alcohol expressed as a percentage of energy. The reverse is also true, too, as will be evident to anyone who wants to do the calculations in, for example, the COMA Report on Sugars, Tables 10–12 (Department of Health and Social Security, 1989). Once again, the American strategy of advising people to 'avoid too much fat' seems more useful and less prone to mathematical artifacts by sweet-toothed toppers, of which there are many.

If quantitative recommendations were deemed essential, a more useful approach would be not to centre the target about the mean but about the extremes. For example, instead of advocating a mean fat intake of 30 or 35% of energy, why not suggest that the cut-off point for the upper quartile be reduced from its present value of 44% of energy to 40%? Or propose that the percentage of the population above the present upper quartile value of 44 be reduced from 25 to 10%.

Those who issue quantitative recommendations must address the vital question: 'What happens if your advice is largely ignored and your targets not achieved?' Do you simply dismiss the failure, admitting that the whole issue was not that important after all? Or do you batten down the hatches for a more intensified strategy ultimately leading to legislation? That is the pattern we have seen for alcohol abuse, smoking, AIDS, drug abuse, glue-sniffing, car seat-belts, etc. There is no reason to presume that nutrition advice will be any different.

Once this area of nutrition, the formulation, presentation and uptake of dietary advice, becomes the subject of serious scholarship, a whole new area of research will emerge. In the meantime, we must become more critical of the thought behind dietary goals which sometimes receive 'tablets of stone' qualities.

M. J. GIBNEY

Whither now?

It is clear that the three writers represent a wide spectrum of opinion, while all agreeing about the need to communicate the importance of healthy eating. Cannon takes the view that if experts the world over have come to a broad consensus about what constitutes a healthy diet, we have a clear duty to proclaim clear quantitative messages based on that consensus. These should come through government supported by clear food policies that have major implications for the shape of the agricultural and food industries. There is an implication in what he says that it would not only be arrogant to challenge the consensus but also counterproductive, in that consumers should not be further confused by the spectacle of nutritionists arguing among themselves in public.

Rolls and Gibney take a more cautious or sceptical view that, while there is a core of truth at the root of most recommendations, in which one can have some confidence, our knowledge is not nearly as firmly based as the recommendations imply. Much careful thought needs to be given to such problems as the differences in the needs of individuals, and the fact that in recommending a change in a single nutrient, concomitant changes are

brought about in the intakes of other nutrients that may have nutritional consequences not envisaged when the recommendations were framed. The two scientists differ in the emphasis they put on whether recommendations should attempt to be quantitative or merely qualitative, Rolls tending towards the quantitative, Gibney towards the qualitative; both agree, however, that current lack of knowledge necessitates that more thought be given to how these recommendations, qualitative or quantitative, are communicated.

Adoption of the view that it is counterproductive to question the consensus involves some assumptions that need careful scientific scrutiny. Thus, should we accept the assumption that 'Western food' has had universally 'ill effects', implying as it does that there is a type of 'Third-World food' that is universally beneficial? (Cannon, p. 301). Likewise, should we accept the assumption that the human race is universally 'biologically well-adapted' to this 'Third-World food' when we know full well that there is wide diversity in food and nutrient patterns throughout the world that have been characteristic of different cultures for generations? How long does adaptation need? Biochemical adaptation is probably rather rapid.

How realistic are goals, such as those quoted (Cannon, p. 302) as being proposed by the World Health Organization (1990), that envisage intakes from saturated fatty acids between 0 and 10% of energy? Firstly, all natural fats contain mixtures of unsaturated and saturated fatty acids in the same triacylglycerol molecules. Because of this universality of occurrence of saturated fatty acids, it would be impossible to have a diet adequate in essential fatty acids that contained zero saturated fatty acids. Secondly, zero intake of saturated fatty acids would be no advantage. They are synthesized in the body and are important components of biological membranes, contributing to an appropriate fluidity in the lipid bilayer. Overproduction of saturated acids is limited by the phenomenon of desaturation that occurs in most tissues of the body.

These quibbles aside, it is important to communicate useful messages on healthy eating based on the best available scientific knowledge. What scientists have to agree is how to do this when knowledge is limited.

The three different views presented here will not be the last word on the subject but may give readers of the Journal pause for thought and will, we hope, generate correspondence, discussion and practical contributions to improvement in an area that sorely needs it.

M. I. GURR

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