

DIETARY GUIDELINES: THEORY AND PRACTICE



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Summary

Dietary guidelines are a set of summary statements of present dietary recommendations for the public health. An important role for them is to reduce the two popular misconceptions that nutritionists do not agree with one another and are always changing their minds. Dietary guidelines cannot succeed in this unless they are objectively based on the best science, accurately expressed in ordinary language, widely disseminated and carefully maintained by revision or re-explanation whenever misconceptions in the media or new research findings require it.

I. INTRODUCTION

When I first became a professor of human nutrition in 1971 at London University, public health nutrition seemed to be drifting without a compass (Truswell 1980). The first era of vitamin research was over. Some people thought there were no more nutritional problems to solve (Dubos 1979). Concern about meeting the protein gap for developing countries was thought by some to be a fiasco (McLaren 1974). Public advice on prevention of coronary heart disease was in conflict between the fat and sucrose theories (Lewis et al. 1974). The new dietary fibre hypothesis was attracting middle class interest ahead of a scientific structure for it. Carbohydrates had a bad press and low carbohydrate diets were fashionable for treating obesity!

In my Inaugural Lecture (Truswell 1972) I delineated human nutrition at four stages of technical development. For professional nutritionists in affluent communities one problem is that everyone considers themselves an expert on nutrition. 'Every man is his or her own expert because we all have to eat'. The other problem is the Tower of Babel of nutritional breakthroughs and threats from newspapers, women's magazines, television, radio, advertisements and supermarket shelves. 'One can hardly blame the man or woman in the street if they conclude that all the advice and advertisements cancel one another out. It can't matter much what you eat so I'll eat what I enjoy'.

I saw then (Truswell 1972) and still see, two kinds of jobs to be done by professional nutritionists. One, to continue scientific research to work out the place of nutrition among the multiple and interacting causes of the chronic disease where we have epidemiological clues. The other is to find ways of advising the general public. 'I believe that the professional nutritionists should have their arguments in professional societies and journals, not on the air or in the newspapers. We should try a bit harder to reach a consensus for the benefit of the people as a whole. Then we need to give more thought to how to present nutritional concepts'.

In this situation I collected the conclusions of expert committees from other countries about different aspects of preventive nutrition (mostly diet and coronary disease). None were holistic except the 1968 Nordic ones (Nordic Expert Committee 1968; Keys 1968). These were more consistent with my own experience and reading than the official advice then available in Britain. I used the collection first for a British workshop on community dietetics in 1973. I shared the growing collection with Drs Ball and Turner (1975) (Turner 1978) and used them myself in reviews (Truswell 1976; 1981; 1983). Over in Norway, Professor Norum sent out questionnaires about diet and coronary disease to over 200 experts in atherosclerosis research and epidemiology

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in 22 different countries. Like me, he was trying to find out: are the experts really in such disagreement? The Scandinavian 1968 guidelines (Nordic Expert Committee 1968; Keys 1968) which we nowadays revere were not the only opinion being voiced at scientific meetings in Scandinavia. The replies that Norum received were reassuring. Ninety-two percent considered that knowledge was sufficient to recommend moderate change in the diet of an affluent society and they voted for reduced saturated fat (Norum 1978).

When the first edition of Dietary Goals for the USA was published in February 1977 an early copy was brought across the Atlantic by Dr Hugh Trowell who gave it to the editor of the Lancet. The latter asked me to write an (unsigned) editorial and I welcomed the new goals (Anonymous 1977) without realizing the US political background. My editorial has pride of place in the 869 page volume of supplemental views (Select Committee on Nutrition and Human Needs 1977). It was the first international commentary to appear and a rare positive independent review to balance against a host of critics in the USA. In the next year I tried to pass on my enthusiasm for the US dietary goals to colleagues in Britain (Truswell 1977; Truswell 1978a) at the Nutrition Society and the British Nutrition Foundation. The British establishment was unmoved. Some of the ideas were, however, embodied in suggestions called 'the Better British Diet' (Passmore et al. 1979) published soon after I came to Australia.

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II. DEVELOPMENT OF DIETARY GOALS AND GUIDELINES IN AUSTRALIA

I came to Australia to start the Chair of Human Nutrition at Sydney University in May 1978 and one of the new ideas I brought with me from the north was dietary goals. I had the opportunity to explain them as opening speaker at a large seminar organized by the Dietitians' Association in Sydney in August (Truswell 1978b). The Association resolved at the end of the seminar to set up a committee to develop proposals for a national nutrition policy. The committee first tried to collect views from 150 people and organizations in Australia who might be interested or affected. But we received very few replies and so decided to draft ourselves a set of dietary guidelines for Australians (Australian Association of Dietitians 1979). Meanwhile I helped with the chapter on diet and health in the report by Davidson et al. (1979) on health promotion for the Commonwealth Department of Health. One of this report's main recommendations was that 'work on the formulation of a national nutrition policy with dietary goals for Australia be continued'.

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'Dietary goals for Australia' were first presented on 27 April 1979 by Dr 'Spike' Langsford then First Assistant Director-General of the Public Health Division in the Commonwealth Department of Health. The setting was a two-day double conference on nutrition held at the Australian Academy of Science in Canberra, with support from dietitians' organizations, the food industry, consumer organizations, the National Heart Foundation and a postgraduate medical organization (Australian Commonwealth Department of Health 1979a; 1979b). Dr Langsford dealt with departmental publications, recommended dietary allowances, diet for pregnancy, infant feeding, etc. and concluded 'I would like to propose for your consideration a set of eight dietary goals for Australians, drawn from the Department's food and nutrition policy' (Langsford 1979). The setting was conducive to a positive reaction. These dietary goals were put together in small rooms in the Commonwealth Department of Health. I was the only nutritionist from outside the Department involved in the drafting. After they had been launched the goals were presented to the Nutrition Standing Committee of the National Health and Medical Research Council. They expressed disappointment that they had not been earlier involved, but adopted the goals unmodified (Australian Commonwealth Department of Health 1982). There was no background review of the scientific literature at the time, though several of the papers at the April 27, 28 conferences served this purpose in an indirect way (Truswell 1982).

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The term dietary goals is usually used for national objectives (Truswell 1987), macro-nutrition. They do not advise individuals on food choices. This was done in 1981 by 'Dietary Guidelines for Australians', written mainly by Ruth English, a simple anonymous version, comprehensible by the interested lay person (Australian Commonwealth Department of Health

1981, 1982). A brief scientific background was subsequently published (English 1984). Approximately 320,000 copies of the Dietary Guidelines book were distributed between 1982 and mid-1988.

III. REACTION TO FIRST EDITION OF AUSTRALIAN DIETARY GUIDELINES

The first edition of the Australian dietary guidelines was widely accepted, adopted, approved or quoted by nearly all Australian organizations concerned with nutrition, food or health. They were close to the guidelines drafted by the Dietitians' Association — the main difference in the latter is encouragement of water as a drink. The Association did not push its own guidelines. Instead it gave full support to those of the Commonwealth Department of Health, which had more resources to distribute material. The guidelines were supported by the Royal Australasian College of Physicians; adopted by the Australian Nutrition Foundation; used by the Australian Consumers Association for grading nutritiousness of foods; adopted for home economics curricula in high schools; written into the standard biology textbook for schools. Dietary advice by the National Heart Foundation was harmonious and so was that of the cancer societies. The health departments of all the states adopted the federal Health Department's guidelines, some with minor changes (Queensland Health Department 1982; Department of Agriculture Victoria 1984) eg New South Wales added three extra guidelines (Department of Health NSW 1984) but these state versions seem to have gradually disappeared. The Commonwealth Department of Health evidently regarded their dietary guidelines as a success and used the words of the guideline headings, like a sort of wallpaper on the cover of the Annual Report of the Director-General of Health for 1982-83 (Commonwealth Department of Health 1983).

Only four sectors showed scepticism or apparent lack of interest. The Nutrition Society of Australia tries to keep a balance between animal nutrition and human nutrition and avoids general policy statements. Some of its members considered that dietary guidelines are politics, not science. The Food Industry Council of Australia (1983) rightly observed that 'the dietary guidelines present both opportunities and problems for industry'.....and asked the government to pay for research 'to identify the cause, extent and effect of inadequate dietary habits thought to exist within the community'. In the meantime it considered the soundest advice for consumers was 'to moderate one's overall intake of food and to choose a varied diet from the available foods' (Food Industry Council of Australia 1983). The sugar industry argued with the Department of Health and lobbied Ministers about the wording 'refined sugar' (presumably meaning sucrose) in the 1979 dietary goals. This was replaced, in the 1981 guidelines (Commonwealth Department of Health 1983), by a statement that 'sugar..... includes brown and raw sugars, glucose, honey, molasses and syrups' and sugar in foods 'has been added in many forms (sucrose, glucose, dextrose, fructose, invert sugar, etc)'. The 'health food' and associated vitamin and supplement industry showed no enthusiasm, perhaps because the dietary guidelines originated from the scientific establishment and they offer little help to sales of megadoses of vitamins, psuedo-vitamins and herbal potions.

There was therefore widespread acceptance of the Australian dietary guidelines. We did not have anything like the spate of criticisms of the US Dietary Goals (Truswell 1987) or the Senate Hearings on Dietary Guidelines for Americans (1980) or opposition like the British criticisms of the NACNE report (NACNE 1983). Those who tried to follow and implement the semi-official British guidelines were called 'food-Leninists' (Anderson 1985) and 'the new puritans' (Passmore 1985) in witty and well-written articles and there were two serious books opposing the NACNE recommendations, one by a medical practitioner journalist (Le Fanu 1987), the other a compilation of essays by nutritional scientists (Anderson 1986).

Why were the Australian dietary guidelines accepted so well by all concerned with nutrition here?

- i) The scientific nutrition establishment was small and new.

- ii) Australians are more receptive to new food ideas than people in the longer established countries. All the foods eaten by the white majority of the population are exotic. There is no deep rooted peasant agriculture or cuisine (Symons 1982).
- iii) Introduction of the Australian goals was well staged and tactfully presented.
- iv) The USDA/USDHHS dietary guidelines for Americans (US Department of Agriculture 1980) were published at about the same time and the seven elements in this booklet were very similar (minus the breast feeding) and gave international confirmation.
- v) The goals and guidelines were reinforced by public support of senior members of the nutrition establishment (Truswell 1980; 1983; Hetzel 1983; Wahlqvist 1981). X
- vi) Most of the guidelines coincided with the recommendations of other bodies or committees in the country.
- vii) Dietary guidelines answered a deep need for the emerging profession of community nutritionists/dietitians. X
- viii) The Australian guidelines were moderate, not stated in quantitative terms, not 'draconian' (English 1984).
- ix) Australia has a range of climates: almost any food can be grown here. If there is less demand for say, butter, farmers can grow oilseeds instead and industry can process them. Much of the agricultural produce from our continent is exported, so farmers are only partly affected by changes in the home market. Most of the food processing industry is linked to multinational companies that operate in Europe and the USA where they had already had to adjust to dietary goals and guidelines.

IV. SECOND EDITION OF DIETARY GUIDELINES FOR AUSTRALIANS AND PRODUCTS

The second edition of Dietary Guidelines for Australians (National Health and Medical Research Council 1992) was produced by a committee, with five nutritionists, one food industry representative, a psychologist and the chairman of the New Zealand Food and Nutrition Policy report, as well as Department of Health secretariat. Submissions from any interested body or individual were invited and considered at two stages. Nutritionists on the panel were allocated background papers to write and to draft chapters on calcium and iron two physicians were co-opted. A photocopying white board was the memorable technology of the meetings and the longest discussions were over the single heading sentences, like 'Enjoy a wide variety of nutritious foods', because far more people are exposed to such one-liners than the technical text of the background papers. The decision was made to try and express the quantity recommended in ordinary language, eg 'Eat a diet low in fat', as the heading for most people, but for professionals and those with a special interest, numbers in technical language were to be found in the full text, eg 'total fat 30% of energy'. X The process was completed with only three meetings (one of these by phone), with a lot of drafting and correspondence before, between and after. The only guideline that caused contention was the one about sugar. The summary sentence 'Eat only a moderate amount of sugars and foods containing added sugars' was thought too moderate by one or two prominent dietitians and too negative by industry. The material in the background paper on sugar was strengthened and added to by correspondence. The ten 'Australian dietary guideline(s)' can, I suppose, be used to mean just the one line headings or the headings plus chapters. But note that detailed recommendations about foods to be encouraged or discouraged are in the chapter and can't be clearly described in the heading.

Some of the *products* of the dietary guidelines are on paper, others are modified or new foods.

- (i) *Health targets* in the field of nutrition and food. Three sets of these have been drafted by different projects of the Commonwealth Department of Health. They have not been consolidated for presentation to the food and nutrition sector, or debated.

- (ii) *Australia's Food and Nutrition Policy (1992)* (Commonwealth Department of Health Housing and Community Services 1992) states in the first paragraph of the policy statement 'The policy will be implemented through strategies which support the Australian dietary guidelines....'
- (iii) *Posters and food guides.* We have at least three creative posters which aim to represent diets adequate in RDIs and following the dietary guidelines. Some of these have accompanying food guides (Baghurst et al. 1990; Australian Nutrition Foundation 1992).
- (iv) *Nutrition policies* of some food companies, eg Goodman Fielder, quote the dietary guidelines.
- (v) The National Heart Foundation's 'Pick the Tick' food approval programme.
- (vi) Components that feature in the guidelines are included in *nutrient labels* on foods.
- (vii) Food products that companies have modified to be closer to the dietary guidelines: reduced fat, reduced saturated fat, reduced salt, reduced calorie, increased fibre foods and reduced alcohol beer. Most state the modification on the label. A few have quietly changed their composition — perhaps 'Vegemite' is the most striking. X
- (viii) *Food standards* will or should follow.

V. THEORY OF DIETARY GUIDELINES

The expectation must be that if a country has dietary guidelines agreed on by expert representatives they will be used in school education of the nation's future shoppers and food preparers. Nutrition and food professionals will use them in advising members of the general public, and when there is any query (or dispute) about nutrition messages or the nutritiousness of a food the guidelines are there for reference. X

I have previously described (Truswell 1987; 1989; 1994) the usual features of the first generation of dietary guidelines that were developed in affluent countries (that already had RDIs) to try and reduce dietary risk factors for the major chronic degenerative diseases: coronary heart disease, hypertension, dental caries, obesity, some cancers, cirrhosis of the liver, osteoporosis, constipation, diverticulitis, etc. In contrast with RDIs they deal mostly with non-essential nutrients and can include food components that are not nutrients. They usually deal with macronutrients or foods or food groups or even with eating behaviour and may not be expressed quantitatively; if they are this is usually as percentage of total energy. Most dietary guidelines are written for all healthy people (regardless of age or sex). They have a softer degree of certainty than requirements for essential nutrients, being often based on indirect evidence from epidemiological research. While RDIs should be eaten now and (on the average) every day, dietary guidelines are objectives that, hopefully, the population should move to by one of those golden years in the future, like AD 2000.

The second generation of dietary guidelines are more varied. Developing countries have entered the field and, facing the large differences of nutrition between their prosperous minority and poor majority may write two sets of guidelines as in India (Gopalan 1989). For Latin America recommendations are expressed for everyone, with some as a range, eg fat should be 20-30% of dietary energy, which means the undernourished people should get more fat and rich people eat less (Bengoa et al. 1987). (This report did not make quantitative recommendations for sugar.) A committee for WHO (Report of a WHO Study Group 1990) expressed dietary goals in very strict quantitative terms for: total fat, saturated fatty acids, polyunsaturated fatty acids, total protein, total carbohydrate, complex carbohydrates, dietary fibre, free sugars, fruit and vegetables, pulses, nuts and seeds, salt, and dietary cholesterol. The numbers for saturated fatty acids and for 'free'

sugars, both 0-10% are hardline. These sugar numbers are disputed by a number of nutrition experts (including me) and the 'sugar-fat seesaw' (Baghurst et al. 1994). But WHO Technical Report Series No. 797 does make clear the difference between a population goal and intakes of individuals. A population goal between one and 10 en% for free sugars could be 9%: this would be compatible with individual intakes as high as 20% (if there were enough people eating almost no free sugar!).

Some recent sets for the Nordic countries (Nordisk Ministerråd 1989), Canada (Health and Welfare Canada 1989; 1990), France (Dupin et al. 1992) and the UK (Report on Health and Social Subjects 41 1991) have both RDIs and dietary guidelines in the same book. However, their recommendations for macronutrients are mostly given as a single number for the whole population, while micronutrients have different numbers for sex and age bands.

An international WHO symposium in Japan (Health Issues for the 21st Century 1994) thought that while countries could share their RDIs, dietary guidelines will be most effective if the target group is defined. New Zealand has different guidelines for infants (NZ Department of Health 1994), children (Reid et al. 1992), adolescents (Public Health Commission 1993) and adults (Report of the Nutrition Taskforce 1991). In Australia an NHMRC panel has drafted dietary guidelines for children (NHMRC 1995) and a commercially produced set of guidelines for infants (Gibbons 1994) reminds us that guidelines do not have to be produced by a government ministry.

As a reaction to, or to complement the WHO 1990 dietary goals, FAO and WHO convened a Consultation (committee) on Preparation and Use of Food-Based Dietary Guidelines (Nicosia, Cyprus, March 1995). There is a perceived need for nutritional advice for the general population to be expressed in more practical language and less abstract, scientific terms. Some of the epidemiological associations used for developing dietary guidelines are in fact between quantiles of intake of a food subgroup — not a nutrient — and frequency of a disease. It is essential too for dietary goals and guidelines to be compatible with the potential for affordable food supply and environmentally sustainable. A report is being completed which will provide guidance on how a country can develop and implement food-based dietary guidelines. Certainly our existing dietary goals and guidelines, which have to be first reasoned from the scientific data in technical language, should also be available in material (not abstract) form, ie as foods and explained with ordinary words.

VI. PRACTICAL IMPLEMENTATION

Dietary guidelines are popular with governments, I suspect because they are very cheap and may reduce the national health bill. Call a committee for a few meetings: it costs a few air fares, some secretarial work, publish the report commercially and sit back and wait for the incidence of chronic diseases to decline — as some have in Australia!

The first set of questions is whether the guidelines are sound and workable.

- 1) Are they all well reasoned and was the bulk of available evidence considered?
- 2) Do they cover nearly all the important nutritional issues? Are they arranged in the best order of priority?
- 3) Is the panel regarded as the best opinion and politically acceptable?
- 4) Are the meanings of the recommendations clear? If the headings are not clear to nutritionists and food industry the text chapters should explain their meaning. But full understanding by the general public is rather unlikely (Achterberg 1995). They often don't know the meaning of 'nutritious', 'legumes', and 'saturated fat' etc. (Achterberg 1995; Worsley 1992).
- 5) Are they culturally acceptable?
- 6) Are they practical and affordable?
- 7) Are they kept up to date?

Second comes the very difficult work of dissemination and promotion. Is any person or group responsible and what is the overall strategy? Guidelines come as a set of mutually interdependent recommendations. If you eat less of something, what should you eat more of?

There is a small inner circle of professionals who can and want to understand a dietary guidelines report like the Australian one. These are nutritionists, food scientists and dietitians. Medical practitioners can understand but are unlikely to have a copy of the report or time to read it. For them, and for nurses and school teachers appropriately abridged (and different) versions are needed. There is education and there are the media. We don't have enough journalists specialising in health but the few that are should have a reference copy and so should the most frequent writers on food and nutrition (and diets) for the 12 or more women's magazines. X

It probably doesn't mean much to run a survey and find how many people have heard of — or can even recite — the dietary guidelines. Most people don't have time or interest to read up on nutritional technology. Their knowledge of nutrition came by three routes: popular mythology and proverbs (crusts make your hair curly; carrots help you to see in the dark), what they were taught at school (very little — perhaps the old five food groups) and bite-sized information from newspapers, radio, TV and supermarkets, much of it in advertisements or commercially inspired. When people are asked about foods and health some of their answers correspond to the dietary guidelines (Crawford and Worsley 1986; Worsley 1988) but others do not. There is as much or more concern about chemicals in food, sugar, red meat, pathogenic organisms, loss of 'goodness'. In the supermarket the voice of the dietary guidelines is very faint and crowded out by convenience, price, how safe is our food? (Australian Consumers Association 1991), environmentally friendly food and the last few scares and breakthroughs.

Australia has had dietary guidelines for 16 years. There appears to have been little publicity after the second edition. When the Canadian nutrition recommendations were revised for 1989 publication there were two committees. As well as the Scientific Review Committee there was a parallel Communications/Implementation Committee responsible for developing consumer advice and implementation strategies that would embody the revised nutrition recommendations (Health and Welfare Canada 1989). After a scientific review committee reports dietary guidelines have to be disseminated of course. They also have to be maintained. Some person or group in the responsible organization should be producing regular statements to reconcile the guidelines with new emerging research, to keep the consensus of nutrition advice up to date and oppose conflicting statements.

Finally, if guidelines have been effective, people should have changed their shopping and eating patterns, food producers and processors should be producing food options modified in line with the guidelines, and the nation's diet-related disease should show a declining incidence. Australian food consumption data (CSIRO Division of Human Nutrition 1993; Australian Bureau of Statistics 1995) shows some healthier trends: more trimming fat on meat, more unsaturated margarine, less butter, more fruit and vegetables, less alcohol, less salt, more pasta and rice. But confectionery and cheese are up and red meat down. According to the 1990 Victorian Nutrition Survey only a very small percentage of people were meeting all the quantitative nutritional targets (CSIRO Division of Human Nutrition 1993). These healthy changes can't all be credited to dietary guidelines. Some started before the guidelines. Breath testing has had a big influence on alcohol consumption. X

Meat and milk producers have made great efforts to provide lower fat alternatives. Food processing companies have developed reduced fat, reduced saturated fat, reduced sugar, reduced calorie, reduced salt, reduced alcohol and increased fibre products. These products are the most encouraging apparent response to dietary guidelines. If a shopper who is unaware of dietary guidelines sees a reduced salt product (say) she or he is likely to wonder why and ask someone. But there are also foods with 'no additives', 'no preservatives': these are not called for by dietary guidelines.

Cardiovascular diseases seem to have responded well to the dietary changes but there are obviously other reasons as well: coronary care units, defibrillators in ambulances, coronary artery surgery, the 'statin' drugs etc. There also appears to have been continuing decline of mortality from cancer of the stomach and cirrhosis of the liver (Lester et al. 1994). Total mortality (age standardized) is trending down. Against these satisfying statistics there has been little change in most cancers and an increase of overweight and obesity. X

No mention: • Smoking ↓ so CVD ↓

• Type 2 diabetes ↑

(via Carbs ↑ Fat + meat ↓) ⑦

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