

FOOD COMPOSITION TABLES FOR AUSTRALIANS

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Summary

This paper describes the major program being undertaken by the Commonwealth Department of Community Services and Health to provide current information on the nutrient composition of the Australian food supply. Particular reference is made to publications and other work outputs in 1990 and to the future developments for the program. It is planned that the program continue to monitor nutrient changes in Australian foods, including changes resulting from the introduction of new foods, advances in agricultural production and manufacturing processes, and modifications to the components of existing foods. Also the analytical program is covering an increasing number of vitamins and minerals so that future publications will include data on an extended range of nutrients.

I. INTRODUCTION

Since 1981, the Commonwealth Department of Community Services and Health (previously the Commonwealth Department of Health) has expended considerable resources - estimated to be some \$2 million - on revising and updating the national nutrient composition data base on the Australian food supply. After some nine years, the light can be seen at the end of a long tunnel as an 'adequate' set of Australian food composition tables for routine dietary analysis should be available before the close of 1990. Therefore it is timely to consider a number of issues regarding the status of the food composition program. These are:

- . the priority being given within the Department to service professional needs for food composition data
- . the present status of the program
- . future plans
- . the need for nutrition workers in this country to use the new Australian food tables
- . developments in the computerised nutrient composition tables - such as the NUTTAB data base (Lewis and English 1990).

II. PRIORITY FOR FOOD TABLES

There is a growing appreciation that a basic requirement for most if not all nutrition work is an adequate, up-to-date set of nutrient values on the composition of a national food supply. To quote David Southgate, 'the development of the nutritional sciences and their application in clinical nutrition and public health is dependent on a knowledge of the composition of foods which plays a central role in the measurement of the intake of nutrients. The dietary treatment and the management of disease and most quantitative studies in human nutritional research are dependent on these measurements' (Southgate, 1990). Data on Australian foods were lacking until recent years, as updates of the national food tables were mainly based on overseas nutrient composition data. In the 1980s with the upsurge of interest in and supporting evidence for the relationship between diet and non-communicable disease, there has been a major priority given to the integration of nutrition into national, state and territory health policies

and programs. This is evidenced by the highlighting of nutrition as one of three specialist task-forces by the Better Health Commission (BHC) and the identification of nutrition as one of the five action areas for the national Better Health Program. The reports of the the BHC Nutrition Taskforce (1987) and the Nutrition Project Planning Team for the Better Health Program emphasised the essential need for up-to-date food tables for nutrition policy and program development and program implementation and evaluation. In 1989, the Department established a special unit within the Health Advancement Division to expedite the publication of nutrient data from its food analytical program and the continuing update of the food tables.

III. PRESENT STATUS OF THE PROGRAM

Since 1981, the work program for the revision of the food tables has included:

- . development of the sampling program for foods to be analysed
- . commissioning of the food analyses
- . validation of the nutrient data from the analytical program which may require commissioning of repeat analyses
- . processing and preparation of data for publication, either as hard copy in the 'Composition of foods, Australia' (COFA) series or in computerised format as NUTTAB.

The first priority of the special unit has been the validation and release of nutrient composition data, already available from the Department's food analytical program. In March 1990, volume 2 of the COFA series was released, providing data on some 200 cereal and cereal products. This publication was followed by the release this May of volume 3 in the series providing nutrient composition data on milk and milk products, eggs and fish. In July this year, the 1990 update of the computerised data base NUTTAB became available, in which the new Australian data on cereal and dairy foods, eggs and fish were incorporated.

The October release of volume 4 of the COFA series provides data on processed meats, additional vegetables and fruits, and fats and oils. The analyses of fats and oils were recently commissioned and funded under the 1989-90 program, administered by the unit. The next release of data, planned for the end of 1990 covers other recently commissioned analyses on beverages (alcoholic and non-alcoholic), confectionery, soups, sauces and miscellaneous foods, as well the data from the nuts and legumes analytical program. The work of the unit has been directed to the major objective of producing and making available an adequate set of Australian nutrient composition data covering all major five food groups and the 'extra' or discretionary food groups.

IV. FUTURE PLANS

The Department is commissioning the analysis of an increased number of nutrients, particularly vitamins and minerals. This will be continued for new analyses in the 1990-91 program, as well as for some catch-up analyses to provide more comprehensive nutrient data on some foods already included in the COFA series. The use of the loose-leaf format for the printed food tables will permit the ready update of these foods. Additional nutrients now routinely commissioned in the analytical program include vitamin B-6, vitamin B-12, biotin, pantothenic acid, phosphorus, copper, manganese, selenium, fluoride, sulphur, chloride and dietary fibre (AOAC method).

Priorities for the food analytical program in 1990-91 will be ethnic and other recipe foods, as well as new foods entering the market place. Priority will also be given to filling obvious gaps in the present available data.

One important aspect of the 1990-91 work program is the further development of the Australian Nutrient Data Bank, established in the late 1980s to store and process nutrient composition data, and to provide camera-ready copy for publication of the main food tables and the data appendices. With the proposed enhancements, it should be possible to provide a tabulated food composition publication, similar in format to the 1970 'Tables of composition of Australian foods' (Thomas and Cordon 1970). While the COFA series will remain the detailed 'Rolls Royce' model, there is great demand for a manageable reference on food composition for use by secondary and tertiary students and for such professional groups as home economists and teachers.

V. AUSTRALIAN TABLES FOR AUSTRALIAN DIETARY ANALYSES

To increase the validity of the results of nutrient analysis of diets for research or clinical work it is important that nutritionists use locally based food composition tables. Major differences do exist between national food supplies, particularly for foods undergoing some form of processing, as ingredient profiles vary as do the national food standards under which products are marketed. Comparing the British and Australian food tables, fat and fatty acid components can vary significantly affecting energy intake and the p/m/s ratio of a diet (e.g. fried foods, pastry dishes and some meats). Vitamin and mineral values can differ by a factor of 2 or 3 (e.g. vitamin C in potato crisps; calcium in broccoli). Different levels of added sugars can provide a 100 per cent variation in total sugars composition (e.g. canned peaches in syrup).

An important difference between the British and Australian tables is the mode of expression of components contributing to the total available carbohydrate. The Australian tables report carbohydrate data as grams of component, such as sucrose, starch etc. and their sum as total carbohydrate. In contrast, the British tables express all available carbohydrate fractions and their total amounts as monosaccharide equivalents. Another difference is the practice of including other carbohydrates such as sorbitol, mannitol and oligosaccharides in total carbohydrate values. For example in the Australian tables, the total carbohydrate value for stone fruits includes the sorbitol content. No data for sorbitol in fruits are provided in the British tables.

Differences in food composition values are more marked with the American data bases than the British tables. Food names and food components vary to a greater degree. Carbohydrate values are estimated 'by difference' and include the dietary fibre component.

One major advantage of having and using the one set of national food composition tables is that it then provides a standard reference for analysis of diets in that country. This facilitates comparison of results of studies of nutrient intakes of both groups and at individual level. If a bias is introduced in the nutrient intake results by the use of the food tables, then the bias is systematic across the nutrient intake data being compared.

VI. COMPUTERISED NUTRIENT COMPOSITION TABLES

Within the last few years, there has been a growing demand for food tables in a computer format. To meet this need the Department has been providing annual editions of NUTTAB on floppy diskette (360K) since 1987. The updates have mainly covered the inclusion of the new Australian values to the original data base which was modified from 'McCance and Widdowson's The Composition of Foods' (Paul and Southgate 1978). With the inclusion of the cereal, dairy, eggs and fish data released this year, NUTTAB90 now consists of 80 per cent Australian data. The next update in 1991, should provide a data base comprised of almost 100 per cent Australian values. For NUTTAB90, all foods irrespective of original source, have been assigned a food group code from the COFA series. The COFA food item number (i.e. food group code linked to an assigned number) is given for all foods in NUTTAB90, whose data are referenced to the COFA series. This series will therefore remain the source of detailed information on foods in the computerised format and an essential adjunct to using NUTTAB. We share the concern of Buss and Singer (1988) that 'as the use of computers becomes more universal, the risk of users neglecting the explanatory text becomes higher and the information could become increasingly misapplied'.

VII. CONCLUSION

The 'Composition of foods, Australia' data base will always have its limitations, as will other national food tables. Foods are biological materials showing natural variation in composition. It should be appreciated that variations between foods, arising from geographical, seasonal, storage and preparation factors as well as analytical methodology make it impossible to predict accurately the composition of a single sample of food using a value from food tables. Then there is the problem of providing up-to-date values to represent the some 12,000-16,000 food products estimated to be available in the Australian market place, and to 'catch-up' on the new foods entering the market place. In the past decade with support from the Commonwealth Department of Community Services and Health and the National Health and Medical Research Council, nutrient composition data are now available to nutrition workers on some 1,200 Australian foods.

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