

NUTRIENT COMPUTATION: AN EPIDEMIOLOGICAL APPLICATION

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The increasing availability of personal computers with hard disks has created a flourishing international market for dietetic software. Most nutrient computation programmes have been designed for therapeutic and educational applications. Consequently they have quite restricted data storage capacity which limits their usefulness for large-scale epidemiological research purposes.

Whether special programmes are needed at all for nutrition research is open to question as dietary analysis essentially involves matrix multiplication, a relatively straightforward process that can be performed on a range of existing database management systems. The feasibility trials for the Melbourne Collaborative Cohort Study (Giles 1990) involved, inter alia, the analysis of 8-day weighed food records from 810 individuals and the method of dietary analysis is described.

All medical, biochemical, anthropometric and dietary data were entered into INGRES (Relational Technology Inc.), a mainframe database management system operating in UNIX. The nutrient database, McCance and Widdowson's "The Composition of Foods" was loaded as one table while another table was created consisting of four columns; individual identifying number, day number, food code number and serving size weight. There were 140913 rows in this table corresponding to every portion of food or drink consumed over the 8-day period for the entire sample. Matrix multiplication was performed upon these two tables and individual nutrient intake was thus calculated and stored in a separate table. Foods were then assigned to categories for food frequency questionnaire development (Block et al. 1986).

Once the analysis had been performed, the nutrient intake data were transferred to a second programme, S (AT&T Software), for logarithmic transformation, quantile estimation, energy adjustment and graphical presentation of results.

In summary, an uncomplicated paradigm has been developed for the analysis of large-scale dietary surveys. Individual nutrient intake data is generated in tabular form enabling immediate statistical analysis.

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