necessitates collapsing all doneness levels into one category, as well as collapsing cooking methods. This process overestimates the amount of meat consumed for meats with high YFs (low-temperature cooking methods, rare doneness) and underestimates amounts for meats with low YFs (high-temperature cooking, well done). The inaccurate estimates will have an effect on estimation of possible carcinogens and nutrient analysis. Although these data are preliminary, they suggest that consideration of the meat-cooking method and degree of doneness during dietary data collection and coding may improve the accuracy of data for certain nutrients.

KEY WORDS Meat, doneness, cooking method, carcinogen, cancer

Comparison of food-intake data determined by chemical analysis with nutrient data from food balance sheets from seven countries

JHM de Vries, Department of Human Nutrition, Wageningen Agricultural University, Wageningen, Netherlands; AM Jansen, National Institute of Public Health and Environmental Protection, Bilthoven, Netherlands; P van de Bovenkamp, Department of Human Nutrition, Wageningen Agricultural University; PCH Hollman, RIKILT-DLO, Wageningen; D Kromhout, National Institute of Public Health and Environmental Protection, Bilthoven; and MB Katan, Department of Human Nutrition, Wageningen Agricultural University

Food balance sheets, which are often used to investigate the relation between diet and disease, do not represent what was actually consumed. Furthermore, many food components are not known. Therefore, in 1987 we collected local food composites based on weighed-food records obtained in the 1960s from 13 000 men aged 40–59 y (Kromhout et al, Am J Clin Nutr 1989;49:889–94) in 16 cohorts in Finland, Greece, Italy, Japan, Netherlands, United States, and Yugoslavia. We determined energy, macronutrients, fatty acids, individual sugars, sterols, minerals, trace elements, vitamins, flavonols, and glucosinolates by chemical analysis. We compared the results with the nutrients, if available, in food balance sheets from the seven countries [1961–1965 average, Food and Agriculture Organization (FAO), 1980]. The ranges of ratios (n = 16) for the FAO-analyzed nutrient data, corrected for energy, and Pearson correlation coefficients (in parentheses) were as follows: energy, 0.9–1.4 (0.33); protein, 0.7–0.9 (0.48); fat, 0.5–1.0 (0.65); calcium, 0.5–1.0 (0.70); iron, 0.7–1.6 (−0.64); vitamin A, 0.3–2.6 (0.59); thiamine, 0.7–1.8 (0.49); riboflavin, 0.7–0.9 (0.86); vitamin C, 0.5–2.8 (0.13). The results confirm that data from FAO food balance sheets are not representative of nutrient intake in the men studied. Riboflavin showed a high association but the relations for iron and ascorbic acid were especially poor.

KEY WORDS Food balance sheet, weighed-food record, chemical analysis

Use of an international interface standard for food databases in comparing food-related data sets

JS Douglass, SB Chew, RH Li, and BJ Petersen, Technical Assessment Systems, Inc, Washington, DC, and TC Hendricks and JAT Pennington, US Food and Drug Administration, Washington, DC

The US Food and Drug Administration, under contract with Technical Assessment Systems, Inc, is developing a personal computer application that will allow standardized storage and retrieval of food-related information from multiple databases. The system is being developed with use of Microsoft FOXPRO FOR WINDOWS. For each food in each source database, the system allows entry of multiple food names (in multiple languages), identifying numbers, LANGUAL food-description codes, and food-ingredient information. Future system development will allow entry of information on agricultural production, storage conditions, food standards, weight and volume equivalents, codes from food-description systems other than LANGUAL, and other data. The system allows retrieval of foods and the data associated with them on the basis of the descriptive information entered for foods or food ingredients. For example, it permits retrieval of food-composition or food-consumption data for eggs from various databases, as well as data on foods containing eggs. Simple searches based on one criterion or complex searches based on combined search criteria can be done. The system will be of great use to researchers in dietary assessment because it will allow easy identification of available data and facilitate comparison of data from different sources.

KEY WORDS Computer, database, food code, ingredient, food composition

Development and use of a matching protocol for an international nutrient database

AL Eldridge, IM Buzzard, DJ Lowry, and Z Huang, Nutrition Coordinating Center, Division of Epidemiology, University of Minnesota, Minneapolis

An increasing number of researchers are interested in conducting multicountry dietary assessment studies. Possible noncomparability of nutrient databases becomes an issue when evaluating data from such investigations. To address this issue, a matching protocol was developed at the Nutrition Coordinating Center (NCC) to compare nutrient values for foods in China and New Zealand with foods in NCC's nutrient database. The purpose of this pilot project was to create guidelines for establishing a comprehensive database containing core foods and ingredients that would be appropriate for multicountry dietary assessment studies. An algorithm was developed for comparing $\leq$ 30 key nutrients for a given food item with nutrients in NCC's nutrient database. First, matching ranges for key nutrients were established on the basis of nutrient value per 100 g food $\pm$ 3 SD. A spreadsheet was then developed to compare nutrient values for foods from China and New Zealand with foods in NCC's database. Individual nutrients that fell outside the matching range were flagged. In pilot work with the Chinese food table for fruit and vegetables, 96 fruit and 40 vegetables matched entries in the NCC nutrient database. Twenty-one fruit and seven vegetables had more than three nutrient values that fell outside the allowable matching range and were therefore considered nonmatches. A list was compiled of fruit and vegetables for which no nutrient-database entry was established. These included items such as dried lily, mallow, Chinese boxthorn, chrysanthemum, sugarcane juice, dried green plums, sapota, and jackfruit. To make a usable multicountry nutrient database, these foods, as well as nonmatches, would have to be added.