SELENIUM CONTENT OF SELECTED FOODS BASED ON AN EVALUATION OF THE QUALITY OF PUBLISHED DATA. A.S. Greenland, J.M. Holden, and W.R. Wolf (SPON: G.R. Beecher). USDA-ARS, BHNRC, Nutrient Composition Laboratory, Beltsville, MD 20705.

References published since 1960 which report analyses of selenium (Se) in foods were collected and evaluated according to five criteria: number of samples, analytical method, sample handling procedures, sampling plan, and quality control. Studies were grouped by food item and scored for each of the criteria which had been developed specifically for evaluating the quality of published Se data. Scores assigned to each study were averaged to yield an index. The various indices for acceptable studies were summed to determine a "confidence code," intended to indicate the relative degree of confidence the user can have in the mean value for each food item. Mean, minimum and maximum Se values and references have been compiled for more than 120 food items. Food items were selected for evaluation based upon ranked contributions to Se intake in American diets. Foods were ranked by multiplying Se concentration in the food times the amount consumed in the 1977-78 Nationwide Food Consumption Survey. The five highest ranked foods (beef, white bread, eggs, chicken, and pork) contribute one-half of the Se in American diets.

The data for two-third of the evaluated foods are of good quality. The evaluation of nutrient data by objective criteria reveals those frequently consumed foods for which poor quality or no data have been reported.

Development of a Food Hierarchy to Capture Food Intake Data for Nutrient Analyses

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An interactive approach of food specification through a progressively detailed selection of food descriptions is utilized in the Dietary Data Collection system, a micro-computer based food coding system for dietary analysis being developed at the Nutrition Coding Center. Foods are being structured into a hierarchical tree design using common food names and categories. The food hierarchy is not a transcription of any one nutrient data bank; rather, it will contai most foods as eaten in North America and will incorporate much of the food detail found in the USDA Standard Reference and NCC data bases. A pathway on the food hierarchy progresses from a first level root node through from one to six levels of increasing food specificity. Pathway choices consider such detail as the processing method, source of the food, added sweeteners or salt, and brand name of the product. Each node in the pathway is represented by a one to four letter key, and a pathway is described by a series of keys. All four letter keys, which consist of the first four letters of the food name, will be maintained in an index to permit direct entry to these foods on any level of the hierarchy. Food selection is further simplified by the cross-referencing of foods under various names and in multiple pathways. Enhancement of the food description is possible through the specification of a preparation method or modification of recipe ingredients. Choice of a preparation method may add foods, such as fat and salt, to the basic food selected. The foods used in preparation or those modified in a recipe are accessed through key lists which permit transfer between food pathways in the hierarchy. It is anticipated that use of the hierarchy for coding foods from dietary intake data will enhance standardization of data collection and increase the accuracy of the data.

NUTRIENT DATA BANK APPLICATIONS IN DENTAL EDUCATION

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It is understood that intake of sucrose-containing foods and beverages promotes the development of dental plaque and the organic acids that cause demineralization of tooth enamel. Ingestion of the more retentive forms of sweets and an increased frequency of ingestion, especially between meals, have been shown to be the primary factors contributing to higher rates of caries formation. Due to their role in plaque development, the sucrose-containing foods have also been implicated as a contributing factor to gingivitis. In addition, recent animal research has revealed that certain nutrient deficiencies will compromise immune responses and the integrity of periodontal structures. A computer program was developed to analyze the diets of patients of our university dental clinics, the primary sources of nutrient data being USDA publications and manufacturers' communications. The goal was to promote a better understanding of the role of diet in oral health and disease. Five-day diet records of patients are analyzed. The resulting printouts summarize the intakes of sweets, categorizing them with respect to retentive properties and timing of consumption. They also give an estimate of the teaspoon amounts of sucrose contained in the designated sweets. An evaluation of the intake of twelve nutrients is made with comparisons to the RDA's. A second evaluation of adequacy of nutrient intake is based on food group guidelines. Feedback from patients and student counselors indicates that the computer-assisted analysis is a useful tool for assessing individual eating habits and focusing on ways to alter them to achieve better oral health.

Title: The Agriculture Canada Nutrient Assessment Program

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In response to Agriculture Canada's recent increased commitment to promoting the nutritional aspects of Canadian foods, the Agriculture Canada Nutrient Assessment Program (AGNAP) was developed to consolidate the food and nutrition data used within the Department. This computer program integrates Health and Welfare Canada's Canadian Nutrient File (CNF) and Recommended Nutrient Intake (RNI) data with Statistics Canada's Family Food Expenditure, Apparent Food Consumption and Food Price data. AGNAP enables Agriculture Canada to generate the following kinds of information: summaries of the apparent nutrient intake of various groups in the Canadian population; nutrient profiles of recipes and menus together with comparisons of these profiles with the RNI; rankings of foods and food groups on the basis of nutrient content or cost; and the Nutritious Food Basket, a food costing plan for Canadians. Agriculture Canada interprets this information and uses it in research and consumer publications.
The Department also uses AGNAP to provide information to other government departments and outside organizations.

THE FDA'S FACTORED FOOD VOCABULARY (FFV)

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The lack of a standardized vocabulary for describing food products is a problem which faces the Center for Food Safety and Applied Nutrition (formerly Bureau of Foods) of the FDA, which deals with research, regulatory, and policy problems related to the food we eat.

Scientists and information specialists have developed a standardized vocabulary for the description of food products to be used by the FDA-CFSAN to address the problem. The Factored Food Vocabulary (FFV) is currently in the pilot-test stage. It will provide a standardized but flexible retrieval-oriented language for describing foods and food products. This system provides the capability for coding eleven aspects or "factors" of foods, including product type, food source, preservation method and food contact surface. Each factor is hierarchically organized. The FFV provides the backbone which can be overlaid with various types of data pertinent to foods, e.g., nutrient data, toxicology data or demographic data. The information needs of the FDA are diverse; the Factored Food Vocabulary will permit the integration of information from various data bases, such as the National Food Consumption Survey, the Food Labeling and Product Surveillance (FLAPS) files and NHANES II, to satisfy these diverse needs and to analyze data more effectively in the future.

Calculated sodium and potassium values compared to chemical analysis and urinary excretion.

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To provide subjects with a constant intake, research dietitians must furnish a diet containing a specified amount of one or more nutrients over a period of time and verify the diet's nutrient content. We compared thirty-one diets' sodium and potassium content as calculated from USDA food composition tables and manufacturer's data with analyzed values. Sodium content ranged from 37-124 mEq for calculated values and 42-136 mEq for analyzed values. Calculated potassium content ranged from 46-157 mEq and analyzed potassium from 35-170 mEq. To evaluate the variability of identical diets we compared the sodium and potassium analyses for 20 duplicate diets prepared on two different study days.

In addition to evaluating dietary data, research dietitians must monitor subjects' compliance to a constant diet. Urinary sodium and potassium excretion is sometimes used to assess dietary adherence. To determine whether intake correlated with excretion, we compared 31 subjects urinary sodium and potassium excretion on the third day of a constant diet with sodium and potassium intake for this day.

DEVELOPMENT OF A COMPUTER PROGRAM TO ANALYZE CHINESE DIETS. Christine S. Wilson and Linda C. Koo, Departments of Epidemiology & International Health, University of California, San Francisco, and Community Medicine, University of Hong Kong.

For epidemiologic purposes nutrient intakes of Chinese in Taiwan and San Francisco were determined from self-reported dietary data collected by one of us (LCK). An existing computer program utilizing a minilist of 230 representative U.S. foods and 48 of their nutrients was modified and expanded to analyze these data. Two-hundred thirty-one foods recorded by Chinese subjects were coded separately and added to the program, for a total of 461 foods. All nutrient data for the added foods were obtained from published sources, chiefly the FAO/WHO Food Composition Table for Use in East Asia. The nutrients selenium, oleic, linoleic and linolenic acid were added to data on all the foods. Twelve amino acids, biotin and sucrose, in the original program, were omitted, as were total saturated and unsaturated fatty acids. A 35-nutrient data base for all foods in the expanded program resulted, which has been used to analyze nutrient intake differences between Taiwan and San Francisco.

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