

FOOD CONSUMPTION - TEN-STATE NUTRITION SURVEY

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Of the various methods of appraisal of nutritional status, biochemical and anthropometric measurements provide the key hard data applicable to individuals or population groups. Dietary data does not define nutritional status but it is essential for implementing improved or corrective dietary habits. The methodology and guidelines for interpreting the dietary data are defined in the HEW publication of the Ten-State Nutrition Survey. (1) The report contains voluminous tables on nutrient intake by age, sex, ethnic origin, and income; however, little data is included on food patterns and the nutrient contribution of food or food groups.

Methodology

The protocol for conducting the 24-hour recall and the household survey were not invented by the Ten-State Survey. They resulted from the experience gained in conducting the 35 Country Nutrition Survey and three surveys of U.S. Indian-Eskimo populations by the ICNND during the period of 1956-67. Just prior to the Ten-State Survey we had the opportunity of evaluating the reliability of the 24-hour dietary recall in a very extensive nutrition survey of Central America and Panama during 1964-67. These studies, conducted jointly by the ICNND and INCAP, compared the 24-hour recall and the one to three day home food weighing procedures. For defining food habits, patterns, and nutrient intake it made no difference which set of dietary intake data was used. The procedures employed in training, standardizing, and supervising the dietitians who conducted the Ten-State Survey were patterned after this.

Likewise, the Canadian Nutrition Survey which followed the Ten-State Survey adopted the same procedures and even assigned team members to various U.S. survey teams for training and standardization.

Data

The HEW report virtually ignores the fact that people eat food and not nutrients (albeit a few pill poppers). Over 90% of the dietary tables report nutrient intake. A few summary tables compare the quartile intervals of biochemical values with corresponding quartiles of nutrient intake. The data reveal a close association in those cases wherein a nutritional risk of malnutrition was apparent. It would have been helpful to have identified the foods and quantity consumed by the high risk lower quartile as compared to those in the upper quartile. Correlations are given for hemoglobin values and dietary iron, serum albumin and dietary protein, serum vitamin A and vitamin C, and urinary thiamin and riboflavin with their respective dietary intakes. A few tables on the nutrient contribution of food groups are given (Table 1). Also, there are a few tables on frequency of consumption of selected foods and food groups. The latter tables fail to specify quantity.

Summary

Beyond doubt the HEW report of the Ten-State Nutrition Survey failed to even remotely analyze the data collected. The constraints of a dietary survey should be known to anyone familiar with human biology and yet we see dietary data either ignored or over interpreted. Why should one expect a high degree of sensitivity and accuracy in defining an individual's intake based on one to seven or more days of a lifetime? Let us remember that when starting with "crude data" on nutrient composition of foods, we should moderate our

interpretation. We see intense discussion and conclusions on the precise intake of fat, protein, fiber, and carbohydrate. We often fail to recall that these food values are based upon "proximate" analysis which includes the term of "crude fiber". The most important value of a dietary survey is to identify foods consumed in terms of quantity and to relate this to the state of health.

REFERENCE

1. U.S. Department of Health, Education and Welfare. Ten-State Nutrition Survey 1968-70. Atlanta DHEW Pub. No. (HSM) 72-8130, Center for Disease Control, Vol. 1-5, 1972

Table 1. Percentage contribution of food groups to nutrient intake for blacks from low income states.

	Nutrients					
	<u>Calories</u>	<u>Protein</u> (gm)	<u>Ca</u> (gm)	<u>Fe</u> (mg)	<u>Vit A</u> (IU)	<u>Vit. C</u> (mg)
Dairy Products	7.7	10.1	41.4	.5	6.2	3.5
Meat	21.8	31.4	1.9	27.2	2.5	3.0
Poultry	5.7	16.1	.9	6.8	3.4	.1
Shell Fish	.1	.3	.2	.3	0	0
Fish	1.2	2.6	.4	.9	.1	.1
Eggs	3.8	5.9	4.4	6.1	8.9	.1
Soups & Gravy	1.8	.5	.2	.6	1.9	.9
Fats	3.5	.1	.3	.1	3.9	0
Legumes & Nuts	4.6	6.1	3.8	11.2	1.4	3.7
Cereal & Grains	29.1	17.8	25.0	28.5	4.5	1.5
Fruits & Vegetables	6.5	3.9	13.9	10.7	61.5	84.1
Sugar	6.3	.1	.7	1.8	.1	.2
Dessert	5.9	2.3	4.5	2.0	3.2	.7
Miscellaneous	.3	.1	.5	.9	.1	.4
Mixed Dishes	1.8	2.6	2.2	2.4	2.2	1.8
Mean Intake	1,828	76.2	623	;2	4,793	57