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Customary foods in the Navajo diet

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Limited knowledge is available about the dietary practices of the Navajo people, although there is widespread interest in the cultural anthropology, land use, and agricultural practices of this people. The Navajo country covers a vast territory, including great areas with limited accessibility in New Mexico, Arizona, Colorado, and Utah. Darby *et al.* determined (1) the nutritional status of the Navajo by studying 645 subjects at Ganado, which was relatively acculturated and near the eastern border of the Reservation, and 595 subjects at Pinon, representative of those who had less contact with Anglo culture. This comprehensive study, made during 1955, on the Navajo nutrition and dietary background, showed that the diet previously had consisted chiefly of corn, wild game, mutton or goat meat, and a large variety of wild plants. Small patches of beans, squashes, melons, pumpkins, and potatoes had been grown. This primitive diet had been replaced by foods available at the trading posts. Wheat flour had been substituted for corn. Herb beverages had been replaced with coffee, tea, and soft drinks.

Usually, three meals were eaten daily; however, this varied from two to four. Menus showed little variety from day to day. Mutton, which was roasted, fried, or stewed with potatoes and onions, bread, and coffee or tea were the basic menu items.

Nine hundred ninety-six persons were studied in 1968 in a nutrition survey of the Greasewood Chapter of the Navajo Tribe (2). This area was considered to have a population at risk for nutritional disease due to its isolation and poor land. The study identified the need for higher dietary iron, more protein and ascorbic acid for adults, and more total calories for children and elderly persons.

In the Lower Greasewood Chapter, household information was gathered from 996 persons. Over half the households, 53 per cent, were receiving USDA-donated foods. Only 21 per cent had running water; 23 per cent, electricity; and 23 per cent, refrigeration. Meat was stored outside by 75 per cent of the households. Sixty-nine per cent used wood as the cooking fuel. The primary dietary staples were sheep and corn. Sheep were the main source of meat as well as money. Visceral meats were still eaten by most families. The children received their lunch at school. Greasewood had both boarding and day schools.

Saiki and Rimoin, in a study of diabetes mellitus on the Reservation, found (3) the Navajo diet consisted primarily of mutton stew and bread fried in

lard. It was high in saturated fat.

In 1969, Van Duzen *et al.* reported (4) a study of 4,355 admissions of children under five years of age to the pediatric service of the Public Health Indian Hospital in Tuba City. This area is in the western half of the reservation, which has an annual average rainfall of 6 in. Six hundred sixteen of the children had diagnoses of malnutrition; fifteen had kwashiorkor, and twenty-nine had marasmus. The remainder of the malnourished group were below the norms for weight for their chronologic ages. Nearly 15 per cent of all pediatric admissions had some form of associated malnutrition.

Growth of Navajo children

The heights and weights of 1,000 Navajo Head Start children were taken from September 1967 to February 1968 and were reported by Van Duzen *et al.* (4) to be below the Iowa-Boston norms. The growth curve for Navajo children was similar to the growth curves of underprivileged children in developing countries. This research group also reported that top priority in any applied nutrition program should be given to preventing calorie-protein malnutrition during a child's first two years. At a meeting in 1975, Van Duzen reported (5) a marked reduction in the prevalence of malnourished children and those below the 3rd percentile in height or weight, although deviations from the growth curves were still statistically significant. Since 1968, a number of food supplementation programs had been implemented.

In 1967, French reported (7) a high morbidity and mortality rate in Navajo children from birth up to two years. This Cornell-Navajo research project was conducted in 1960 in a more remote region to the West, which simulated conditions of an underdeveloped country. The customary diets of the children were low in calories and borderline in protein; over half were inadequate in vitamin A, ascorbic acid, and possibly other nutrients. Infectious diseases were the major cause of the high death rates, with gastroenteritis the single major cause. Accurate data on amounts of food eaten were difficult to obtain because the Navajos did not use household measures when preparing their food and usually served the food on one common platter. The foods most frequently mentioned in the children's diets were potatoes, meat, bread, and cereal. In 1973, Wallace noted (6) the greater mortality among Indian children in the U.S., largely due to infectious diseases and accidents.

McDonald stated in 1965 (8) that USDA-donated foods were extremely important to the nutrition and health of the Navajo. Most Navajos were eligible to receive the food because of low cash income, seasonal employment, and a limited amount of livestock. Some Navajos did not receive the foods because they had no transportation to reach the distribution point. Some were reluctant to take the food, because they felt that acceptance indicated poverty. Some considered the donated foods to be of inferior quality and

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given to the Navajo only as a means of utilizing food no one else would use.

In addition to the literature references cited, the need for food for Navajos has been established by the Navajo Tribal Council entering into an agreement with the Southwest Region Food and Nutrition Service to deliver USDA-donated foods to the Reservation for approximately 40,000 Navajos. The Council has contributed some \$300,000 annually as its share of the expenses for distribution of the food.

Families receiving donated foods

In 1972, data were gathered by forty nutrition aides during their routine work throughout the Navajo Reservation (9). All were Navajo and spoke the Navajo language, which was advantageous in obtaining reliable information.

The information on native foods provided from 281 households receiving USDA-donated foods indicated that 47 per cent used one native food occasionally. Of the thirteen native dishes reported, only two—corn mash and blue corn bread—were used to any significant degree. Less than thirty households reported the use of native foods, such as corn balls, Navajo cake, Navajo pancake, kneelown bread, Navajo pudding, and Navajo tamale. All these foods involve the use of corn, and recipes are found in the Navajo Cook Book (10). "Kneelown bread" is an unleavened bread made with mashed corn cooked in hot ashes over an open fire. According to the dietary recalls, fry bread and mutton were eaten, although not specifically indicated as native foods.

The basic meal pattern of families receiving USDA-donated foods in 1972 had not changed greatly from examples given by Darby *et al.* (1) in 1955. The food items purchased or home grown were predominantly mutton and fresh potatoes. The selection of these foods indicated that when the donated food supplies are depleted, the foods added to the dietary are those historically preferred by the Navajo. Most of the food preparation was by the frying or baking method.

The menus listed on food recalls reflected great similarity in composition. Breakfast generally was a heavy meal, especially if only one other meal was eaten during the day. Foods included eggs and cooked cereals which were made of rolled oats, rice, or cornmeal. Tortillas and fry bread were the breads most frequently mentioned. Pancakes, mutton stew, and fried potatoes were often used. The fruit juices listed were only those supplied by the donated food program.

The noon and evening meals were similar in composition and usually included a meat item, a vegetable, a bread, and a beverage. The vegetable was most often potatoes; other vegetables were used occasionally. Coffee was the most popular beverage, with some use of tea and milk. Milk was identified as goat's milk only once. Small amounts of soft drinks were consumed. A snack was reported only once; it included cornmeal and milk.

The Navajo dietary pattern remains more traditional than that of other Indians, such as the Sioux, living on Standing Rock Reservation in North and South Dakota (11). However, both groups share common problems associated with environmental factors and food supply. With the anticipated change from USDA-donated foods to Food Stamps, the dietary pattern of the Navajo people may become different. Buckingham indicates (12) these changes are occurring in the acculturated areas.

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