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Nutrition and cancer education : evaluation of a program for Hispanic and Vietnamese populations provided by two community-based health agencies

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NUTRITION AND CANCER EDUCATION: EVALUATION OF A PROGRAM FOR HISPANIC AND VIETNAMESE POPULATIONS PROVIDED BY TWO COMMUNITY-BASED HEALTH AGENCIES

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ABSTRACT

NUTRITION AND CANCER EDUCATION: EVALUATION OF A PROGRAM FOR HISPANIC AND VIETNAMESE POPULATIONS PROVIDED BY TWO COMMUNITY-BASED HEALTH AGENCIES

The purpose of this thesis was to evaluate the effectiveness of a nutrition and cancer education program designed for California's Santa Clara County Hispanic and Vietnamese communities. Culturally-specific educational materials were developed by the American Cancer Society (ACS) and incorporated into the existing eight week Expanded Food and Nutrition Education Program (EFNEP) of the University of California Cooperative Extension. Based on the ACS Dietary Recommendations, the new materials encouraged individuals to increase consumption of fiber-rich foods, those containing vitamin A and C, and cruciferous vegetables, while decreasing high fat foods. Hispanic and Vietnamese participants (N = 185) were exposed to the appropriate culturally-specific materials. The randomly selected control group (N = 201), obtained from EFNEP's files, received the standard EFNEP curriculum. Three questions, added to EFNEP's pre/posttest, assessed knowledge of the ACS Nutrition Guidelines and attitude about diet's protective role against cancer. Eating behavior

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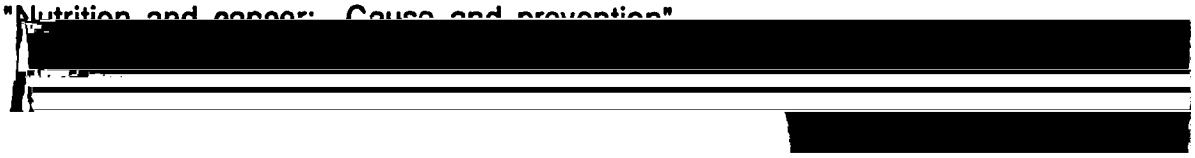

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CHAPTER 1

Introduction and Review of Literature

Introduction

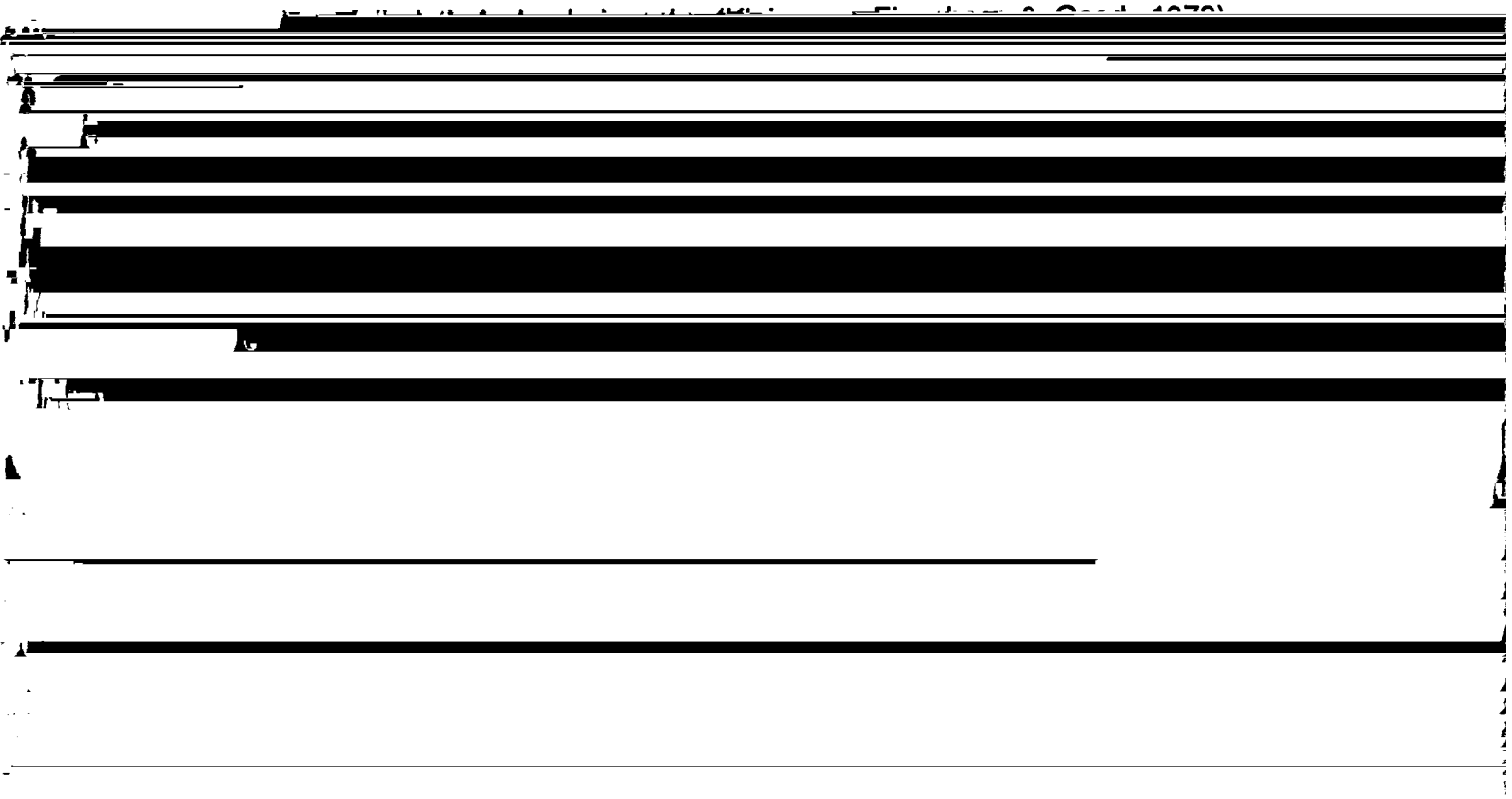
The Report of the Secretary's Task Force on Black and Minority Health (National Cancer Institute, 1986) emphasized cancer's severe impact on minority population groups. The report suggested that the wide differences in cancer incidence and survival between black Americans, other minorities, and white Americans may be due to endogenous and exogenous environmental factors. These factors may include immune status and function, educational level and attitude, nutritional status and dietary patterns, awareness of cancer prevention concepts and behaviors, and acceptance of cancer as a real and potential threat.

For this and other reasons, cancer education programs for high risk minority populations are a public education priority of the American Cancer Society (ACS), especially the California Division (Lehmann, 1986). The American Cancer Society's Santa Clara County Unit identified cancer education of ethnic minority populations as 1986-1987 public education goals ("Public Education," 1986). The local American Cancer Society targeted Santa Clara County's Hispanic and Vietnamese ethnic groups because of their rapidly growing populations.

To pinpoint a more specific ethnic population, the ACS referred to the work of the South Bay Health Education Center (AHEC) which had identified seven target areas within Santa Clara County (Appendix A). The specific communities were selected, in part, for their high ethnic concentrations (Romer, 1981). The target areas also were characterized by a large number

of low-income households, a high proportion of the population under five years of age, and fewer health care providers. These communities were identified as populations that would benefit from the ACS diet and cancer education initiatives.

It is estimated that 70% to 90% of ethnic health care takes place within the popular domain (family, social network, community, etc.), while 10% to 30% takes place within the professional (personal physician, clinic,



Therefore, it was decided that one method of reaching the AHEC target areas with a nutrition and cancer risk reduction education program would be to work with established self-help networks within each specific ethnic community (Garcia & Lee, 1986). The American Cancer Society's Santa Clara County Unit selected the Expanded Food and Nutrition Education Program of the University of California Cooperative Extension (EFNEP) to assist in this program because of EFNEP's established education network in the target communities. The subsequent culturally-specific nutrition and cancer risk reduction education program was based on the health promotion strategy of primary prevention through a focus on individuals and groups at

materials (brochures, recipes and speaker's outlines) reflecting each ethnic group's specific food habits, language and socioeconomic status were developed and incorporated into EFNEP's existing eight week nutrition curriculum. Three questions were added to EFNEP's pre/posttest (Appendix B) to assess participants' knowledge of the ACS Dietary Recommendations (Appendix C) and to obtain information on beliefs towards cancer prevention. Individuals' eating behaviors were assessed by analyzing a food frequency questionnaire (24-hour food recall) prior to and following the nutrition program. The experimental group receiving the expanded EFNEP program was compared with a randomly selected control group which received the standard EFNEP curriculum.

This study addressed the following questions:

1. Will the participants have increased knowledge of the ACS Dietary Recommendations as a result of exposure to a culturally-specific nutrition and cancer risk reduction education program?
2. Will the participants change in their attitude about the potential benefit of eating a proposed cancer risk reduction diet?
3. Will the participants change their eating behaviors as a result of exposure to a culturally-specific nutrition and cancer risk reduction education program?

Definition of terms

Definitions used in this study were:

Cancer risk reduction diet---a diet high in fiber foods, fruits and vegetables high in vitamins A and C, cruciferous vegetables (broccoli, cauliflower, greens[collards, mustard, turnip], cabbage) and low in fatty

foods and alcoholic beverages.

Eating behaviors---consumption of foods using the 24-hour food recall, a self-report of everything eaten within the last 24 hours, or the previous day (Block, 1982). Scoring for the 24-hour food recall was based on number of times each food was reported eaten (Appendix D).

Positive change in eating behaviors---an increase in consumption of fiber foods, fruits and vegetables high in vitamins A and C and cruciferous vegetables and decreased consumption of high fat foods, measured by comparing pre and post program recalls.

Increased knowledge of ACS Dietary Recommendations---a positive change score between posttest and pretest scores measured by asking test questions #8 and #9 (Appendix B).

Attitude towards cancer prevention---one's opinion or belief that what one eats may decrease (or increase) one's chances of getting cancer. Belief in the value of diet was measured by asking "Do you think that your chances of getting cancer can be reduced by what you eat?" (Question #3 on test).

Culturally-specific nutrition and cancer risk reduction program---non-English cancer and nutrition educational materials which incorporate a culture's specific dietary habits. In this study, the materials were incorporated into an existing EFNEP nutrition curriculum and delivered by educators who were members of the culture and spoke the respective language.

Significance of the Study

Data from the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program indicate that the Hispanic and Vietnamese

populations are at a higher cancer risk than the general public (National Cancer Institute, 1986). Despite this increased risk, a review of the literature revealed no studies measuring the direct effect of nutrition and cancer education on individuals' dietary practices in ethnic populations.

Nutrition education programs designed for ethnic populations are difficult to implement for several reasons. To be effective, the program must be available and accessible to the target population and sensitive to the culture's language, health beliefs and food habits. This nutrition and cancer risk reduction program for Santa Clara County's Hispanic and Vietnamese communities incorporated culturally-sensitive materials into a well-established education network (EFNEP) situated within this ethnic domain. EFNEP's bilingual and trained nutrition paraprofessionals recruited from the communities they serve were an essential and unique component of the program.

The American Cancer Society's nutrition and cancer risk reduction program was in support of the major objective of the 1984 Cancer Prevention Awareness Program which was to inform and educate the public, especially those at high risk, about cancer and methods of cancer prevention in order to ultimately reduce the incidence of all cancers (Devita, 1985). This culturally-specific education program, which integrated the resources of two community health agencies, was envisioned as an innovative and cost effective approach to providing vital health education to a multicultural society. The program demonstrated a collaborative effort in teaching people what they can do every day through diet to control their own cancer risks. It was hoped that results of this study would serve as a resource in the design of similar programs with

other community-based health education agencies (including other EFNEP branches) to reach high risk minority populations throughout the United States.

Review of Literature

Diet and cancer

Cancer is the second leading cause of death in the United States, surpassed only by cardiovascular disease (National Cancer Institute [NCI], 1986). The Report of the Secretary's Task Force on Black and Minority Health drew attention to recent research that correlates cancer incidence with nutrition (Desmond, 1987; Palmer, 1985; Purtilo & Cohen, 1985; Willett & MacMahon, 1984a; Willett & MacMahon, 1984b). Desmond (1987) stated that nutrition is probably the most important environmental risk with the exception of smoking and occupational hazards. Doll and Peto (1981) estimate that 35 percent of all U.S. cancer deaths could be attributed to diet. Relationships between diet and human cancer have been deduced from studies of migrating populations. Almost all migrant studies suggest that cancer patterns in migrants tend to approximate those in the adopted country and differ from the country of origin. For example, Japanese women in Japan receive 15-20 percent of their calories from fat, and have a low incidence of breast cancer. Japanese women who adopt a Western or American diet with 35-40 percent of calories from fat have a higher incidence of breast cancer (American Cancer Society [ACS], 1984; Desmond, 1987; Palmer, 1985).

Dietary fats are thought to play an important role in colon cancer etiology. One study of American blacks in the San Francisco Bay Area

indicated that the relative risk of colon cancer among blacks with a low-fiber, high-fat diet was 2.68 times greater than in blacks with a high-fiber, low-fat diet (Dales, Friedman, & Ury, 1979). The Japan-Hawaii-California epidemiologic study (Marmot & Syme, 1976), which related diet to coronary heart disease (CHD) occurrence, indicated that the mean percent calories from fat in the diet ranged from 15 per cent in Japan to 37.6 per cent in the California Japanese. Researchers partially attributed the fivefold difference in CHD prevalence between the most acculturated and least acculturated groups to their differences in fat intake. Other epidemiologic studies provide strong evidence that increasing the intake of total fat increases the incidence of cancer at certain sites as well as coronary heart disease (Kato, Tillotson, Nichaman, Rhoads, & Hamilton, 1973; Markides & Coreil, 1986).

While high-fat foods may increase the incidence of breast and colon cancer, certain foods, such as high fiber foods, foods rich in vitamins A and C, and cruciferous vegetables may decrease the risk of certain cancers. Dark green and deep yellow vegetables and certain fruits, rich in vitamins A and C, may lower the risk of cancers of the larynx, esophagus, stomach and lung (ACS, 1984). Some epidemiologic studies suggest that cruciferous vegetables, which belong to the mustard family and whose plants have an arrangement of flower petals in the form of a cross, may reduce the risk of cancer of the gastrointestinal and respiratory tracts (ACS, 1984; Desmond, 1987). Based on these findings, dietary guidelines, aimed at decreasing the risk of cancer, were published by the National Research Council (NRC) in 1982 followed by the American Cancer Society Dietary Recommendations in 1984 (Appendix C). Most of ACS's Dietary Recommendations were

incorporated into the nutrition and cancer risk reduction program designed for Santa Clara County's Hispanic and Vietnamese communities.

Although a causal relationship between diet and specific cancers has yet to be established, the existing data suggest that changing eating behaviors might potentially change the cancer risks for millions of people. In 1984, NCI launched the Cancer Prevention Awareness Program, a national primary prevention initiative designed to change the public perception of cancer and to teach people what they can do to control their own cancer risks (Devita, 1985). This landmark initiative encouraged the development of local programs such as the nutrition and cancer risk reduction program of Santa Clara County. Each of these programs was based on a common approach to health promotion and disease causality. This theoretical approach assumes that major diseases are due, at least in part, to an unhealthy lifestyle and specific personal factors, ie., stress, improper nutrition, lack of exercise, and alcohol and tobacco abuse (Ratcliffe & Wallack, 1985-86). Since cancer is generally considered a multi-causal disease and diet is one controllable risk factor, an individual's dietary choices might affect his cancer risk. A primary prevention approach would focus on convincing the individual to give up risk-taking and self-destructive behavior, in this case, a high fat diet. In addition, the individual would be encouraged to eat more high fiber foods such as whole grain cereals, fruits and vegetables.

Cancer and the Hispanic and Vietnamese populations

The overall incidence of cancer is higher among the economically disadvantaged which includes the minority populations (Funch, 1985). This

group also experiences higher cancer mortality rates due to later diagnosis and limited or inadequate health care resources (NCI, 1986). With nearly 34 million Americans living below the poverty level, the need for health education, prevention and early detection programs is clear (NCI, 1986).

Data on the rapidly increasing Hispanic and Asian Pacific populations suggest that they have an increased risk for certain cancers (Markides & Coreil, 1986; Lin-Fu, 1988). Detailed and accurate data on these two populations are unavailable due to problems such as inaccurate enumeration of the population at risk (census projections) and specifications for case reporting and coding. The National Cancer Institute's SEER Program, charged with compiling epidemiologic data on cancer in the United States, has been able to monitor incidence and mortality among some geographically specific Hispanic and Asian subpopulations (NCI, 1986). These data are preliminary, however, because both of the populations are widely dispersed geographically and extremely heterogeneous. The National Cancer Institute recommends further analysis to accurately reflect the specific differences among the groups, and their many subgroups, in terms of cancer experience.

The majority of the 1980 Hispanic population consisted of individuals of Mexican descent while the remaining population were of Puerto Rican, Cuban, Carribean, Central or South American origin. In 1988, the number of Hispanics in the United States had reached an estimated 19.4 million, up 5 million from 1980; California, the state with the highest number, had an estimated 6.5 million (McLeod, 1988). SEER age-adjusted incidence data for 1978-81, obtained from New Mexico and Puerto Rico, indicate that Hispanics have an overall age-adjusted cancer incidence rate of 246.2 per

100,000 compared to 335 for non-minorities and 372.5 for blacks (NCI, 1986). The San Antonio Heart Study also suggests that overall cancer incidence rates may be lower among Hispanics because of their higher prevalence rate of diabetes and cardiovascular disease (Haffner, Knapp, Hazuda, Stern, & Young, 1985; Knapp, Haffner, Young, Hazuda, Gardner & Stern, 1985). However, an overall upward trend in incidence appears for New Mexican males and Puerto Rican males and females. Specific sites of excess incidence among Hispanics are the stomach, esophagus, pancreas, and cervix.

The rate for stomach cancer is higher for Hispanics than that for blacks and almost double that for non-minorities. Stomach cancer has been correlated with diets high in smoked, pickled, and spiced foods, especially those high in N-nitroso compounds (NCI, 1986). Cervical cancer is twice as high among Hispanics as non-minorities.

The overall 5-year relative survival rate of Hispanic males is almost identical to that of non-minorities while the females have somewhat lower survival rates than non-minority females (NCI, 1986). Later diagnosis, lack of access to health services, misconceptions about cancer, and cancer prevention are possible reasons for the lower survival rates in Hispanic women.

Asian Pacific Americans, one of the smallest but fastest growing minority groups in the United States, increased 142 percent, from 1.5 million to 3.7 million between the 1970 and 1980 census. In comparison, the total U.S. and Hispanic populations increased 11 percent and 61 percent respectively (Lin-Fu, 1988). Today, approximately one out of every six to seven Asian Pacific Americans is a recent refugee or immigrant from

Southeast Asia (Philippines, Vietnam, Cambodia, and Laos). Ninety-three percent of the Asian Pacific Americans are Asian and seven percent are Pacific Islander (Lin-Fu, 1988). The Chinese, Filipino, and Japanese are the largest subgroups of the Asian Americans, followed by Asian Indians, Koreans, and Vietnamese; Polynesians, Micronesians and Hawaiians constitute the 7 percent Pacific Islanders (NCI, 1986).

Where statistics are available, cancer incidence varies widely among Americans of Chinese, Japanese, Filipino, and Hawaiian descent. Hawaiians have an overall cancer incidence that is second highest of any American population and cancers of the breast and lung are particularly common. The corresponding rates for Chinese, Japanese, and Filipinos are below those of non-minorities. In Japanese Americans, both stomach and rectal cancer occur with a high frequency, stomach cancer having a higher mortality rate among the Japanese than any other Asian group. Among Chinese Americans, cervical and nasopharyngeal cancers have a disturbingly high incidence and mortality rate (NCI, 1986). This study focused on the Vietnamese which constitute the smallest percentage (7.1) of the overall 1980 Asian American population. Cancer statistics specific to the Vietnamese are not available but are needed, especially with their increasing population growth (Lin-Fu, 1988).

The effectiveness of any health education program is often determined by its cultural relevance and specificity. Culture provides the basic foundation for an individual's values, beliefs, attitudes, lifestyle and other behaviors. Sometimes the behavioral goals and recommendations of a

recommendations may be appropriate but the teaching process, materials or examples may be misunderstood or even offensive due to differences in language or custom (Okpalobi, 1979). The recognition of health problems, the salience of particular diseases, the relevance of individual action to valued health or community outcomes and the relative importance of new health behaviors will be strongly influenced by long standing cultural belief systems (Chan, 1987; Green & Anderson, 1986, p. 74). Therefore, an understanding of the unique population characteristics, values and health beliefs, and traditional diets of both the Hispanic and Vietnamese cultures was essential to the design and implementation of the nutrition and cancer risk reduction program.

Hispanic culture

Population characteristics. Hispanics, also called Latinos, include Mexicans/Chicanos, Puerto Ricans, Cubans, Central and South Americans. They are the second largest ethnic minority in the United States (Haffner et al., 1985; Kittler & Sucher, 1989). For the purpose of this study, this ethnic group will be addressed as Hispanics in collaboration with the terminology used by the American Cancer Society.

According to the most recent Census Bureau report (McLeod, 1988), about 51 percent of Hispanics over age 25 have finished high school and about 10 percent have finished college. Bay Area Hispanics have much higher education levels than the national average with 65 percent completing high school and 15 percent holding college degrees; in contrast, 78 percent of all Americans have high school diplomas and 21 percent have completed college. Based on a national survey of 60,000 people, the

Hispanic median family income was $20,310 in 1987, compared with $30,853 for all other families (McLeod, 1988). This economic disparity also was reflected in poverty rate statistics. In 1987, about 13.5 percent of all Americans lived below the federally established poverty line. The figure for Hispanics was 28.2 percent. This study also found that more than two-thirds of Hispanics lived in a family with more than two people which correlates with their preferred living arrangement as an extended family (McLeod, 1988).

Cultural values and health beliefs. The healing beliefs of the Hispanic culture encourage the use of home remedies and folk healers (curanderos) before going to drug stores and public health clinics (Monrroy, 1983). Many Spanish-speaking Hispanics will avoid going to clinics or hospitals outside their communities because of the language barrier. Catholicism is a

cold (ie., chest cramps). Likewise, illnesses are caused by cold entering the body (ie., tuberculosis) or an overabundance of heat (ie., dysentery). To help treat these conditions or illnesses, certain foods would be excluded or specifically eaten (Monrroy, 1983).

Traditional diet (Mexican). The traditional food habits of the Puerto Ricans, Cubans, Central and South Americans are similar in some respects to those of the Mexican diet but differences do exist between and within the diets of these countries. The Mexican culture uses food not only as a means to create a balance in the body during illness or to promote recovery from particular conditions but also as a symbol of society, hospitality, and friendship. Influenced by cultural, social, and economic characteristics, the traditional Hispanic (Mexican) diet consists of affordable foods such as corn, beans, potatoes, rice, green bananas, yuca(cassavas), and 92 varieties of chiles (Kittler & Sucher, 1989). Meats, from nearly all parts of the animal, are grilled, fried, stewed or steamed. Sausage, such as spicy pork or beef chorizo, is a favorite. The corn or wheat tortilla is the principal starch. "Stuffed" foods, now enjoyed by many native born non-Hispanic Americans, include tacos, enchiladas, tamales, quesadillas, and burritos. Potatoes, greens, tomatoes, and onions, the most commonly used vegetables, are usually served as part of a dish, not separately. Few dairy products are used with the exception of evaporated milk and hot chocolate; many adults don't drink milk because of their perceived "allergy" to it (an estimated two-thirds of Hispanics are lactose intolerant). Common fruits include avocados, bananas, coconut, lemons, limes, melon, cactus fruit, oranges, strawberries, and sugar cane. While fresh and dried fruits are eaten as or used in desserts, many desserts are made with eggs; ie.,flan, a

sweetened egg custard topped with caramelized sugar. The most common beverage in Mexico is coffee while beer is the most popular alcoholic beverage. Butter and lard are the most common fats used (Kittler & Sucher, 1989).

Many recent Mexican immigrants, the largest subgroup of the Hispanic population, continue Mexican food habits while well-established Mexicans and Chicanos (American-born Mexican Americans) often become more acculturated. For instance, Mexican children consume more milk (usually whole) and ice cream than adults. While low-income Latinos and Mexican migrant farm workers prefer the traditional foods, those with extra income usually spend it on meats. Wheat tortillas are used more than corn tortillas. With more income and acculturation, immigrants buy many prepared and convenience foods, such as doughnuts, cake, and cookies. They increase their consumption of fruit juices, Kool-Aid, and soft drinks and decrease the use of hard spirits (Kittler & Sucher, 1989). As the Hispanic population becomes more acculturated, one might anticipate the adoption of a diet more conducive to cardiovascular disease and certain cancers.

Vietnamese culture

Population characteristics. The Vietnamese population is officially counted under the categories Asian Pacific Americans or Asian Americans. The first group of refugees from Vietnam in 1975 is significantly different from the second group which began arriving in 1979. Overall, the latter group tends to be less educated and less familiar with Western culture and

Acculturation is particularly difficult for the rural and elderly persons within these two groups (Lin-Fu, 1988).

Cultural values and health beliefs. Ninety percent of the Vietnamese are Buddist, as a result of Chinese influence, while the remainder are predominantly Roman Catholics, resulting from the French occupation (Kittler & Sucher, 1989). The Vietnamese consider themselves as part of the universe which is controlled by ever-present deities and spirits. Their practice of ancestor worship includes their belief that people's present lives predetermine their own and their descendants' future lives. Many Southeast Asians believe spirits of their ancestors dwell in their homes to protect them.

The extended family in Vietnam and in the United States is a very important cultural tradition. The family's interests are valued over an individual's and the family members avoid behavior that would bring shame to the family's honor. Within this family-centered culture, the male (father) is considered more important, assuming predominant roles and making major decisions. The mother has some voice in family decisions and manages the family funds (Orque, 1983b). However, among the refugees, children acculturate more easily than their parents and usually learn English first. This tends to cause value conflicts and loss of respect for elders. Due to economic reasons, the wife/mother may have to work, thus demeaning the male's authority. While the old are highly respected and cared for in Southeast Asia, older Asian relatives in the United States are often isolated (Kittler & Sucher, 1989).

One of the basic tenets of health and illness within this culture is that natural and physical phenomena or disruptions of the universal order and of

harmony cause diseases. One is healthy and prosperous when there is harmony within the existing universal order, while disharmony causes illness. To promote harmony, one pleases good spirits and avoids evil ones. Wandering spirits of the dead who have not reached nirvana and have not been reincarnated can cause illnesses. The concept of harmony includes the principles of yin and yang (Orque, 1983b).

The Vietnamese family considers the health of its members as its major responsibility and the family's resources are utilized first before seeking outside aid. In a health care setting, the health care provider should be aware that the Vietnamese client will be eager to avoid disharmony or to please the questioner at the expense of giving honest answers. The entire family, not just one family member, may be involved in making a health-care decision. Many Vietnamese use rituals to prevent illness and cultural healers who obtain their powers from supreme beings. These healers cure various ailments and injuries with the use of magic cloths, prayers, talismans, bloodletting, roots, herbs and specific medical techniques (Orque, 1983b). The Vietnamese also believe that ingestion of specific organ meats will benefit the like internal organs (Kittler & Sucher, 1989).

Traditional diet. The French and Chinese cultures have influenced the Vietnamese diet. For instance, the Vietnamese enjoy strong coffee, French bread and cream-filled French pastries for dessert and use chopsticks and stir-fry many foods. While most do not drink milk and may be lactose intolerant, many drink sweetened soybean milk, use condensed milk in their coffee, or drink hot water and tea with the meal. In Vietnam, fish and shellfish are eaten more than meat and poultry. Pork is preferred over beef

and soy products (tofu) are common. Fresh fruits, such as apples, bananas, cantaloupe, coconut, dates, figs, grapefruit, lemon, lime, mandarin orange, plum, tamarind, and watermelon are often eaten for dessert or as a snack. Some of the many vegetables included in the Vietnamese diet are: artichokes, asparagus, bitter melon, broccoli (Chinese and domestic), cabbage (several varieties), cauliflower, celery, Chinese chard, chrysanthemum, cucumber, leeks, lotus root, mustard (Chinese greens), spinach, sweet potatoes, taro, and tomatoes. The use of fresh herbs and spices, such as allspice, coriander, ginger, chili pepper, lemon grass, mint, and saffron gives their food its unique flavor and adds color to many dishes. A variety of foods may be eaten at any meal; ie., soup with rice noodles, vegetables or meat may be served at breakfast, lunch and dinner. Rice, in its many forms, is eaten at every meal. Rice paper, used as egg roll or wonton wrappers, is filled with a variety of meats, fish, vegetables and herbs at the table or deep fried. With the use of bacon, butter, lard, margarine, peanut and vegetable oils, food is commonly stir-fried, simmered, or boiled (Kittler & Sucher, 1989) .

Kittler and Sucher's review of the literature (1989) revealed that the Vietnamese living in the United States have made several changes in their traditional diet. Meat, lamb, and eggs are eaten more while fish, shellfish, and duck are eaten less because of price. While rice is eaten at least once a day, the intake of bread, cereal and baked goods has increased. Since one tends to use foods that are available and economical, their use of fruits and vegetables native to Vietnam is expected to decline. Carbonated beverages are commonly used and the consumption of most dairy products, especially by the younger Southeast Asians, is expected to increase.

Likewise, the Vietnamese have increased their use of butter, margarine and sweetened products.

Conceptual framework

The nutrition and cancer education program was based on several interrelated theories of prevention, culture and behavior change. Together, these theories form a broad conceptual framework which can be used to understand the assumptions, goals and methods of this study.

Primary prevention. Ratcliffe and Wallack (1985-86) define primary prevention as "...the removal of the root cause of the disease through such interventions as immunization, modification of personal behavior, and/or elimination of adverse environmental factors " (p. 217). The National Cancer Prevention Awareness Program and California's Santa Clara County Nutrition and Cancer Risk Reduction Program shared a common objective: to reduce the incidence of cancer by altering the susceptiblity of the individual at risk. Primary prevention offered the most promising strategy for reducing cancer risk.

Two strategies by which primary prevention can be achieved are health promotion and health protection. The health promotion strategy is based on the "lifestyle" theory of disease causality which indicates that a person and the decisions he makes about diet, stress, or drug habits determine his current health status (Ratcliffe & Wallack, 1985-86, p.218). From this perspective, the individual is held accountable for his own health. This strategy attempts to persuade individuals, through health education, to forego risk-taking, self-destructive habits. Ratcliffe and Wallack (1985-86) emphasize that educational attainment has been shown

"single most powerful determinant of mortality differences found between socioeconomic classes in the United States---even more important than income "(p.223). Improved nutritional status, often related to educational status, is another primary cause of mortality reduction and improved health. Stated another way, educational levels and preventive health education may be effective in reducing disease and mortality rates.

The health protection strategy of primary prevention is based on the "social structure" theory which states that the social organization in general, and the economic structure in specific, promotes the major chronic diseases (Ratcliffe & Wallack, 1985-86). This perspective emphasizes the influence of sociopolitical and economic policies on lifestyles and behavior patterns; thus, the locus of responsibility in reducing disease is placed on industry and the state.

Ratcliffe and Wallack recommend a systems approach to prevention of chronic diseases. This synthesizing approach requires a commitment to prevention at three levels of the social system: the individual, the community, and public policy. They argue that lifestyle can not be isolated from the social and economic conditions in which it exists. Thus, primary prevention programs must target social as well as individual change.

Orque's Ethnic/Cultural System. Ratcliffe and Wallack's (1985-86) broad view of primary prevention stresses the need for an integrated approach to public health education while Orque (1983) defines the components of the individual's ethnic/cultural system which must be incorporated into all health education and behaviorial approaches. According to this approach, history, diet, religion, value orientations, healing beliefs and practices, family life processes, language and

communication processes and the social group's interactive patterns constitute a group's ethnic/cultural system (Orque, 1983). To be effective, Orque states that the education program must be relevant to the cultural components of that specific ethnic population. This perspective was reflected in the development and promotion of ACS's nutrition and cancer risk reduction program.

According to Orque, effective intercultural communication is facilitated by the health educator's identification of areas of commonality between himself and the individual or ethnic group (Orque, 1983). To modify the diet behavior of people with different values, beliefs and perceptions, a health educator or provider must have special skills in interpersonal and intercultural communications (Fodor, 1980). Health educators should integrate their knowledge of existing cultural similarities and variations between themselves and the ethnic group into the education program. Orque would describe EFNEP's Nutrition Education Assistants (NEAs), as appropriate health educators because they belong to a similar ethnic group and are familiar with the community's lifestyle (Orque, 1983). As a learner and facilitator, the NEA can effectively integrate his understanding of the cultural group's background into the nutrition education program. Speaking the same language also promotes the development of a rapport with any population.

Orque's holistic approach to health education and nursing care for ethnic populations advocates the integration of the individual's ethnic/cultural system with his biological, psychological, and sociological systems (Orque, 1983). The interactions of the ethnic/cultural system with these other systems determine different lifestyles and different

levels of health. Together with socioeconomic status, these factors influence the individual's education, occupation, access, availability, quality and utilization of health care, and lifestyle behaviors, including those related to nutrition (NCI, 1986). Ideally, an individual's ethnic/cultural, biological, psychological and sociological systems, as well as economic status must be considered in the development of a behavior-oriented health education program. Customs, characteristics, language and beliefs are some of the components within these systems which distinguish various ethnic groups, such as the Hispanic and Vietnamese.

Cultural beliefs and the Health Belief Model. Current research suggests that health promotion interventions must be aimed at lifestyles and cultural practices specific to various target communities (Vega, Sallis, Patterson, Rupp, Morris, & Nader, 1988). From the previous review of some of the social and health beliefs of the Hispanic and Vietnamese cultures, it is clear one can see that some of these strong beliefs could be barriers to the promotion of cancer risk reduction through diet modification. For instance, the traditional Mexican-American, the older, rural, poor individual, or even a recent immigrant, is likely to believe that his chances of getting cancer are "in the hands of God" and that he can exert only minimal control over future events (Roberts, 1984, p.7). Being more present rather than future-oriented puts this same individual at greater risk of acquiring cancer when the general nature of cancer growth is insidious and potentially invasive in its latter stages. Sugarek, Deyo, and Holmes' study (1988) which included 101 Mexican-American, black, and non-Hispanic white women indicated that the belief in personal susceptibility to cancer was low, at only 17%; which is well below the

actual population risk of acquiring cancer estimated at 30% overall. A belief that cancer happens to "someone else," may pose an important obstacle to preventive health education.

The Health Belief Model (HBM) is a useful tool for understanding preventive health behavior (Janz & Becker, 1984; Rosenstock, 1974). This psychosocial model states that an individual's beliefs and attitudes determine whether he will practice particular health-related behaviors, ie., those actions associated with a cancer risk reduction diet. The basic elements of the HBM consist of perceived susceptibility to and severity of disease (cancer), perceived benefits and barriers to preventive action, and internal or external "cues to action" that trigger the decision-making process. In addition to individual perceptions, it is assumed that diverse demographic, sociopsychological, and structural variables might affect the individual's perception and indirectly influence health-related behavior (Janz & Becker, 1984).

These basic dimensions can be applied to the ACS nutrition and cancer risk reduction education program. To change diet patterns, an individual must be aware of his susceptibility to cancer and consider it a serious life-threatening problem with severe consequences. Understanding the benefits of the change being recommended (through the educational efforts of the NEAs), the individual must decide that the potential benefits of modifying his diet outweigh the various costs and inconvenience. Finally, some stimulus or certain cues, ie., recipe/cooking information from the NEAs, translate the decision to change one's diet into the action of eating a diet high in fiber, vitamins A and C, cruciferous vegetables and low in fat. The Health Belief Model thus provides a useful orientation to the first

essential steps in the adoption of a cancer risk reduction diet.

Even though research conducted on the relationship of the HBM variables to both preventive health behavior and illness behavior supports the model, the model itself does not indicate how to change these beliefs or which beliefs need to be changed in order to alter dietary behavior (Janz & Becker, 1984). Contrary to the model's assumption that changes in health beliefs in the presence of appropriate cues to action will lead to change in behavior, data indicate that nutrition knowledge may forecast preventive behaviors but still have no visible effects on specific behaviors, such as eating a high fiber, low fat diet (Levanthal, Safer, & Panagis, 1983; Vega et al., 1988). In other words, acquisition of nutrition knowledge may not promote change in eating behavior. Janz and Becker (1984) explain that other forces influence health actions as well; for example: (1) some behaviors, ie., a coffee break with pastry, are habitual, thereby circumventing the decision-making process; (2) many health-related behaviors are performed for nonhealth reasons, ie., dieting to look good in a swimsuit; and (3) economic or environmental factors may act as barriers to taking a course of action (ie., a poor illiterate migrant worker with limited access to social and educational services). Janz and Becker advocate that health education programs should incorporate the attitude and belief dimensions of the HBM in addition to addressing other forces which impact on health-related behaviors.

Self-efficacy and locus of control. Mullen, Hersey and Iverson's analysis of health behavior models (1987) recommends improving the Health Belief Model by including additional psychosocial concepts such as self-efficacy and social network. The addition of these conceptual models

begins to round out the theoretical framework of culture-specific nutrition and cancer risk reduction education.

Bandura (1982) states that self-efficacy, or a person's confidence in his ability to engage in a specific behavior, is a central process in behavior change. Locus of control, an extension of Bandura's social learning theory, describes the extent to which a person believes an outcome is due to his own behavior rather than outside forces beyond his control (Sugarek et al., 1988). Locus of control is an important element of this theoretical framework because it predicts a variety of health-related behaviors.

In brief, an individual with an internal locus of control perceives an outcome to be dependent upon his behavior. A person with an external locus of control perceives a health outcome to be the result of luck, fate, chance, or influenced by powerful others. For example, current research and the Hispanic cultural portrait suggest that Hispanics feel their locus of health control is external and are unlikely to think themselves competent to manage their own health (Vega et al., 1988). The traditional individual is more likely to exhibit a fatalistic outlook over health than the more affluent, more acculturated individual who tends to rely on modern scientific medicine as a main source for coping with health problems (Roberts, 1984).

Data from Sugarek et al.'s study (1988) suggest that much of this external locus of control may be related to educational status. In contrast to the better educated, the poorly educated of any ethnic culture are more likely to have fewer resources (knowledge, money, experience) with which to influence their own fate, thus promoting a more external locus of control. Sugarek et al. (1988) emphasize that poorly educated people may

need more guidance and instruction to take an active role in their health maintenance. Hence, Bandura (1982) states that information and skills which may lessen cancer risk can decrease an individual's fear of getting cancer and increase the sense of control over his health.

Social support networks. In conjunction with concepts of social learning theory, social support networks, such as immediate or extended families, friends, co-workers or professionals may play a critical role in health maintenance and disease prevention (Israel, 1985; Minkler, 1981). Social epidemiologist John Cassel would consider EFNEP a supportive social network for the Hispanic and Vietnamese populations of Santa Clara County. Many of these individuals may consider EFNEP to be a valuable resource which helps preserve their social identity while providing emotional support, material aid, services, nutrition information and new social contacts. One hypothesis linking social support to health suggests that the presence of EFNEP's nutrition education network may encourage individuals to take preventive health action, ie., to eat high fiber, low fat diets (Minkler, 1981). It is also possible that, over time, individuals' perceived sense of support from EFNEP (and ACS) may lead them to a more generalized sense of control over many areas of their lives including their risk of cancer.

Group learning reinforces the crucial role of social contacts in influencing individual behavior toward health maintenance and disease prevention. The culturally-specific nutrition and cancer risk reduction program included mostly Hispanic and Vietnamese participants who attended English as the Second Language (ESL) classes. Considering these classes as supportive networks, Minkler (1981) suggests that each

individual may be encouraged by his social contacts (ie., peers, NEAs) to make dietary changes recommended by the nutrition education program. Group interventions can strengthen existing social ties as well as create new ones, thus expanding the boundaries of the original network and potentially magnifying the impact of the education program. Also, group learning is improved further with the use of well-trained facilitators, the NEAs, who serve as models and "natural helpers," generally respected and trusted individuals who speak the participant's language and are members of the same cultural network (Israel, 1985).

Dual Process Model of communication and health behavior. In addition to psychosocial theories of cultural systems, health beliefs and efficacy, the conceptual framework of this study included a particular model of communication and learning. The Dual Process Model of communication and health behavior (Leventhal et al., 1983) states that an effective health message must contain fear and cognitive information, an action plan for dealing with the threat and self-regulation information to reassure the individual that he or she is capable of successfully coping with the threat. The ACS's nutrition and cancer risk reduction program attempted to alert participants to their cancer risk (fear arousal) while informing them that certain foods may actually increase or decrease their chances of getting cancer (cognitive information). The program's culturally-specific health education materials and recipes served as action plans to help participants modify their diets (self-regulation information), thus enhancing their ability to reduce their own risk of cancer.

The NEA and the program participant can be seen as operating within a multicultural communication and decision-making system. The NEA will be

a more effective communicator if he is consciously aware of the ways in which his own cultural, social, and personal experiences influence his decision-making and communication (Radelfinger, 1986). A successful educational encounter between the health educator and participant is a negotiation where the health educator accentuates the positive aspects of an individual's diet (ie., the traditional Vietnamese diet is high in fiber) and introduces personally meaningful action plans to modify some of the negative aspects of his diet (ie., the use of butter, bacon or lard to stir-fry food). Equally important, the health educator (NEA) should be aware of the positive and negative aspects of diet acculturation considering the fact that the American diet has its strengths and weaknesses. Ideally, acculturation should include the best of both cultures.

Summary

The nutrition and cancer risk reduction program was based on several interrelated health behavior concepts. Utilizing a systems approach to primary prevention, specific behavior change guidelines were presented in a context specific to the target population's related health beliefs, attitudes and behaviors. Since social contacts may be a major factor in influencing individual attitude and behavior change, it was assumed that participants in the nutrition and cancer risk reduction program would be more likely to incorporate the recommended diet changes into their current lifestyle. These changes would most likely reduce their cancer risk (as well improve their general health) and generate a decrease in the incidence of cancer. It was further assumed that the individual's perceived sense of support from others might lead him to a more

generalized sense of control over his life.

In conclusion, implementation of the culturally-specific nutrition and cancer risk reduction program with the support of EFNEP and ACS represented a unique preventive health education attempt to reach Santa Clara County's Hispanic and Vietnamese populations. Its integrative and multicultural approach presents a timely model for similar health education programs. Educators such as EFNEP's NEAs have the potential to be a major factor in influencing attitude and diet behavior among high risk populations. In this and other programs, if the recommended changes are perceived to improve, enhance, enrich or preserve social identity, the target population will be more likely to incorporate them into their existing lifestyle (Boyle, 1979).

CHAPTER 2

Methods, Results and Discussion

The purpose of this study was to evaluate the effectiveness of a nutrition and cancer risk reduction program designed for Santa Clara County's Hispanic and Vietnamese communities. The following questions were investigated:

As a result of exposure to a culturally-specific nutrition and cancer risk reduction education program, will the participants:

(a) have increased knowledge of the American Cancer Society Dietary Recommendations;

(b) change their eating behaviors; and

(c) change their attitude about the potential benefit of eating a proposed cancer risk reduction diet?

Methods

Description of EFNEP and ACS Educational Material

Participants in Santa Clara County's Expanded Food Nutrition Education Program (EFNEP) constituted the sample for this study. EFNEP recruited low-income participants through networking agencies, such as training programs, community centers, libraries, emergency food and training shelters, and schools, especially those offering migrant worker programs or English as a Second Language classes. Classes were offered at these

Partnership Act Program, and the Mayfair Community Center in Santa Clara County.

In the first week of the eight-week educational program, Nutrition Education Assistants (NEAs) registered the participants and had them complete the family record, the initial 24-hour food recall and pretest. They asked each participant to read and sign the privacy statement (written in English and Spanish) which served as the study's informed consent (Appendix E). If a Vietnamese participant had a problem understanding the statement, the Vietnamese-speaking NEA offered a specific translation. In the second through fifth weeks, the NEA discussed the milk, meat, fruit/vegetable, and bread/cereal groups respectively. Other foods, such as fat, sugar, salt, and alcohol, were discussed in the sixth week. Lectures, cooking demonstrations, handouts and games, slides, food models, and recipe distribution were a few of the teaching methods utilized. In the seventh week, the participants filled out the second 24-hour food recall and took the posttest. To match the participant's pre/post performance, the NEA assigned identification numbers to the food recall and test forms. The participants were given their certificates of completion in the eighth week.

With the joint efforts of EFNEP personnel, the American Cancer Society's Hispanic and Asian/Pacific Islanders community Task Forces, a nutritionist, and Special Awards Funding Grant # 511 from American Cancer Society, California Division, Inc., culturally-specific nutrition and cancer risk reduction materials were developed and incorporated into EFNEP's existing eight-week nutrition program (Appendices F,G,H). The materials included: (a) pamphlets of the ACS Dietary Recommendations in

English, Spanish and Vietnamese, (b) handout entitled: "Nutrition and Cancer: Causes and prevention " including diet tips for the Hispanic and Vietnamese, (c) speaker's outline for each of the nutrition program components (four food groups plus fat-sugar-alcohol segment), (d) culturally-specific recipes (in English) based on the ACS Dietary Recommendations, modified as needed from existing recipes, and (e) cancer risk reduction game in English, Spanish, and Vietnamese.

Subjects

Control selection. After assigning consecutive whole numbers to EFNEP's files, from January 1987 through August 1987, a random sample of Hispanic and Vietnamese participants (N = 201) was selected using a table of random numbers. The Hispanic population (n = 106) consisted of 89 female and 17 male participants. The Vietnamese population (n = 95) consisted of 32 female and 63 male participants. The participant's family record and two food recalls were examined.

Experimental selection. The experimental group (N = 185) consisted of participants who were exposed to the culturally-specific nutrition and cancer risk reduction materials and received certificates of completion between January 1988 and January 1989. The participant's family record, pretest, posttest, and two 24-hour food recall forms were obtained from the NEAs. The Hispanic population (n = 99) consisted of 86 female and 13 male participants while the Vietnamese population (n = 86) consisted of 32 female and 54 male participants. In both experimental and control groups, the Vietnamese group included more males and the Hispanic group more females. This study did not provide adequate information to determine

possible reasons for this variation.

Informed consent

All subjects were assured confidentiality and were informed via EFNEP's privacy statement (Appendix E) that the contents of the family record, pre- and posttest, and the two food recalls would be used to evaluate the effectiveness of EFNEP.

Data Collection

The EFNEP pretest/posttest was modified to include one attitude or behavior-related question and two knowledge multiple-choice questions emphasizing the ACS nutrition guidelines (see Appendix B for questions indicated by an asterisk). Scores were assigned for each of the three pretest/postest questions based on number of correct answers. Question #3 had a possible score of one (1); question #8 had a possible score of three (3); and question #9 had a possible score of two (2). Adding the scores from all three questions for the pretests/posttests resulted in a total possible cumulative score of six (6).

Scoring for the 24-hour food recall forms was based on number of times each food was reported eaten. Using the ESHA Research Food Processor nutritional analysis program (Salem, Oregon), foods were categorized as being high in fat (greater than 50% of calories from fat), a good source of vitamins A or C (greater than 25% of U.S. RDA), or a good source of fiber (2 grams or more per serving). Cruciferous vegetables which may have an extra cancer protective factor in addition to their vitamin and fiber content were identified and counted as a specific food item. Ambiguous answers, such as "fruit" or "vegetables" were excluded

from the analysis. For the purposes of the study, general responses such as "bread," were assumed to be that food most commonly consumed in each culture: "white" bread for Hispanics; French bread for Vietnamese. Other examples include "tortillas" among Hispanics (assumed to be corn tortillas) and "vegetable soup" among Vietnamese (assumed to be a beef or chicken broth based type of *pho*, a noodle soup to which bean sprouts, herbs, and other seasonings are added immediately before serving).

To maintain confidentiality, most of the food recalls and tests were examined in EFNEP's office. On several occasions, translations of food recalls written in Spanish or Vietnamese were obtained outside the EFNEP office. In such cases, the fact that the participant's name had been blocked out on the original form prior to making the photocopy guaranteed confidentiality.

Data analysis

The StatView 512 statistical program for the Macintosh Plus computer was used for all statistical computations. The two-tailed probability levels of tests of significance, (p values), were set at $p < .05$.

A Chi-square test was performed to determine the demographic equivalence of the experimental and control groups. T-tests were used to evaluate the differences in food recall scores between the experimental and control groups and to compare the two food recalls and pre- and posttests among the Vietnamese and Hispanic in the experimental group. Pre- and post food recalls from the experimental and control groups were statistically compared to determine if the "experimental" participants' eating behaviors were significantly different from those of the control

group.

Means of pre- and posttest scores and frequency of food intake and the changes in these scores and eating behavior between and within groups were examined by Student's t-test. A one-way 2- and 3-factor analysis of variance (ANOVA) was used to examine associations between the independent variables of ethnicity, sex, control and experimental groups and the dependent pre/posttest and food (dietary) change scores.

Results

Comparability of experimental and control groups

Characteristics of the experimental and control group participants who completed two 24-hour food recalls are presented in Table I. The differences in ethnicity and sex between the two groups were not statistically significant. Because both groups were impoverished,

Table 1

Characteristics of Experimental and Control Participants

Variable	Percentage Experimental N = 185	Control N = 201	χ^2
Ethnicity			(1, N = 386) = .003, p > .05
Vietnamese	46.49	47.26	
Hispanic	53.51	52.74	
Vietnamese			(1,N = 181) = .115, p > .05
Female	37.21	33.68	
Male	62.79	66.32	
Hispanic			(1,N = 205) = .153, p > .05
Female	86.87	83.96	
Male	13.13	16.04	

Changes in eating behavior

Experimental group participants significantly increased their consumption of fiber,food high in vitamins A and C, cruciferous vegetables, and fat (p <.001; Table 3). Control group participants, with no exposure to ACS' nutrition guidelines, also made significant increases in consumption of fiber, vitamins A and C,fat (p <.001) and cruciferous vegetables ($p \leq .05$). When the change scores between initial and second food recall in the experimental and control group were compared, no significant differences were noted between the experimental and control group for all five food variables (p >.05).

Table 2

Experimental Group Test Scores N = 185

Question No.	Maximum Value	Pre	Post	n[a]	p	% Change
3	1.0			125	.0001	71.2
M		0.53	0.90			
SD		0.50	0.30			
8	3.0			118	.0001	28.8
M		1.74	2.24			
SD		0.84	0.82			
9	2.0			112	.0016	15.9
M		1.40	1.63			
SD		0.59	0.49			
Total Score	6.0			94[b]	.0001	26.5
M		3.78	4.78			
SD		1.25	1.08			

[a] n = Participants who answered the question on the pre- and posttest. [b] Number of participants who answered all three questions on the pre- and posttest.

Impact of ethnicity on change

Knowledge and attitude. Significant increases in posttest scores for questions 3, 8, 9 and total score were noted in both Vietnamese and Hispanic populations (Table 4). Complete data were available for 45 of 86 Vietnamese and 49 of 99 Hispanics. Only 94 of 185 participants answered all three questions on the pre- and posttests.

Pre- and posttest change scores in the experimental's Vietnamese and Hispanic groups. Change scores (posttest minus pretest) for questions #3

Table 3

Pre- and Post 24-hour Food Recall Scores of Experimental and Control Subjects

	Experimental (N = 185)				Control (N = 201)			
	Pre	Post	p	% Change	Pre	Post	p	% Change
Fiber			.0001	31.2			.0003	25.2
M	2.10	2.75			2.07	2.59		
SD	1.70	1.73			1.75	1.79		
Vitamin A			.0001	55.8			.0001	67.6
M	0.49	0.76			0.46	0.78		
SD	0.71	0.86			0.69	0.91		
Vitamin C			.0002	35.8			.0001	48.1
M	1.36	1.85			1.32	1.96		
SD	1.14	1.43			1.22	1.34		
Cruciferous Vegetables			.0014	200.0			.0521	112.9
M	0.05	0.16			0.07	0.15		
SD	0.23	0.40			0.42	0.40		
Fat			.0004	22.3			.0003	23.2
M	2.11	2.58			2.16	2.67		
SD	1.63	1.44			1.68	1.67		

Table 4

Mean Values of Vietnamese and Hispanic Experimental Test Scores.

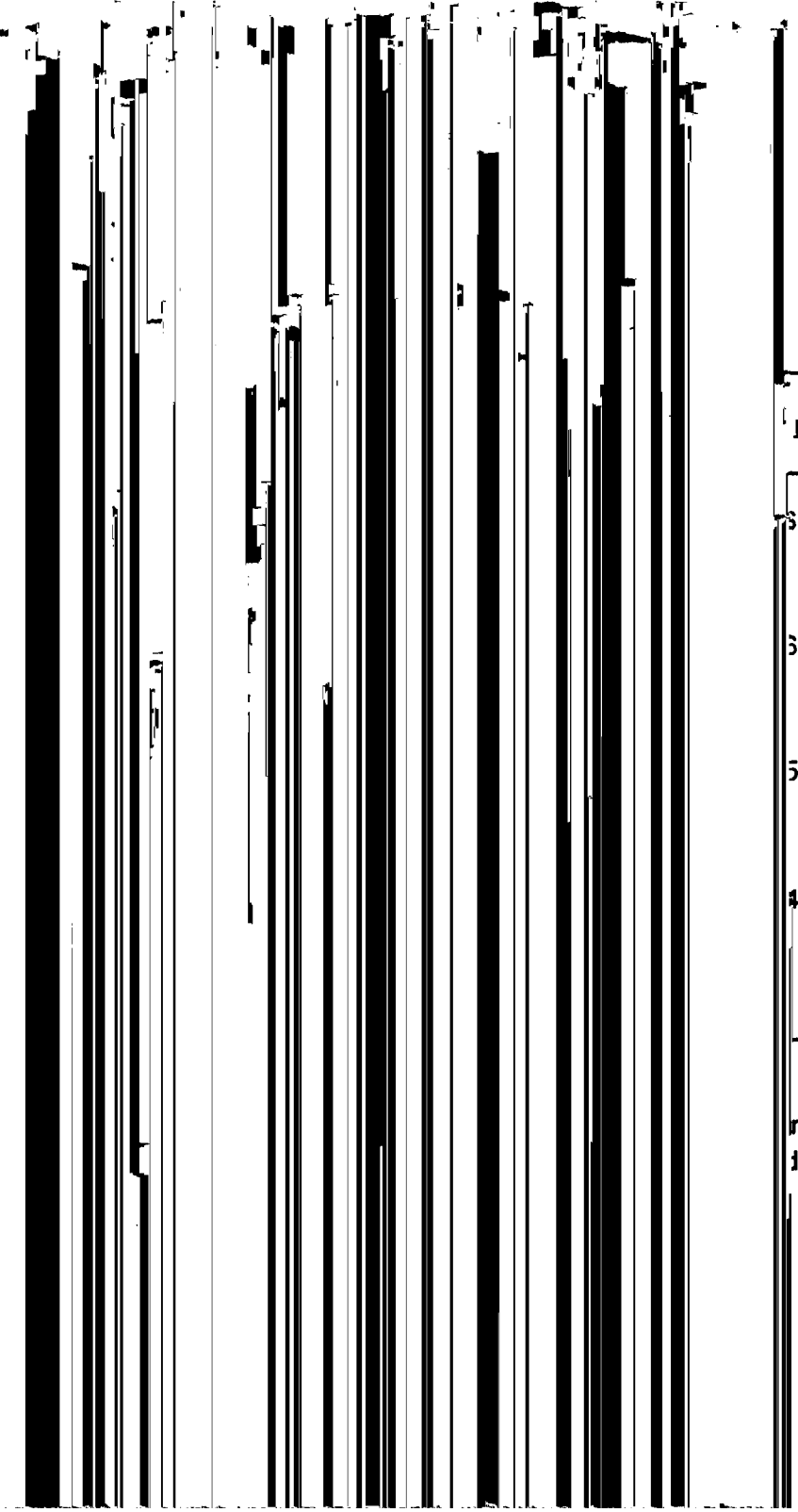
Question No.	Vietnamese (n = 86)					Hispanic (n = 99)				
	Pre	Post	n[a]	p	% Charge	Pre	Post	n[a]	p	% Change
3			65	.0001	121.3			60	.0022	34.3
M	0.43	0.95				0.63	0.85			
SD	0.50	0.21				0.49	0.36			
8			61	.0001	42.2			57	.0807	15.6
M	1.67	2.38				1.81	2.09			
SD	0.75	0.61				0.93	0.99			
9			55	.0624	14.3			57	.0093	17.5
M	1.40	1.60				1.40	1.65			
SD	0.63	0.49				0.56	0.48			
Total Score			45[b]	.0001	37.8			49[b]	.0036	16.8
M	3.64	5.02				3.90	4.55			
SD	1.32	0.89				1.18	1.19			

Note. Maximum value for question #3 = 1.0; question #8 = 3.0; question #9 = 2.0; and Total Score = 6.0. [a]Number of participants who responded to the question on the pre- and posttest. [b]Number of participants who responded to all three questions on the pre- and posttest.

(p <.003), #8 (p <.04), and total score (p <.05) were significantly higher for Vietnamese than for Hispanics (Table 5). No significant difference between the two ethnic groups was noted for question #9. Total change scores were obtained for 94 out of the 185 experimental participants who completed both pretest and posttest for all three questions.

Behavior in control group. The mean responses for the control's Vietnamese and Hispanic subjects who completed two food recalls are presented in Table 6. In the second food recall, the Vietnamese population (n = 95) had significant increases in vitamin C (p <.0005) and fat consumption (p <.008). The Hispanic population (n = 106) had significant increases in fiber (p<.0007), vitamins A and C (p <.0001), cruciferous vegetables (p <.02) and fat (p <.02). Comparing the change scores (difference between the initial and second recall) from both ethnic populations, a significant difference between the two groups was noted only in vitamin A consumption (p <.009); the Hispanic group had the greater change score.

Behavior in experimental group. The mean responses for the experimental's Vietnamese and Hispanic population who completed two food recalls are presented in Table 7. The Vietnamese group (n = 86) had significant increases in vitamins A and C (p <.02), cruciferous vegetables (p <.006) and fat (p <.04). The Hispanic group (n = 99) had significant increases in fiber (p <.0001), vitamins A (p <.003) and C (p <.006) and fat (p <.006). Comparing the change scores in both ethnic populations, a significant difference was noted only in fiber consumption (p <.03); the Hispanic group had the greater change score.



n	Hispanic	n	p	Total Count[a]
65		60	.0021	125
	0.22			
	0.52			
61		57	.04	118
	0.28			
	1.19			
55		57	ns	112
	0.25			
	0.69			
45		49	.03	94[b]
	0.65			
	1.49			

pretest score from posttest score.
red the question on the pre- and posttest.
d all three questions on the pre- and posttest.

Table 6

24-hour Food Recalls by Ethnicity in the Control Group

	Vietnamese (n = 95)				Hispanic (n = 106)			
	Pre	Post	p	% Change	Pre	Post	p	% Change
Fiber			ns	14.8			.0007	32.4
M	1.78	2.04			2.33	3.09		
SD	1.42	1.40			1.98	1.95		
Vitamin A			ns	14.8			.0001	168.5
M	0.64	0.74			0.30	0.81		
SD	0.76	0.88			0.57	0.95		
Vitamin C			.0005	48.7			.0001	47.6
M	1.27	1.90			1.37	2.02		
SD	1.23	1.31			1.21	1.37		
Cruciferous Vegetables			ns	38.1			.0117	214.0
M	0.08	0.12			0.06	0.18		
SD	0.54	0.35			0.27	0.43		
Fat			.0078	26.6			.0136	20.9
M	1.86	2.36			2.43	2.94		
SD	1.46	1.52			1.82	1.75		

ble 7

Hour Food Recalls by Ethnicity in the Experimental Group

	Vietnamese (n = 86)				Hispanic (n = 99)			
	Pre	Post	p	% Change	Pre	Post	p	% Change
er			ns	16.7			.0001	40.3
M	1.74	2.04			2.40	3.37		
SD	1.38	1.41			1.88	1.75		
amin A			.0174	41.2			.0026	79.6
M	0.65	0.92			0.34	0.62		
SD	0.73	0.88			0.66	0.82		
amin C			.0122	32.2			.0057	38.9
M	1.41	1.86			1.32	1.84		
SD	1.20	1.28			1.10	1.56		
ciferous getables			.0054	232.9			ns	152.5
M	0.07	0.23			0.04	0.10		
SD	0.26	0.48			0.20	0.30		
			.0325	20.2			.0053	24.2
M	2.07	2.49			2.14	2.66		
SD	1.62	1.44			1.63	1.44		

Impact of gender

Analyses of change scores revealed no significant gender and ethnicity effects or interactions.

Analysis of one change in behavior---increase in fat consumption

Although the nutrition and cancer program stressed the consumption of less fat in the diet, fat intake increased in the control and experimental group. A qualitative evaluation of the experimental group's fat intake was performed to indicate some possible reasons for the fat intake increase. The pre-and post food recalls of fifty participants, with the highest fat change score (greater than or equal to two and less than or equal to five), were re-examined to determine which types of high fat foods contributed to the overall high fat post recall score (Table 8). Out of these fifty participants, 22 were from the Vietnamese group and 28 were from the Hispanic group. The high fat foods were classified into four groups: milk, meat, dairy products other than milk (ice cream, cheese, cream); and other foods such as fast foods, baked products and pastries, peanut butter, bacon, nuts, avocado, margarine/butter and fried eggs and vegetables. For

purposes of the study, all milk consumed was assumed to be whole milk unless written otherwise on the food intake form. Highly significant increases were seen in consumption of milk and dairy products ($p < .0001$). Significant increases were also noted in consumption of meat ($p < .01$) and

Table 8

Analysis of Fifty High Fat Change Scores from the Experimental Group

Variable	Initial Food Recall	Post Food Recall	p
Milk			.0001
M	0.36	1.60	
SD	0.53	0.90	
Meat[a]			.0098
M	0.54	0.84	
SD	0.81	1.04	
Dairy Products other than Milk[b]			.0001
M	0.04	0.50	
SD	0.20	0.71	
Other High-Fat Foods[c]			.0478
M	0.44	0.76	
SD	0.84	1.06	

[a]Beef, fried chicken, pork, steak, chorizo, fried fish, ham. [b]Ice cream, cheese, cream. [c]Fast foods ("Big Mac", tacos, pizza, French fries), pastries, pancakes, cookies, peanut butter, bacon, margarine/butter, mayonnaise, fried eggs, fried cauliflower, quesadilla, potato chips, avocado, nuts, cheesecake.

Discussion

Validation of EFNEP's effectiveness

This study's findings clearly demonstrate that the pre-existing EFNEP nutrition program is very effective in meeting the original program goals of increasing consumption of cruciferous vegetables and foods high in fiber, vitamins A and C. These results support similar increases observed in the six-month California EFNEP Study, the largest controlled evaluation of the EFNEP program to date (Del Tredici, Joy, Omelich, & Laughlin, 1988). Culturally-specific nutrition and cancer risk reduction education materials and EFNEP's trained paraprofessionals, the Nutrition Education Assistants (NEAs), who spoke Spanish and Vietnamese, may have contributed to the American Cancer Society program's effectiveness.

EFNEP's emphasis on maintaining the high complex carbohydrate component of the traditional Vietnamese and Hispanic diets, which include fruits and vegetables, may have enhanced the participants' adoption of the program's other recommended diet changes; ie., more fish and chicken and less red meat. California's diverse, plentiful, and relatively inexpensive produce may have been an additional enabling factor in the increased consumption of fruits and vegetables high in vitamins A and C. The small increase in cruciferous vegetable intake, seen in the control and experimental group, could be due to the fact that the cruciferous vegetables were consumed more for their sources of vitamins A and C and fiber than for their cancer-reducing effect. The NEAs focused on cauliflower and broccoli as representatives of the cruciferous group. Since the intervention and data collection covered a 10-month period, the small

increased consumption of cruciferous vegetables could be due to the seasonal availability of other fruits and vegetables.

The Hispanic and Vietnamese traditional complex carbohydrate diet and eating habits may have promoted the observed increase in consumption of fruits and vegetables, high in vitamins A and C and rich in fiber. Differences in fiber consumption between the Hispanic and Vietnamese groups could be due to their different styles of cooking and serving fruits and vegetables and their specific and nonspecfic listing of foods on the recall form. For instance, since most vegetables are components of a dish in the Hispanic diet, on the initial food recall, the Hispanic participants were more likely to list the dish (ie., beef stew) instead of itemizing the major ingredients used to make the dish, ie., vegetables (or carrots, tomatoes, onions) and beef. Hence, the observed Hispanic increase in fiber consumption could be an artifact of the participants' increased awareness and ability to complete the post-study food recall form in more detail. Conversely, in the Vietnamese diet, where vegetables are served separately and fruits as dessert, the Vietnamese group were more likely to list these foods separately on both food recalls which could account for their insignificant change in fiber consumption.

Additional findings

Although the ACS nutrition and cancer program stressed the reduction of fat in the diet, fat intake appears to have increased in the experimental and control groups. This unexpected finding in the experimental group may be attributed to several factors. Analysis of the food recalls of the 50 participants with the highest fat change scores revealed significant

increases in milk and meat intake in addition to other high fat foods. Assuming that whole milk was consumed and that certain meats were high fat, these particular foods could account for the observed overall increase in fat consumption. A similar increase was found in the experimental group of the California EFNEP Study (Del Tredici et al., 1988).

The role of milk in the standard EFNEP curriculum may be another factor influencing fat consumption. Since milk is considered a prime source of calcium, EFNEP stresses milk consumption, especially among non-Caucasians whose diets are noted to be low in calcium (Windham, Wyse, Hansen & Hurst, 1983). This would account for the observed increase occurring in both experimental and control groups. Acculturation and the adoption of more milk and high fat foods characteristic of the American diet may also explain the increased fat consumption.

Since participants did not list the type of milk consumed on the food recall, the assumption was made that it was whole milk. However, if the milk is assumed to be nonfat or two percent lowfat, then overall fat consumption may have decreased or remained stable even in the presence of significant increases in consumption of meat and other dairy products and high fat foods. Stated another way, the observed increase in fat consumption may be a methodological artifact due to the study's assumption that the milk listed on the food recall was considered to be whole milk unless specified otherwise. A similar analysis of fat consumption with the control group would probably yield the same observations when the standard EFNEP curriculum emphasized milk consumption.

The possibility that fat consumption decreased or remained unchanged

in the experimental group exists. Since meat and whole milk products are relatively expensive food items, EFNEP's low-income clientele are less likely to buy them on a consistent basis. Lower costs for lowfat and nonfat milk plus less fat may have resulted in an acceptable fat intake, contrary to what the data indicate.

Methodological issues

Besides cultural differences, the program's instruments include some inherent limitations which could influence the validity and reliability of the data collected. The food recall, used to measure individual and group dietary behavior, is a popular and easy method for obtaining qualitative dietary information. Various studies confirm the value of this method in establishing the average intake levels of groups (Block, 1982). Advantages of the 24-hour recall method include:

1. It may be administered by persons with less training, in a shorter time.

2. Memory of recent intake may be more precise.

3. It demands a minimal amount of cooperation on the part of participants (Block, 1982).

However, the 24-hour period may have contributed to the overall increase in reported food intake. For instance, the person may not recall accurately all of the foods eaten. A single day's intake may not be representative of the usual intake and the individual may write down what "should" have been eaten. Del Tredici and her colleagues (1988) warn that participants may have learned to report a better diet without actually consuming one. These factors may have influenced experimental and

control participants, resulting in the overall increases observed after the interventions.

Literacy of the participants may have influenced their ability to accurately report their diets and definitely influenced the researcher's ability to analyze all that was reported. Usage of incorrect or unfamiliar words and misspellings in participants' responses, confirmed with the NEAs, suggest that many of the participants were semiliterate at best, not only in English but in their own language. General responses, such as "vegetables," "meat," and "milk" could also be the result of nonspecific instruction or misunderstanding of the instructions. Many responses on the food recalls were so unclear, abbreviated or nonspecific that they were unusable. There is no way of knowing the significance of the deleted data.

It is also possible that variation in and expertise of the translators may have influenced the data collection. Although one individual translated the majority of the Spanish written recalls, the fact that three other individuals assisted with the Spanish translation could have introduced some significant variations. In contrast, one NEA translated all recalls written in Vietnamese. Data from the Vietnamese food recalls may be more accurate than data obtained from the Spanish food recalls due to the difference in the number of translators.

The construction of the pretest-posttest could have influenced validity and reliability. One of the problems encountered in the analysis was the varying response rate to the three questions specific to diet and cancer. Differences in the pre- and posttest scores could be related to the type of question and its position on the test form (Appendix B). Test question 3 assessed the participant's awareness of the diet and cancer link.

The participant's knowledge about diet's role in cancer prevention and promotion was measured using test questions 8 and 9. Test questions 8 and 9 required more time to answer than question 3 because they demanded recall of information and selection of three and two answers respectively, whereas, question 3 requested one brief response ("yes, no, or don't know").

Together with the different types of questions, their location on the test form also influenced scores. Since question 9 and sometimes questions 8 and 9 were on the second or back side of the test form, participants, especially during the pretest, may have run out of time or forgotten to turn the page and answer the remaining questions. These logistical factors could explain why more participants answered question 3 than questions 8 and 9 and why only 94 out of 185 participants answered all three questions on the pre- and posttests.

Another cause of missing data was the accidental use of old pre- and posttests that did not have the cancer-related questions. About eight months into the intervention period, fifteen participants had taken the old pretest and/or posttest but they remained part of the experimental group (N = 185). Since data analysis included only matched pre- and posttests, their pre- and posttest scores could not be used. This human error is regrettable but reasonable when one considers the intense ten month data collection period.

It is also possible that the pretest may have increased the subjects' awareness of foods that increase or decrease cancer risk and thus conditioned their posttest responses. Other studies have suggested that participants may discuss a pretest with one another so that when the posttest is administered their answers reflect collective interpretations

rather than their own (Block, 1982).

And finally, responses, especially to the initial food recall and pretest, are shaped by the total set of demands present in the classroom situation as they are perceived by the respondents. Completion of the food recall and pretest were only two components of the overall "demand characteristics" operative during the initial instruction; other tasks included class enrollment procedures, introduction of the program and its components, and bilingual instructions (Berkanovic, 1980, p.1275). Incomplete responses to the food recall and test may be due to these multiple demands.

Barriers to diet change

The American Cancer Society's culturally-specific intervention sought to integrate and utilize interrelated and complex phenomena in the learning and adoption of very specific dietary changes aimed at reducing cancer risk. The study's mixed results reflect this complexity and may be due to specific barriers. One major barrier to diet change was the lack of time to fully explain the link between cancer and diet to the participants. The nutrition education program focused less on the biology of the disease and more on diet's role in cancer risk reduction and cancer promotion and the

positive contribution of a nutritious diet to maintenance of a healthy lifestyle. The program did not emphasize the basic concepts of the process

important role in cancer prevention (Devita, 1985; Palmer, 1985).

The data indicate that the experimental group is now more aware of the potential role diet plays in cancer risk reduction and cancer promotion. This finding is important because previous research has shown that a person is more likely to make diet changes if he believes that diet can influence his cancer risk (Vojtecky, 1984). However, since the program did not provide detailed information about cancer, the intervention may not have persuaded those participants with a low perceived cancer susceptibility that they were at risk for getting cancer and that certain foods in their diet may promote or prevent certain cancers. If an individual believes that he may get cancer and his diet is a possible cancer risk factor, then he is more apt to change some of his eating habits on a permanent rather than short-term basis.

However, an individual may be aware of diet's potential role in cancer prevention but may not possess the sense of power or internal locus of control needed to make the proposed diet changes. Feelings of powerlessness or low sense of control among the Hispanic and Vietnamese participants may have been influenced by: their culture's customs, social network, language and health beliefs; their lack of formal and health education; socioeconomic factors; and the stress and fears generated by acculturative pressures in other areas of their lives. For instance, the Vietnamese group's more affirmative response to the attitude-related test question #3 compared to the Hispanic group's response, could be attributed to their pre-existing cultural belief system. Garcia and Lee's comparative study (1986) assessed variations in cancer awareness and perception, without an intervention, among Hispanic, Chinese and Vietnamese older

adults (over 50 years of age) in Santa Clara County, California. Their findings indicated that 64 percent of the Vietnamese participants (N =75) and 32 percent of the Hispanic participants (N =158) felt that foods may be responsible for cancer. Almost half of their Hispanic respondents considered "God's will" a factor in the onset of cancer compared to 36 percent of the Vietnamese. The Vietnamese, more than the Hispanic population, recognized diet as a cancer risk factor; a belief that would strengthen their sense of control over their own cancer risk.

Other research indicates that the lack of formal education may generate disbelief in cancer susceptibility and poor performance in an educational setting (Berkanovic, 1980; Garcia & Lee, 1986; Sugarek et al., 1988). Even with the NEAs' supervision, poorly educated individuals may not have had a complete understanding of the questions, purpose of the food recall and test, and the instructions for their completion. Comparison of the total scores on the pre- and posttest indicate that the Vietnamese participtants exhibited greater change (improvement) than the Hispanics. This difference could be because the Vietnamese were better test takers or they experienced greater comprehension and retention. If the participant's' education levels were known, this study could have assessed whether attitudes about diet and cancer prevention and eating behavior were linked to educational attainment.

Due to the brief eight week instruction period, the observed changes in the posttest scores may be more indicative of short-term rather than long-term learning. Changes in diet behavior, awareness and knowledge may be temporary or conditioned responses. The health educator must keep in mind that permanent changes in eating habits require the participant's

time and active participation. Many advantageous ethnic food patterns can be retained while recommended new foods are slowly added, thus promoting a diet that accentuates the positive aspects of two different cultures.

The introduction of the nutrition and cancer program in English as Second Language (ESL) classes was an inherent limitation of the study since many of the participants were illiterate not only in English but in their own language. Participants in ESL classes were bombarded not only with the difficult and stressful task of learning to speak and write the English language but also were exposed to nutrition and cancer information which required additional concentration. Learning a new language and receiving new information in one educational setting may have been too burdensome for some participants and could have adversely affected their ability to retain and assimilate the nutrition information.

While the ESL classroom may not have been the best setting in which to present the nutrition information for the above reasons, some of its inherent characteristics made it a viable education setting. For example, ESL classes were familiar, available, and accessible community settings for the Hispanic and Vietnamese populations and for EFNEP staff. They also created a network and support system of individuals with similar cancer risk. A person's perceived sense of support from others may have increased a more generalized sense of control (Minkler, 1981). Another characterisitic of ESL classes is that they are offered free which is especially important to low-income individuals and families. Thus, the ESL setting provided participants with nutrition and cancer information that they may not have received otherwise.

Acculturation---process of diet change

In addition to the participants' language, health beliefs, educational attainment, socioeconomic status, and degree of motivation, their level of acculturation influences their ability to respond to and act upon any educational program's health promotion message. During the process of acculturation, which may take generations to complete, the immigrants' behavior patterns such as language, dress, and food, adapt to the norms of the culture of residence (Wallendorf & Reilly, 1983). Food habits are most likely to be the last to change since the major meals are eaten in the privacy of the home. Immigrants may begin to reflect the dietary patterns of the culture of residence because they are motivated to comply voluntarily and/or are forced to make changes in food purchases because of low income or lack of availability of traditional foods.

Dewey, Strode, and Fitch (1984) indicate that dietary change within immigrant groups consists of several components: loss or retention of traditional foods, addition of new foods characteristic of the culture of residence, addition or loss of basic foods common to both cultures, and change in the immigrant's food belief system. This and other similar studies suggest that acculturation in food habits does not necessarily follow a simple linear pattern, from traditional to modern (Wallendorf & Reilly, 1983). For example, minor increases in fiber intake among the Vietenamese group could be due to the pre-existing Vietnamese high fiber, fruit and vegetable diet. Likewise, the study's findings suggest that many of the traditional Hispanic foods, ie., beans, potatoes, onions, tomatoes, chiles, oranges, are still eaten in the host society.

The conditions that precipitated immigration can influence the

process of acculturation in different ways. Wallendorf and Reilly (1983) state the major cause for "...international migration from the developing to the developed nations of the world" is to improve one's occupational, political or financial status (p.294). Since the educational intervention did not ascertain the participants' native origin, the Hispanic participants' reasons for migration to California are unknown. In contrast, Nguyen (1985), without a doubt, describes the Vietnamese in the United States as refugees or involuntary immigrants. "Their expatriation was unexpected, their trip was unplanned and their departure from Vietnam was precipitous" (Nguyen, 1985, p.411). However, this study did not provide any data to indicate the current conditions or reasons for Vietnamese immigration.

Several factors may contribute to retention of traditional Vietnamese and Hispanic eating patterns. Local availiability of Vietnamese and Hispanic foods is one factor that promotes their retention. Studies have shown that those who have a strong social network within the culture of residence (ie., California) and/or those who make frequent visits to their native country will perpetuate many of their ethnic eating patterns and slow the process of acculturation (Dewey et al., 1984; Pasquali, 1985). Since many of California's Hispanics are closer to their homeland than the Vietnamese, the Hispanics are more likely to make more visits than the Vietnamese. Both cultures would have a strong social network, particularly the Vietnamese, due to their alienation from their native country.

While many traditional foods and their preparation are preserved, some of them are lost at the same time new foods characteristic of the

host society are added during the process of acculturation. Dewey et al. (1984) saw a decrease in conventional foods which was significantly related to the respondent's educational level. More educated persons exhibited greater loss of traditional foods than those with less education. Another acculturation study found reading to be significantly related to nutrition knowledge and attitude but unrelated to self-reported nutrition behavior (Sunseri, Alberti, Kent, Schoenberger, & Dolecek, 1984). This suggests that results from the nutrition and cancer program's pre/posttest may not accurately evaluate nutrition knowledge and attitude outcomes.

While education exhibits its influence on ethnic behavior patterns, employment induces acculturation in other ways such as: changes in meal times and redefinition of what constitutes a meal, the increase in meals eaten away from home, and the increased use of convenience foods. Dewey et al. (1984) found that children, exposed to the dominant American culture through schools and media, promoted consumption of new foods.

Increased income and availability of foods in California also promote diet changes. For example, food recalls from the nutrition and cancer program revealed that the Vietnamese tend to eat more meat and poultry in California and less fish and shellfish which is contrary to the traditional diet in Vietnam. Many Hispanics in California convert from corn to flour tortillas. Unfortunately, many of the new foods added to their current diet reflect the typical high-fat American diet. This acculturative pattern may

have influenced the dietary changes observed in the current study.

In contrast, the food belief system is not as apt to change as are the

nourishment but also an emotional perspective. Traditional eating habits provide comfort, security, and self-identity while immigrants experience acculturative pressures in other areas of their lives. With most people, traditional eating patterns "...provide a sense of psycho-social well-being" (Pasquali, 1985, p.27).

In fact, current research indicates that a stronger relationship exists between attitude and behavior than between knowledge and behavior (Sunseri et al., 1984). It was assumed that program participants would more likely consider the program's suggested diet modifications or substitutions if the NEAs emphasized the positive aspects of their current diet habits, ie., consumption of fresh fruits and vegetables. To change or adopt an attitude or belief requires more time plus educational and behaviorial reinforcement. With this comprehensive approach, short-term diet changes are more apt to become part of a person's permanent lifestyle.

This study indicated that small changes in knowledge, attitude, and dietary behavior occurred over a short period of time. To illustrate the potential long-term effects of nutrition education, the Stanford three-community study observed increases in knowledge and behavior in the two treatment communities over a two year period and noted that their estimated risk of cardiovascular disease decreased substantially. Conversely, the risk of cardiovascular disease increased in the control community (Farquhar, Wood, & Breitrose, 1965). Based on these findings, one may speculate that the Vietnamese and Hispanic experimental participants could experience, over time, a similar decrease in their cancer risk if they continued to follow the American Cancer Society nutrition guidelines.

In the nutrition and cancer risk reduction program, many participants in the educational setting assumed a passive role by listening to the NEAs' information and looking at colorful and informative posters and food samples. However, altering ingrained attitudes and eating behavior is a more complex process which may require the individual to play a more active role. Sugarek et al. (1988) suggest that poorly educated people may need additional supervision, guidance, and reinforcement to assume an active role in their health maintenance.

To encourage the participants to take a more active role in learning, the culturally-sensitive NEAs provided culturally-specific recipes for them to try at home, and cooking demonstrations and a cancer risk reduction game for the educational setting. The purpose of these activities was to demonstrate to the participants how they could modify their current eating habits to control their own cancer risks. Regarding disease risk reduction interventions, Vega and his associates (1988) state that "...small changes that are maintained over time in a large number of people will have a substantial impact" (p.198). Hence, knowledge aquisition and increased awareness of diet's role in cancer prevention, particularly when learned among peers and building upon cultural beliefs and practices, can be seen as the first essential steps in the process of making permanent diet changes.

CHAPTER 3

Conclusions and Implications

Conclusions

The overall results from this evaluative study provide empirical evidence that the integration of cancer risk reduction information into the Expanded Food and Nutrition Education Program (EFNEP) did affect the participants' attitudes and knowledge about cancer prevention and reinforced EFNEP's educational objectives. The American Cancer Society's (ACS) culturally-specific intervention sought to integrate and utilize interrelated and complex phenomena in the learning and adoption of very specific dietary changes as a method of cancer prevention. The study's mixed results reflect this complexity. This intervention is a viable health promotion strategy for ethnic populations, such as Vietnamese and Hispanics, who are at a higher cancer risk than the general public. While it is impossible to measure the full effect of the intervention, it is hoped that this educational program will contribute to an overall reduction in cancer incidence in a multicultural society.

In addition to the program's complex conceptual design and instrumentation, the study's mixed results are due in part to the complexities of a multicultural, multilingual, interagency project. Using the coalition approach, the nutrition and cancer risk reduction program emphasized community participation and self-help and utilized lay and professonal expertise from the American Cancer Society and EFNEP. The program's two year time frame included the production of the materials,

training and orientation of the EFNEP staff, and ten months of data collection. Due to the length of this project, considerable effort was required to maintain interagency communication, participation, coordination, commitment and interest among the ACS and EFNEP staff. Inspite of these challenges, the interagency collaboration meant that more adults, especially in hard-to-reach ethnic populations, were exposed to the prevention message in the ACS education program.

Implications

This study has important implications for research and practice. Further research is needed to resolve some of the methodological problems encountered in the current study. Additional testing of the structure and design of the diet recall would significantly enhance the value and utility of this tool when used in multicultural, multilingual samples. Specifically, adjustments may need to be made to the recall categories when the items of interest to the researcher (ie., vegetables, potatoes, rice) traditionally appear in a casserole and therefore may not be delineated by the respondent.

Adjustment to recall categories and food descriptions also may be needed to reflect the acculturation process. The significant language problems encountered in participants' written responses also suggest that further research is needed to identify the appropriate use of words and/or pictures when using the recall tool with such diverse populations. This is particularly important when precise specification of a particular food (ie., whole or non-fat milk) is essential to the accurate measurement of a key variable (change in fat consumption).

Measurement of participants' eating behavior six and twelve months after program completion is another area for further research. This type of extended follow-up would assess the degree of observed behavior attributable to 'program afterglow.' Dietary behavior change, particularly for those involved in the acculturation process, is complex and affected by many factors, The degree to which this type of educational intervention promotes lasting change can not be determined with a single post-program measurement. Extended follow-up at six and/or twelve month intervals would enable such assessment.

In addition to these methodological issues, the study suggests several directions for health education. If it is found that this type of program's benefit is short-term, rather than long-term, behavior change, then it will be necessary to extend the intervention, as well as the follow-up, over a longer time period. Dietary reform requires time, active participation and reinforcement. Implementation of follow-up programs to reinforce initial changes and their benefits will help promote the program's potential long-term effects: a healthier lifestyle and a decreased cancer risk.

To help bring about lifestyle changes in ethnic populations, health educators, in addition to providing information, need to focus on how to increase an individual's sense of control or power over some diseases. Especially with poorly educated people, an enhanced sense of control would enable these individuals to make their own lifestyle changes. The workplace, particularly those with a high ethnic concentration, would be a viable educational setting to provide a nutrition and cancer risk reduction

of increasing an individual's sense of control over certain disease risk factors.

In addition to the workplace, federal and state funded agencies, community organizations and churches can promote the ACS Nutrition Guidelines and a healthy diet through health education, health services and a healthful environment. For example, the federal supplemental food program for Women, Infants, and Children (WIC) provides specific nutritious foods and education to low-income pregnant, postpartum and breastfeeding women and infants and children up to age of five who are at risk nutritionally. Pregnant teenagers from minority groups are major WIC recipients. Other local nutrition programs that could benefit from using the culture-sensitive ACS materials include the American Red Cross' "Better eating for better health" course and the Mother and Child Nutrition Program sponsored by Catholic charities (Healthy Mothers, Healthy Babies Coalition, 1986).

This study clearly demonstrated that a coalition approach can effectively unite the specialized knowledge and skills of different types of organizations. As complex and time-consuming as this organizational design may be, further collaborative work is called for. Interagency cooperation in the design, implementation and evaluation of culture-specific nutrition and cancer education can increase its quality and implementation among poorly educated groups as well as the general population. A coalition approach can produce several different multicultural education programs which would enhance community competence and deliver the same prevention message.

Schools can play a key role in reducing the incidence and mortality

rates of several diseases; school-based health promotion represents another avenue through which healthy lifestyle behaviors and disease risk factors can be learned. Damberg (1986) argues that school-based health education strategies which "...target the priority health problems of minorities are a necessity, to alleviate the excess burden of disease and disability which persists among minorities" (p.32). Schools, particularly those in communities with large minority poulations, would be a very effective setting for culture-specific nutrition education.

A school-based nutrition and cancer risk reduction promotion intervention has distinct advantages over a community-based adult education approach. Since most of our nutrition and eating behaviors are learned during childhood and adolescence, the younger population (in school, a more captive audience) is more willing and eager to adapt to new behaviors. The process of change is usually easier for children than it is for adults since it is difficult, painful and sometimes impossible for many adults to modify some of their well-established eating habits. A school-based nutrition program could encourage children to maintain or adopt appropriate diet-related behaviors and enhance their skills to maintain and improve the health of their families and communities. Further program evaluation research could determine the number of persons affected by one educated child. These results would be very important particularly in programs for hard-to-reach populations.

This nutrition and cancer risk reduction study was designed to contribute to the reduction of cancer rates among minority populations through the development and implementation of a culturally-specific education program. The findings clearly demonstrate that small

significant changes in knowledge of ACS Dietary Recommendations, attitude about diet's protective role against cancer and positive eating

behavior occurred over an eight week period. It is hoped that this study will be one of many attempts to refine the methodology and content of disease prevention and health promotion efforts among minority populations.

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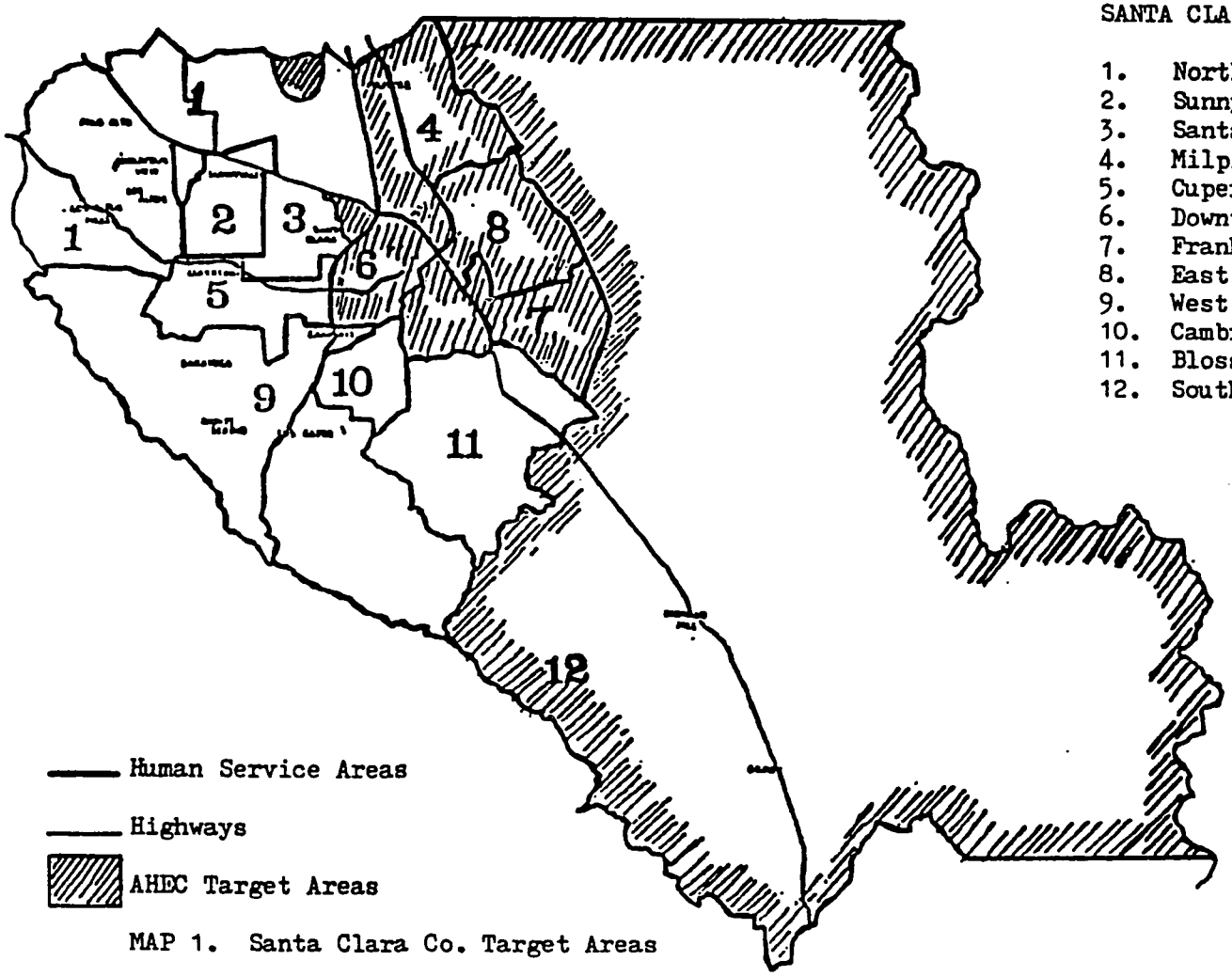
APPENDIX A

AHEC Target Areas



MAP 1. Santa Clara Co. Target Areas

HUMAN SERVICE AREAS:

SANTA CLARA COUNTY

1. North County
2. Sunnyvale
3. Santa Clara
4. Milpitas/Berryessa
5. Cupertino/W.San Jose
6. Downtown
7. Franklin/McKinley
8. East Valley
9. West Valley
10. Cambrian
11. Blossom Hill
12. South County

APPENDIX B

Pretest/Posttest

NUTRITION KNOWLEDGE QUESTIONNAIRE

Participant_____ID#_____ Date_____

1. How much do you feel you already know about nutrition? (circle answer)

   alot something a little almost nothing

2. When planning meals for your family which do you consider very important?

   a. foods your family likes best _____
   b. foods that are nutritious _____
   c. foods that are in season _____
   d. all of the above _____

*3. Do you think that your chances of getting cancer can be reduced by what you eat? (circle answer)

   Yes No Don't know

4. Circle 2 main nutrients found in MILK AND MILK PRODUCTS.

   iron calcium vitamin C riboflavin

5. Circle the name of the 3 major nutrients provided by FRUITS AND VEGETABLES.

   vitamin C fats protein folacin viatmin A

6. Circle the 2 best cooking methods that help to retain more nutrients in vegetables.

   steaming boiling deep frying stir frying

7. Circle the names of 2 major nutrients provided by MEAT, POULTRY, FISH AND DRIED BEANS.

   calcium iron vitamin A protein

*8. Circle the names of 3 types of foods that may help to REDUCE your chances of getting cancer if you eat them often.

high fiber foods milk products cabbage family vegetables

fruits and vegetables high in vitamins A and C fatty foods

*9. Circle the names of 2 types of foods that may INCREASE your chances of getting cancer if you eat them often.

fatty foods sugary foods high fiber foods alcoholic beverages

10. Circle the least expensive food in each pair of foods.

Ground beef or liver Frozen peas or canned peas

Lowfat milk or skim milk 7-grain bread or whole wheat bread

11. When planning meals I should:

Plan meals for more than 1 day _____
Include snacks in my planning _____
Plan around nutritious foods, low in price _____

12. List 3 principles for a wise shopper to follow.

1.
2.
3.

Note. * = Questions regarding nutrition and cancer reduction were added to EFNEP's existing pre/posttest.

SU CONOCIMIENTO DE NUTRICION

Participante_____ ID#_____ Date_____

1. Primero, me gustaria tener una idea de cuanto sabe usted de nutricion? (Marque)

   mucho algo poquito casi nada

2. Cuando planea las comdas para su familia, que considera usted mas importante?

   a. alimentos que le gustan a mi familia ____
   b. alimentos que son nutritivos ____
   c. alimentos que estan en estacion ____
   d. todos los de arriba ____

3. Cree usted que el riesgo de cancer se puede reducir sobre la comida que escoges? (Marque) Si No No Se

4. Marque 2 nutrientes principales que se encurentran en la LECHE Y SUS PRODUCTOS.

   hiero calcio vitamina C riboflavina

5. Marque 3 nutrientes principales que nos dan las FRUTAS Y VERDURAS.

   vitamina C grazas proteinas folacina vitamina A

6. Marque 2 metodos de preparacion que ayudan a conservar mas nutrientes en las verduras.

   al vapor hervido freido comun freido rapido (stir frying)

7. Marque 2 nutrientis principales que se encuentran en la CARNE, AVES, PESCADO Y FRIJOLES.

   calcio hiero vitamina A proteina

8. Marque 3 clases de alimentos que podrian REDUCIR sobre la comdida que escoges si lo comes con frequencia.

alimentos altos en fibra

alimentos altos en grasa

frutas y vegetales altas en vitaminas A y C

familia de repollo y vegetales

productos lacteos

9. Marque 2 clases de alimentos que pueden AUMENTA el riesgo de cancer si lo comes con frequencia.

alimentos altos en grasa

alimentos altos en fibra

alimentos con mucha azucar

bebida alcoholicas

10. Marque el alimento mas bajo en costo en cada grupa de alimentos.

a. Hamburguesa o higado
b. Chicharos congelados o chicharos enlatados
c. Leche con poca crema o leche sin crema
d. Pan de 7-granos o pan integral

11. Cuando planeo mis menus debo de:

Planear mis comidas para varios dias ____
Incluir bocadillos en mi plan ____
Planeare alrededor de alimentos nutritivos ____
y de bajo costo ____

12. Escriba 3 puntos principales antes de ir al mercado.

1.

2.

3.

CÂU HỎI VỀ DINH DƯỠNG

Học Viên_____ ID#_____ Ngày_____

1. Bạn nghĩ rằng bạn đã biết bao nhiêu về Dinh Dưỡng. (đánh dấu câu trả lời)

   nhiều lắm_____ một vài điều_____ chút ít_____ hầu như chưa biết_____

2. Khi dự định bữa ăn cho gia đình, những điều nào sau đây bạn chú trọng nhất.

   a. thực phẩm gia đình bạn thích nhất _____
   b. thực phẩm chứa nhiều chất bổ dưỡng _____
   c. thực phẩm đong trong mũu _____
   d. tất cả các điều trên _____

3. Bạn có nghĩ rằng bạn có thể giảm bớt nguy cơ bịnh ung thư qua cách thức bạn ăn uống không?

   khoanh tròn câu trả lời có không không biết

4. Hãy khoanh tròn 2 chất bổ chính tìm thấy trong sữa và thức ăn làm bằng sữa.

   chất sắt chất vôi sinhtố C sinhtố rivoflavin

5. Khoanh tròn tên 3 chất bổ chánh cung cấp bởi trái cây và rau cải.

   sinhtố C Chất đạm sinhtố A
   mỡ sinhtố folacin

6. Khoanh tròn 2 cách nấu tốt nhất có thể giữ được chất bổ trong rau cải.

   hấp hởi luộc chiên ngập mỡ xào

7. Khoanh tròn tên 2 chất bổ chánh có trong thịt, gà vịt, cá và đậu khô.

   calcium (vôi) sắt sinhtố A chất đạm

8. Hãy khoanh tròn tên của 3 loại thực phẩm có thể giúp giảm bớt nguy cơ của bệnh ung thư nếu các bạn ăn những thức đó thường xuyên.

   thực phẩm chứa nhiều chất Fiber
   các sản phẩm làm bằng sữa
   rau cải cùng họ với cải bắp
   trái cây và rau cải có chứa nhiều sinhtố A và C
   thức ăn chứa nhiều mỡ

9. Hãy khoanh tròn tên của 2 loại thực phẩm có thể làm gia tăng nguy cơ mắc bệnh ung thư nếu bạn ăn nó thường xuyên.

   Thức ăn nhiều mỡ thức ăn nhiều đường thức ăn nhiều chất Fiber các loại rượu

10. Khoanh tròn tên thực phẩm rẻ nhất trong từng cặp thức ăn.

thịt xay hoặc gan	đậu đông đặc hoặc đậu hộp
lowfat milk hoặc skim milk	bánh mì nhiều thứ hạt hoặc bánh mì bằng hạt nguyên chất

11. Khi dự trù bữa ăn tôi phải:

Sắp đặt những bữa ăn nhiều hơn 1 ngày _____
Gồm cả các bữa ăn phụ (snacks) _____
Dự trù gồm những thức ăn bổ dưỡng, rẻ tiền _____

12. Hãy liệt kê 3 nguyên tắc dành cho người đi mua sắm khôn khéo để tuân theo.

1.
2.
3.

APPENDIX C

American Cancer Society Dietary Recommendations

National Research Council Dietary Guidelines

American Cancer Society Dietary Recommendations

1. Avoid obesity.
2. Cut down on total fat intake.
3. Eat more high fiber foods such as whole grain cereals, fruits, and vegetables.
4. Include foods rich in vitamins A and C in the daily diet.
5. Include cruciferous vegetables such as cabbage, broccoli, brussel sprouts, kohlrabi, and cauliflower in the diet.
6. Be moderate in consumption of alcholoic beverages.
7. Be moderate in consumption of salt-cured, smoked, and nitrite-cured foods.

National Research Council Dietary Guidelines

1. The consumption of both saturated and unsaturated fat should be reduced from its present level (approximately 40 per cent) to 30 percent of total calories in the diet.
2. Include fruits, vegetables, and whole grain cereal products in the daily diet.
3.. The consumption of food preserved by salt-curing, pickling, or smoking should be minimized.
4. If alcoholic beverages are consumed, it should be done in moderation.

Source : Patterson, B. H. & Block, G. (1988). Food choices and the cancer guidelines. American Journal of Public Health, 78(3), 282-286.

APPENDIX D

24-hour Food Recall

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

24-HOUR FOOD RECALL

NAME	Pregnant or Lactating	ID No.
1st 2nd 3rd 4th Food Recall Score:	Date	N.E.A.

	Foods Eaten By Homemaker Meals Plus Snacks	Serving size	Protein foods	Milk foods	Fruits and Vegetables: Vit. C rich	Fruits and Vegetables: Vit. A rich	Fruits and Vegetables: Other	Breads and cereals	Other foods
Morning									
Mid-day									
Evening									
Number of servings eaten:					+	+	TOTAL =		
Number of servings recommended (not pregnant of lactating):		2	2		* +	* +	= 4	4	
Number of servings recommended for pregnant or lactating women:		4	4		* +	* +	= 4	4	

I will try to add or subtract these foods:

Recommended changes:

* a minimum of 1 serving is recommended

APPENDIX E

Informed Consent

Privacy Notice

The State of California Information Practices Act of 1977 requires the University to provide the following information to individuals who are asked to supply information about themselves.

The principal purpose for requesting the information on this form is for reporting on and evaluating the effectiveness of the Expanded Food and Nutrition Education Program (EFNEP). The United States Department of Agriculture under contractual agreement with the University authorizes maintenance of this information.

Furnishing all information requested on this form, which has been approved by the U.S. Department of Agriculture, is mandatory and failure to provide such information may prevent financial aid for this program. Individual information is used to design an educational program and is retained in the county Cooperative Extension office. Individual information identified by identification number only will be sent to the Cooperative Extension State Office. Total county summaries (not individual information) are sent to the USDA.

Individuals have a right to review their own records. The official responsible for maintaining the information contained on this form is the county director for Cooperative Extension Expanded Food and Nutrition Education Program in your county.

AVISO DE PRIVACIDAD

El Acta de 1977 del Estado de California sobre Practicas en Informacion, requiere que la Universidad provea la siguiente informacion a los individuos a quienes se les pide dar informacion sobre ellos mismos.

El proposito principal de solicitar la informacion en esta forma es para conocer y evaluar la efectividad del Programa Extendido de Educacion en Alimentos y Nutricion (EFNEP).
El Departamento de Agricultura de los Estados Unidos, bajo actual acuerdo con la Universidad, autoriza el mantenimiento de esta informacion.

El proporcionar toda la informacion requerida en esta forma, la cual ha sido aprobada por el Departamento de Agricultura de los Estados Unidos, es obligatorio, y el no proveer dicha informacion puede impedir la ayuda financiera para este programa. La informacion individual es usada para designar un programa educacional y es conservado en la oficina de la Extension Cooperativa del Condado. La informacion individual, identificada con numero de identificacion solamente, (sin nombres) sera enviada a la Oficina de la Extension Cooperativa del Estado. El resumen total del condado (no la informacion individual) es enviado al Departamento de Agricultura de los Estados Unidos.

Todo individuo tiene el derecho de revisar sus propios records. El oficial responsable de mantener la informacion contenida en esta forma, es el director del condado del Programa Extendido de Educacion en Alimentos y Nutricion de la Extension Cooperativa en su condado.

APPENDIX F

English Educational Materials

American Cancer Society Dietary Recommendations

"Nutrition and cancer: Cause and prevention"
including diet tips for the
Hispanic and Vietnamese

Cancer risk reduction game

tion and Cancer: : and Prevention

ble of diet in cancer cause and on may be significant because es of one-half or more of all eaths in the U.S. are unknown. Of annual U.S. cancer deaths, about nt are due to cigarette smoking. factors, radiation, air pollution ain occupational exposures alto- nay account for another 10 to 20 Research suggests that a small of cancers may be caused by

ure to cancer-causing agents usu- s place 20 to 30 years before a lly significant increase in cancer letected. But research does sug- some food constituents cause or human cancer, and others may gainst the disease.

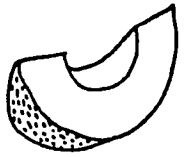
gh no concrete dietary advice iven that will guarantee preven- ny specific human cancer, the Cancer Society believes there is inferential information to make of recommendations about .

ociety's recommendations apply ancer, but they are consistent in with good health promotion.

commendations are similar to ued by the National Research of the National Academy of but the Society's recommenda- a step further to include obesity .

Cut down on total fat intake.
Reducing the intake of saturated and unsaturated fats from both plant and animal sources not only may reduce chances of getting cancers of the breast, colon or prostate, but it is an effective way to reduce daily calorie consumption. The National Academy of Sciences suggests reducing fat in the diet to 30 percent of total calories.

Eat more high fiber foods.
such as fruits, vegetables and whole grain cereals. Even if fiber itself may not prove to protect against cancer, high fiber fruits, vegetables and cereals can be recommended as a wholesome substitute for fatty foods.



Include foods rich in vitamins A and C.
Dark green and deep yellow vegetables and certain fruits are rich in carotene, a form of vitamin A that may lower cancer risk for larynx, esophagus and lung. Such foods as carrots, tomatoes, spinach, apricots, peaches and cantaloupes are rich in carotene. Studies also indicate that people who follow diets rich in ascorbic acid (vitamin C) are less likely to get cancer, particularly of the stomach and esophagus.

*Excessive vitamin A supplements in tablet or capsule form are not recommended because of possible toxicity.

Include cruciferous vegetables.
such as cabbage, cauliflower, broccoli, Brussel sprouts and kohlrabi, in the diet. Some studies suggest that consumption of such cruciferous vegetables of the mustard family may reduce cancer risk, particularly of the gastrointestinal and respiratory tracts.

Be moderate in consumption of alcoholic beverages.
Heavy alcohol drinkers, especially those who also smok· cigarettes or chew tobacco, are at unusu ally high risk for cancer of the mouth, larynx and esophagus Alcohol abuse can result in cirrhosis, which sometimes leads to liver cancer.

AMERICAN CANCER SOCIETY

NUTRITION AND CANCER: CAUSE AND PREVENTION

Hispanic Diet Tips

What foods do you eat that may help lower your risk of getting cancer? What foods do you eat that may increase your risk of getting cancer? Tips for a healthy diet from the American Cancer Society include:

KEEP EATING...

1. Lots of fresh vegetables and fruit, especially those high in Vitamins A and C, such as apricots, bell peppers, broccoli, cantaloupe, carrots, chilis, oranges, mangoes, papayas, and tomatoes. Vegetables and fruits high in fiber are also good, such as avacados, onions, and potatoes with their skins.

2. Beans, which are a very good source of fiber.

3. Poultry and fish, which are lower in fat than red meats.

EAT MORE OF...

1. Cabbage-family vegetables, such broccoli, brussels sprouts, cabbage, cauliflower, kale, kohlrabi, mustard and turnip greens. These vegetables may have an extra cancer protective factor in addition to lots of fiber and vitamins.

2. Whole-grain foods, such as whole-wheat tortillas, whole-wheat bread, brown rice, and breakfast cereals that are made with whole-wheat, bran or oats.

EAT LESS OF...

1. Fats, especially lard. Try to reduce the amount of fat that you add when cooking. For example, soften tortillas in sauce or in the oven instead of in lard or in oil. Use as little lard as possible when making refried beans. Use lean beef and pork cuts when possible, and use only small amounts of sausage, such as chorizo. Use low-fat or non-fat milk and add only small amounts of cheese to dishes. Bake, broil and steam foods more often than frying them.

2. Take-out foods bought at fast food restaurants, such as hamburgers, tacos and french fries. These foods are usually very high in fat.

3. Limit the amount of alcoholic beverages consumed.

NUTRITION AND CANCER: CAUSE AND PREVENTION

Vietnamese Diet Tips

What foods do you eat that may help lower your risk of getting cancer? What foods do you eat that may increase your risk of getting cancer? Tips for a healthy diet from the American Cance Society include:

KEEP EATING...

1. lots of fresh vegetables and fruit, especially those high in

PLAYING THE CANCER RISK REDUCTION GAME

1. CIRCLE THE 3 NAMES OF FOODS THAT HELP TO REDUCE YOUR CHANCES OF GETTING CANCER.

   high fiber foods whole milk cabbage family vegetables

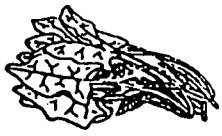
   fruits/vegetables high in Vitamins A and C fatty foods

2. CIRCLE THE 3 NAMES OF FOODS THAT MAY INCREASE YOUR CHANCES OF GETTING CANCER.

   fatty foods high fiber foods salt-cured or smoked foods

   sugary foods alcoholic beverages

3. CIRCLE THE 2 FOODS HIGHEST IN VITAMIN A.


spinach


green beans


cantaloupe


mushrooms

4. CIRCLE THE 2 FOODS HIGHEST IN VITAMIN C.


orange


apple


broccoli


pear

5. CIRCLE THE 3 VEGETABLES THAT ARE IN THE CABBAGE FAMILY.


broccoli


cauliflower


mushrooms


beans


greens

6. WRITE THE NUMBER OF TIMES YOU EAT CABBAGE FAMILY VEGETABLES EACH WEEK _____.

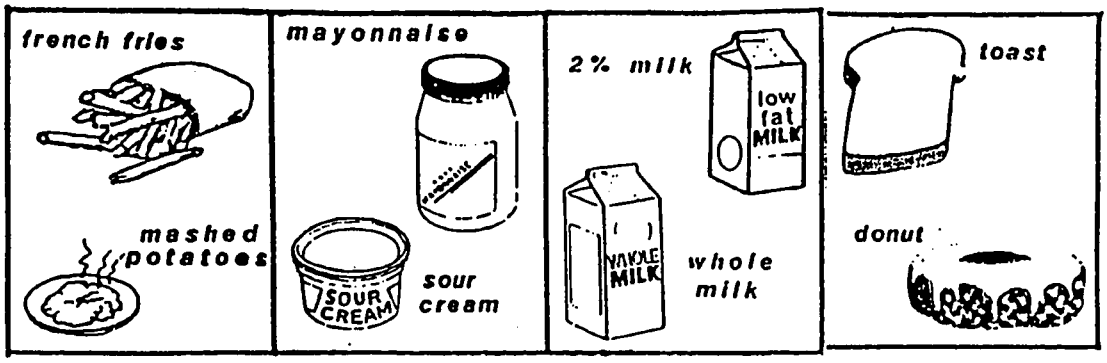
7. CIRCLE THE 2 FOODS HIGHEST IN FIBER.


roasted chicken


fruits and vegetables

lowfat milk

8. IN EACH PAIR OF FOODS, CIRCLE THE LOWEST IN FAT PER SERVING



9. DO YOU USUALLY TRIM THE FAT FROM MEAT AND CHICKEN BEFORE YOU PREPARE THEM? CIRCLE: YES NO

10. CIRCLE THE ONE COOKING METHOD THAT ADDS THE MOST FAT TO FOOD.

baking deep frying broiling

stir-frying boiling

11. CIRCLE THE NAME OF ONE TYPE OF BEVERAGE THAT SHOULD BE LIMITED TO HELP LOWER YOUR CHANCES OF GETTING CANCER.

low-fat milk fruit juices alcoholic beverages

Check your responses with your Nutrition Education Assistant and count how many points you got out of 22. How many_____.

Do you think you need to learn more about nutrition and cancer risk? Write down any changes you want to make in your diet to reduce your risk of getting cancer:

AMERICAN CANCER SOCIETY
SANTA CLARA COUNTY UNIT

APPENDIX G

Hispanic Educational Materials

Speaker's outline

American Cancer Society Dietary Recommendations

"Nutrition and cancer: Cause and prevention"

Cancer risk reduction game

HISPANIC SPEAKER'S OUTLINE

Please include the following information during your lessons. Add the comments where you feel they fit. You may want to put the ideas into your own words, just be sure that all the concepts are communicated.

Lesson #1- Introduction to Nutrition

During discussion of "How Food Affects You," add:

"What you eat may actually increase or decrease your chances of getting cancer. Eating lots of vegetables, fruits, and foods that are high in fiber, and avoiding fatty foods may reduce your risk of cancer. Eating lots of fatty foods and drinking alcoholic beverages may increase your risk of getting cancer. Cancer takes years to develop, and eating a healthy diet now helps to lower your chances of getting cancer later."

Teaching aid- Hispanic diet tips.

Lesson #2- Milk Group

During discussion of dairy products, emphasize use of low-fat and non-fat milk and yogurt, and recommend limited use of cheese, sour cream, and ice cream. Add:

"Remember, eating lots of fatty foods may increase your chances of getting cancer. Cheese, sour cream, and especially ice cream, are fatty milk group foods. It's okay to eat them sometimes or in small amounts, but try to use milk products that are low in fat more often, such as

low-fat milk, non-fat milk, and low-fat yogurt."

Teaching aid- ACS approved milk-group recipes

Lesson #4- Meat Group (second session)

During discussion of meat grades, emphasize use of low-fat meat cuts. Add:

"Meats are sometimes fatty foods. Sausages and luncheon meats, such as chorizo and bologna, are especially high in fat. Because fatty foods may increase your risk of getting cancer, you should try to eat only small amounts of these meats. Pork and beef can also high in fat. Try reducing the amount of of these meats that you use in recipes. Eat lean meats, poultry, and fish more often."

During discussion of best buys, add:

"You don't have to buy expensive foods to eat a healthy diet. You can lower your chances of getting cancer by eating beans, which are not only a good source of protein, but are also very high in fiber. High fiber foods may reduce your risk of getting certaing cancers."

During discussion of meat cookery, add:

"Frying meat adds fat to the dish. Fried foods are fatty foods. Eating lots of fried dishes may increase your chances of getting cancer. Baked, broiled, and steamed meats are less fatty."

Teaching aid- ACS approved recipes

Lesson #5- Fruit and Vegetable Group

During discussion of fruits and vegetables high in Vitamins A and C, add:

"Fruits and vegetables high in Vitamins A and C are also believed to help lower your risk of getting cancer. And another type of vegetable that may lower your chances of getting cancer are cabbage-family vegetables, such as broccoli, cauliflower, greens (such as mustard greens and Swiss chard), cabbage, and brussels sprouts. Many of these vegetables are also high in vitamins A and C. Try to eat cabbage-family vegetables three times each week. All fruits and vegetables have the added benefit that they contain fiber, another factor that may help to reduce your chances of getting cancer."

Teaching aids- ACS approved recipes and ACS fruits and vegetables poster

Lesson #7- Breads and Cereals Group

During discussion of breads and cereals, emphasize use of whole-grain tortillas, breads, and cereals. Add:

"Remember, foods high in fiber may lower your chances of getting cancer. Whole-wheat tortillas can be used in place of flour tortillas in most recipes, and brown rice can be used instead of white rice. Try to eat more whole-wheat bread instead of white bread, and try to eat only small amounts of sweet breads and rolls. Many cereals are high in fiber also."

Teaching aids- ACS "Playing the Cancer Risk Reduction Game" handout (to be done as "homework" and collected at the next lesson) and ACS approved recipes

Lesson #6 - Fat, Sugar, Alcohol, and Sodium

During discussion on fat, add:

"A diet high in fat may increase your risk of getting cancer. Try to reduce the amount of butter and margarine that you add to foods. Also limit the amount of fat you use in cooking, including lard and vegetable oil. Tortillas may be softened in sauce, for example, or in the oven, instead of in fat. Avoid frying foods, because this adds extra fat to the dish- try baking, broiling or steaming instead. Also, take-out foods, such as hamburgers, tacos, and french fries are very high in fat. These foods should be eaten only occasionally. Reducing the amount of fatty foods you eat may lower your chances of getting cancer."

During discussion of alcohol, add:

"Drinking alcoholic beverages, especially several drinks each day, increases your chances of getting cancer. Try to drink alcoholic beverages only occasionally."

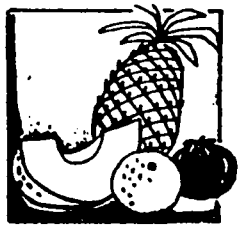
El seguir las recomendaciones presentadas en este folleto pueden proveer a usted y su familia una vida más saludable y con menos amenaza del riesgo de cáncer. El bienestar de su familia depende de usted. Ayúdeles a prevenir el riesgo de cáncer practicando las siguientes recomendaciones:

- No fume cigarrillos
- Evite la exposición al sol en exceso
- Examínese los senos mensualmente
- Practique exámenes anuales que incluyan la prueba Pap, y después de los 40 años incluya examen del colon y recto y mamografías, (radiografía del seno).
- Consuma una dieta saludable y alta en fibra

Incluya vegetales en su dieta.

Tales como repollo, coliflor brócoli, zanahoria, chiles verdes, papa, jícama, calabaza apio y nopal.

Estos alimentos le hacen masticar lo cual es saludable para su sistema digestivo y para sus dientes.



Incluya comidas ricas en vitaminas A y C.

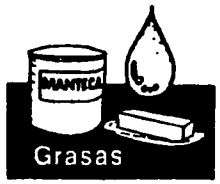
Verduras de color verde obscuro y amarillo fuerte son ricas en vitamina A tales como: zanahoria, tomate, espinaca, chabacano, durazno papaya y melón.

La vitamina C también es importante y puede encontrarse en la naranja, toronja, tomatillo, jitomate, chiles, melón, limón, fresa, perejil, y piña.

Estudios científicos nos dicen que el incluir comidas con vitaminas A y C pueden ayudar a prevenir el riesgo de cáncer en la laringe, esófago, estómago, y pulmones.

Coma más alimentos altos en fibra.

Tales como frutas, legumbres y pruductos de grano entero como trigo, maíz, avena, frijol, arroz, y salvado. Estos productos se pueden encontrar en pan integral, cereales, atoles y tortillas. Reduzca el consumo de pan blanco, y pan dulce.



Reduzca el consumo de grasas.

Qué comidas tienen grasa? Grasas puras como manteca, crisco y aceite. Productos lacteos entera, nieve y quesos, carnes, pasteles y pastelillos, comidas fritas y procesadas como bolonia, salchichas, y queso americano contienen altos niveles de grasa.

Al reducir el consumo de estas comidas usted reducirá el riesgo de cáncer de los senos, intestino y próstata. El no comer grasas también le ayudará a perder peso

Modere el consumo de bebidas alcohólicas.

Personas que consumen mucho alcohol, especialmente aquellas que fuman o mastican tabaco, se encuentran en mayor riesgo de contraer cáncer de la boca, laringe y esófago.

El abuso del alcohol también resulta en cirrosis del hígado que en algunos casos conduce a cáncer del hígado.

AMERICAN CANCER SOCIETY® CALIFORNIA

SANTA CLARA COUNTY UNIT

NUTRICION Y CANCER: CAUSAS Y PREVENCION

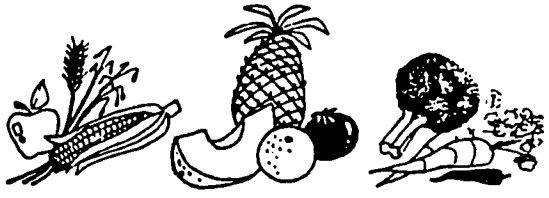
Algunas Caracteristicas de la Dieta Hispana

Que alimentos come usted que peuden ayudar a desarrollar cancer? Que alimentos come que pueden evitar que este se desarrolle? Ideas o sugerencias de la American Cancer Society para una dieta mas saludable so las siguientes:

COMA SIEMPRE...

1. Coma siempre muchas vegetales y frutas frescas, especialmente las que sean altas en vitaminas A y C como: los duraznos, chiles pimeto verde o rodojos, brocoli, melon amarillo, zanahorias, toda clase de chiles o ajies, naranjas, mangos, papayas y tomates.

2. Es tan muy bueno incluir vegetales y frutas altas en fibra en la dieta diariamente tal como: papas con cascara, espinacas, pepinos, y aguacates (en cantidad limitada pues contienen muchas calories). Los frijoles o porotos son tambien altos en fibra.



3. Aves y pescado pues son mas bajos en grasa que las carnes rojas.

COMA MAS DE...

1. Repollo y deribados de la familia de este: como brocoli, repollitos de brucelas repollo, coliflor, verdolaga, kohlrabi, mostaza y toda clase de vegetales verdes. Se cree que estos vegetales nos dan extra proteccion contra el cancer y ademas nos proveen fibra y muchas vitaminas.

2. Alimentos hechos con granos integrales como: tortillas de trigo integral, pan de centeno, cebada, y avena.

COMA MENOS DE...

1. Grasas, especialmente manteca. Trate de reducir lo posible las grasas cuando cocina. Ejemplo: en vez que freir las tortillas hagalas al horno si las quiere endurecer o pongalas en salsa si las quiere hablandar. Si hace frijoles refritos pongales una minima cantidad de aceite vegetal. Use cortes de carne de puerco y res menos grasosos, coma pocos embutidos como chorizos. Use leche con poco grasa ("low fat") o leche sin ella y ponga cantidades limitadas de queso en sus platillos. Alimentos herbidos, a la parrilla o al vapor son siempre mas saludables que fritos.

2. Comida comprada al paso como las hamburguesas, tacos, y papas fritas. Casi por lo general estos alimentos son altos en grasa.

3. Limite la cantitdad de bebidas alcoholicas.

EL JUEGO DE MENOS RIESGO DE CANCER

1. Marque 3 clases de alimentos que podrian REDUCIR el riesgo de obtener cancer si lo comes con frequencia.

altos en fibra — productos lacteos — familia de repollo y vegetales

frutas y vegetales altas en vitaminas A y C — alimentos altos en grasa

2. Marque 2 clases de alimentos que pueden AUMENTA el riesgo de cancer si lo comes con frequencia.

alimentos altos en grasa — alimentos altos en fibra

alimentos con mucha azucar — bebidas alcoholicas

3. Marque los 2 alimentos mas alto en Vitamina A.


espinaca


ejotes


melón


hongos

4. Marque los 2 alimentos mas alto en Vitamina C.


naranja


manzana


brócoli


pera

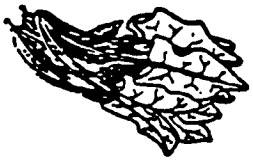
5. Marque 3 alimentos de la familia del repollo.


brócoli


coliflor


tomates


ejotes

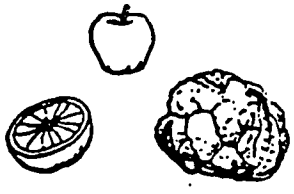

verduras frescas

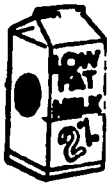
6. Escribe cuantas veces a la semana come Ud. alimentos de la familia del repollo. _____

7. Marque 2 alimentos altos en fibra.

pan integral

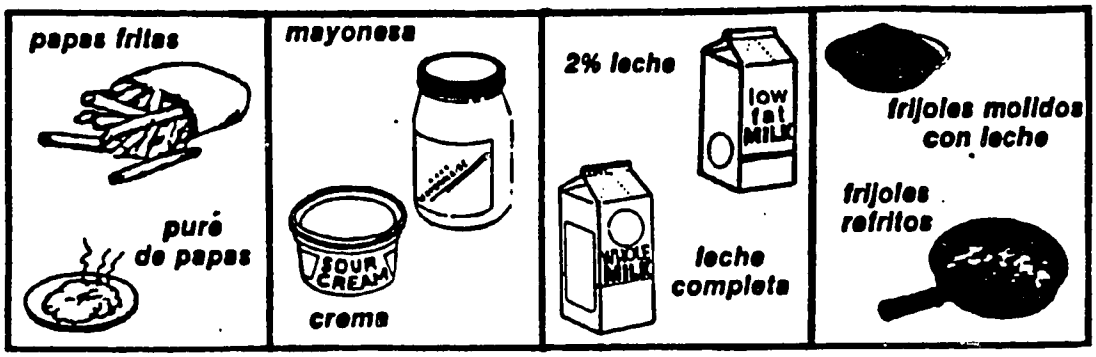

pollo asado


frutas y vegetales



leche con poca grasa

8. En cada cuadro marque el alimento mas bajo en grasa (por porcion).



9. ¿Saca usted la grasa de la carne o el pollo antes de prepararlo? Marque: Si No

10. Marque un metodo a que le va a poner mas grasa en su comida.

horneados fritas a la parrilla

sofritos o fritas rapidamente cocidos

11. Marque la bebida que menos podria darle chance a desarrollar cancer.

leche con poca grasa jugos de fruta bebidas alcoholicas

Ahora chequee sus repuestas con la educadora en nutricion y cuente cuantas de las 22 respuestas tuvo correctas. ¿Cuantas?_____

¿Creé usted que quiera aprender mas acera de la dieta nutricional que podria evitarle algo mas el riesgo del cancer? Escribe los canbios que usted le gustaria hacer en su dieta en reducir su reisgo de cancer.

AMERICAN CANCER SOCIETY®
SANTA CLARA COUNTY UNIT

APPENDIX H

Vietnamese Educational Materials

Speaker's outline

American Cancer Society Dietary Recommendations

"Nutrition and cancer : Cause and prevention"

Cancer risk reduction game

VIETNAMESE SPEAKER'S OUTLINE

Please include the following information during your lessons. Add the comments where you feel they fit. You may want to put the ideas into your own words, just be sure that all the concepts are communicated.

Lesson #1- Introduction to Nutrition

During discussion of "How Food Affects You," add:

"What you eat may actually increase or decrease your chances of getting cancer. Eating lots of vegetables, fruits, and foods that are high in fiber, and avoiding fatty foods may reduce your risk of cancer. Eating lots of fatty foods and drinking alcoholic beverages may increase your risk of getting cancer. Cancer takes years to develop, and eating a healthy diet now helps to lower your chances of getting cancer later."

Teaching aid- Vietnamese Diet Tips.

Lesson #2- Milk Group

During discussion of dairy products, emphasize use of low-fat and non-fat milk products, and recommend limited use of condensed milk, cream, and ice cream. Add:

"Remember, eating lots of fatty foods may increase your chances of getting cancer. Cream, condensed milk, and especially ice cream, are fatty milk group foods. It's okay to eat them sometimes or in small amounts, but try to use milk products that are low in fat more often, such as

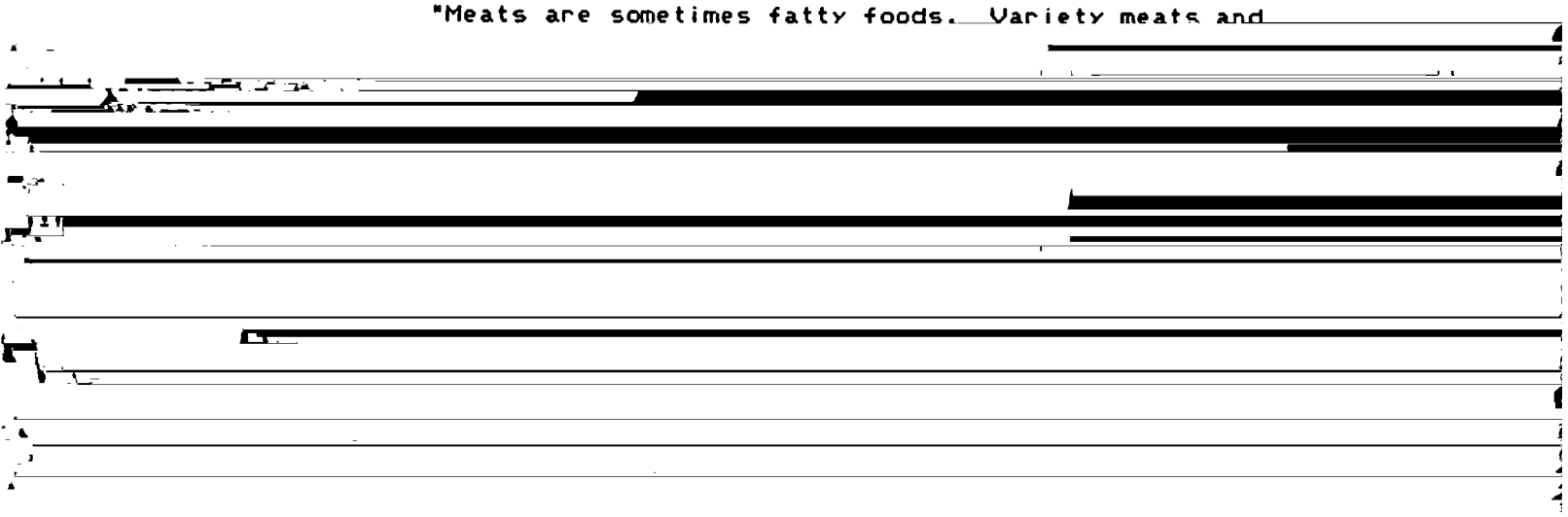
low-fat or non-fat milk, low-fat yogurt, and non-fat (skim) evaporated milk."

Teaching aid- ACS approved milk-group recipes

Lesson #4- Meat Group (second session)

During discussion of meat grades, emphasize use of low-fat meat cuts. Add:

"Meats are sometimes fatty foods. Variety meats and



may increase your risk of getting cancer, you should try to eat only small amounts of these meats. Pork and beef can also high in fat. Try reducing the amount of of these meats that you use in recipes. Eat lean meats, poultry, and fish more often."

During discussion of best buys, add:

"You don't have to buy expensive foods to eat a healthy diet. You can lower your chances of getting cancer by eating beans, which are not only a good source of protein, but are also very high in fiber. High fiber foods may reduce your risk of getting certain cancers."

During discussion of meat cookery, add:

"Frying meat adds fat to the dish. Fried foods are fatty foods. Eating lots of fried dishes may increase your chances of getting cancer. Baked, broiled, steamed, and stir-fried meats are less fatty."

Vitamins A and C, add:

"Fruits and vegetables high in Vitamins A and C are also believed to help lower your risk of getting cancer. And another type of vegetable that may lower your chances of getting cancer are cabbage-family vegetables, such as broccoli, brussels sprouts, cabbage, cauliflower, kale, and radishes. Many of these vegetables are also high in vitamins A and C. Try to eat cabbage-family vegetables three times each week.

All fruits and vegetables have the added benefit that they contain fiber, another factor that may help to reduce your chances of getting cancer."

Teaching aids- ACS approved recipes and ACS fruits and vegetables poster

Lesson #7- Breads and Cereals Group

During discussion of breads and cereals, emphasize use of whole-grain breads, and cereals. Add:

"Remember, foods high in fiber may lower your chances of getting cancer. Try to eat more whole-wheat bread instead of white bread, and try to eat only small amounts of cakes and pastries. Many breakfast cereals are high in fiber also."

Teaching aids- ACS "Playing the Cancer Risk Reduction Game" handout (to be done as "homework" and collected at the next lesson) and ACS approved recipes

Lesson #8 - Fat, Sugar, Alcohol, and Sodium

During discussion on fat, add:

"A diet high in fat may increase your risk of getting cancer. Try to reduce the amount of butter and margarine that you add to foods. Also limit the amount of fat you use in cooking, including vegetable oil. Avoid frying foods, because this adds extra fat to the dish- try baking, broiling, steaming, or stir-frying instead. Also, take-out foods, such as hamburgers and french fries are very high in fat. These foods should be eaten only occasionally. Reducing the amount of fatty foods you eat may lower your chances of getting cancer."

During discussion of alcohol, add:

"Drinking alcoholic beverages, especially several drinks each day, increases your chances of getting cancer. Try to drink alcoholic beverages only occasionally."

LOẠI RAU HÌNH

bắp, cải bông, cải hoa, và củ cải trong việc t vài cuộc nghiên cứu c ăn các rau hình chữ oại rau cải có thể làm ung thư, đặc biệt tại tiêu hóa (bao tử, ruột) ô hấp.

DÙNG RƯỢU VỪA DỪ.

Những người uống nhiều rượu, đã biết những người vừa uống rượu hút thuốc lá hay nhai thuốc lá thường rất dễ mắc bệnh ung thư đầu hầu và cuống họng. Dùng rư quá độ có thể gây ra bệnh gan và từ đó dẫn tới ung thư gan.

AMERICAN CANCER SOCIETY
SANTA CLARA COUNTY UNIT

DINH DƯỠNG VÀ UNG THƯ: NGUYÊN NHÂN VÀ ĐỀ PHÒNG

Chỉ Mách Cách Ăn Uống Cho Người Việt

Loại đồ ăn nào có thể giúp các bạn giảm thiểu nguy cơ mắc bệnh ung thư? Loại đồ ăn nào có thể làm gia tăng nguy cơ mắc bệnh ung thư? Các lời chỉ mách của Hội Bài Trừ Ung Thư Hoa Kỳ về phương pháp ẩm thực lành mạnh bao gồm:

HÃY ĂN ...

1. Thật nhiều rau và trái cây tươi, nhất là những rau trái có nhiều sinh tố A và C như mơ, mướp dắng, carambola, bí ngô, cà-rốt, ngó sen, soài, cam, đu đủ, ớt ngọt và ớt cay, spinach, dâu tây, và bầu. Rau trái nhiều chất fiber cũng rất tốt như táo, chuối, dâu, dừa (vừa dủ thôi vì cũng chứa rất nhiều chất béo), xả ớt, mã đề, và dưa hấu.

2. Các loại rau cải như cải hoa, giá Brussel, cải bắp, cải bông, cải quăn, củ cải, cải dắng và củ cải trắng, củ ra-đi, và cải xoong. Những loại rau này có thể có đặc tính ngăn ngừa ung thư thêm vào số lượng rồi rào về sinh tố và fiber.

3. Thật nhiều gà vịt và cá, những thứ này ít chất béo hơn loại thịt đỏ.

ĂN THÊM ...

1. Đậu như đậu trắng, đậu lăng, đậu xanh và đậu nành, những thứ đậu này có nhiều chất fiber. Những sản phẩm làm bằng đậu như đậu phụ, sữa đậu nành, và mì không chứa nhiều chất fiber.

2. Bánh mì làm bằng lúa mì và các cốc loại (cereals) nguyên hạt trong bữa điểm tâm thay vì bánh mì Pháp và bánh ngọt dủ loại để tăng thêm chất fiber.

ĂN ÍT ...

1. Mỡ, đặc biệt đồ chiên. Nên nướng, hấp, hay xào sơ đồ ăn với chút dĩnh mỏ thay vì chiên rán ngập mỡ. Dùng thịt bò hay thịt heo nạc trong các món ăn nếu có thể và dùng thật ít lòng bò, lòng heo. Dùng sữa không béo hay ít béo thay vì dùng kem, sữa đặc (thêm đường vào loại sữa không chất béo hoặc đã hớt hết chất kem như món thay thế) hoặc nước cốt dừa.

2. Những đồ ăn mang đi tại các tiệm ăn fast food như hamburger và khoai chiên. Những đồ ăn này thường rất nhiều chất béo.

3. Hạn chế số lượng rượu tiêu thụ.

TRÒ ĐỐ VUI "GIẢM NGUY CƠ UNG THƯ"

1. Khoanh tròn 3 loại đồ ăn giúp giảm bớt nguy cơ mắc bệnh ung thư:
   - đồ ăn có nhiều chất fiber
   - sản phẩm làm bằng sữa
   - các loại rau cải
   - các loại rau trái nhiều sinh tố A và C
   - các đồ ăn béo

2. Khoanh tròn 2 loại đồ ăn làm gia tăng nguy cơ mắc bệnh ung thư:
   - đồ ăn béo
   - đồ ăn nhiều chất fiber
   - đồ ăn có đường
   - các loại rượu

3. Khoanh tròn 2 loại đồ ăn có sinh tố A cao nhất.


(Rau dền)


(Các loại đậu trái tươi)


(Trái Cantaloupe)


(Nấm rơm)

4. Khoanh tròn 2 loại đồ ăn có sinh tố C cao nhất.


(Cam)


(Táo)


(Bông cải xanh)


(Xá-lí)

5. Khoanh tròn 3 loại rau cải.


(Bông cải xanh)


(Bắp cải bông trắng)


(Cà chua tươi)


(Các loại đậu trái tươi)


(Rau Dền)

6. Viết tổng số lần ban ăn rau cải trong mỗi tuần _____.

7. Khoanh tròn 2 loại đồ ăn có fiber cao nhất.

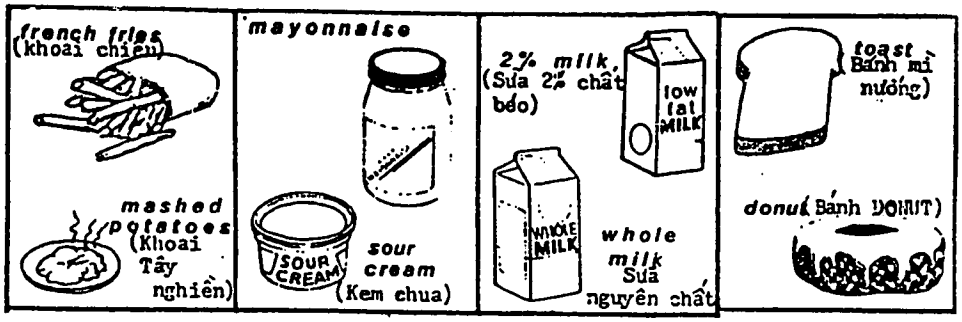
bánh-mì toàn mạch

Thịt gà nướng

trái cây và rau cải

Sữa ít chất béo

8. Trong hai loại đồ ăn, khoanh tròn món nào mà chất béo thấp nhất.



9. Bạn có thường cắt lọc mỡ thịt và thịt gà trước khi nấu không?
   Khoanh tròn: Có Không

10. Khoanh tròn cách nấu nào làm đồ ăn có thêm chất mỡ:
   - nướng
   - chiên ngập mỡ
   - nướng thật nóng
   - xào sơ
   - luộc

11. Khoanh tròn tên một thứ đồ uống cần hạn chế để giảm thiểu nguy cơ mắc bệnh ung thư:
   - sữa ít chất béo
   - nước cốt trái cây
   - rượu

So lại các câu giải đáp với Cán Sự Phụ Tá về Giáo Dục Dinh Dưỡng và đếm số điểm của bạn trên tổng số 22 điểm. Bao nhiêu điểm _____

Bạn có nghĩ rằng bạn cần học thêm về dinh dưỡng và cách ngăn ngừa ung thư không? Hãy viết ra những điều mà bạn muốn thay đổi cách ăm thức của bạn để giảm thiểu nguy cơ mắc ung thư.

AMERICAN CANCER SOCIETY