

DIETARY PATTERNS AND NUTRIENT INTAKE  
OF ASIAN/INDIAN AMERICAN TEENAGERS  
IN KANSAS CITY

by

Vinita Chaudhry  
B.S., Lady Irwin College, 1974

Submitted to the Department of Dietetics  
and Nutrition and the Faculty of the  
Graduate School of the University of  
Kansas in partial fulfillment of the  
requirements for the degree of Master  
of Science.

Redacted Signature

\_\_\_\_\_  
Professor in Charge

Redacted Signature

\_\_\_\_\_  
Redacted Signature

\_\_\_\_\_  
Redacted Signature

\_\_\_\_\_  
Committee Members

Redacted Signature

\_\_\_\_\_  
For the Department

June 7, 1984

\_\_\_\_\_  
Date Thesis Accepted

## ABSTRACT

This study was conducted in the Kansas City metropolitan area (1) to investigate food habits and dietary intakes of 25 female and 25 male Asian/Indian American adolescents; (2) to determine if food consumption patterns tended to be influenced by the cultural heritage of the Indian-born parents, and/or peers from different ethnic backgrounds; and (3) to ascertain if energy and nutrient intakes of these adolescents revealed problem areas similar to those reported for other American adolescents. Data obtained from a demographic check sheet provided socioeconomic information used to describe the sample. The Missouri Nutrition Survey was utilized for collection of data pertaining to Kcal (energy) and nutrient intake. Adequacy of the diet was evaluated through comparison with the 1980 Recommended Dietary Allowances. Intake of Kcal (energy) or a nutrient of less than 67% of the RDA was judged to be inadequate. Significant differences were found between girls and boys with respect to educational level attained. The boys were more highly educated. Frequency of consumption of 15 typically Asian/Indian foods was identified as "intensive" usage (eaten on a daily or weekly basis) and "less intensive" usage (eaten on a monthly or yearly basis). Chapati, dhal, aloo masala, and lemon pickle were used intensively by 60% or more of both girls and boys. Evaluation of dietary intake showed the most notable inadequacies for females were for iron by 24%, calcium by 16%, and Kcal (energy) by 16%. A

less than adequate intake for males was shown for iron by 24%. All female and male subjects had intakes of vitamin C in excess of 100% of the RDA. All of the females and 88% of the males had vitamin A intakes in excess of 100% of the RDA. Food habits and food choices of teenagers in this investigation tended to reflect a "mix" of several factors: contact with the mainstream of American society and accompanying lifestyles, the influence of the cultural heritage of the Indian-born parents, and interaction with peers. Dietary inadequacies were similar, in some instances, to those reported in earlier studies.

## ACKNOWLEDGMENTS

I wish to express my sincere appreciation to my advisor, Dr. Mary Lou Day, for her continual support, guidance, and motivation throughout this project. The assistance provided by Dr. Kenneth B. Gerald, Department of Biometry, in statistical analysis of the data is gratefully acknowledged.

I am very grateful to the staff of the Human Nutrition Laboratory at Lincoln University for the analysis of the diet histories. My thanks go to all of the Asian/Indian teenagers for their gracious hospitality and for their willingness to participate in this research.

I am especially grateful to my husband, Pankaj Chaudhry, and my daughter Sonia, and son Rajeev for their continual support, love, and patience which made the completion of this study less difficult.

## TABLE OF CONTENTS

	Page
ABSTRACT . . . . .	i
ACKNOWLEDGMENTS . . . . .	iii
TABLE OF CONTENTS . . . . .	iv
LIST OF TABLES . . . . .	vii
 Chapter	
I. INTRODUCTION . . . . .	1
Purpose . . . . .	3
Definitions . . . . .	3
II. REVIEW OF LITERATURE . . . . .	6
Nutrient Needs During Adolescence . . . . .	6
Nutrient Intake and Food Habits of Adolescents in the United States . . . . .	9
Dietary Studies . . . . .	9
Other Related Studies . . . . .	15
Adolescents -- A Nutritionally Vulnerable Group . . . . .	20
III. METHODS AND MATERIALS . . . . .	21
Sample . . . . .	21
Measuring Instruments . . . . .	22
Demographic Check Sheet . . . . .	22
Supplementary Dietary Form . . . . .	23
Missouri Nutrition Survey . . . . .	24
Collection of Data . . . . .	24

	Page
Analysis of Data . . . . .	25
Limitations of the Study . . . . .	27
IV. RESULTS AND DISCUSSION . . . . .	28
Section 1 -- Demographic Data . . . . .	28
Adolescent Subjects . . . . .	33
Parents of the Adolescents . . . . .	34
Section 2 -- Supplementary Dietary Information and Frequency of Consumption .	37
Food Likes and Dislikes . . . . .	37
Snacking Patterns . . . . .	41
Factors Influencing Food Habits . . . . .	42
Nutritional Supplement Usage . . . . .	45
Frequency of Consumption of 15 Typically Asian/Indian Foods . . . . .	45
Section 3 -- Kcal (energy) and Nutrient Intake . . . . .	52
V. SUMMARY AND CONCLUSIONS . . . . .	60
LITERATURE CITED . . . . .	65
APPENDICES . . . . .	69
A. Demographic Check Sheet . . . . .	70
B. Supplementary Dietary Form . . . . .	75
C. Missouri Nutrition Survey and Instructions for Scoring . . . . .	79
D. Kcal (Energy) and Nutrient Content Per 100 Gram Portion of Typically Asian/Indian Foods . . . . .	102
E. Human Consent Form . . . . .	104
F. Birthplace of Subjects . . . . .	106

	Page
G. Chi-Square Contingency Tables and Fisher's Exact Test Table for Demographic Check Sheet . . . . .	108
H. Fisher's Exact Test Tables and Chi-Square Contingency Table for Nutrient Intake Data . . . . .	112
I. Frequency of Consumption of 15 Typically Asian/Indian Foods Expressed as Percentages and Numbers for Females . . .	115
J. Frequency of Consumption of 15 Typically Asian/Indian Foods Expressed as Percentages and Numbers for Males . . . .	117
K. Kcal (Energy) and Nutrient Intake Data for Individual Female Subjects . . . . .	119
L. Kcal (Energy) and Nutrient Intake Data for Individual Male Subjects . . . . .	121
M. % RDA Kcal (Energy) and Nutrient Intake for Individual Female Subjects. . . . .	123
N. % RDA Kcal (Energy) and Nutrient Intake for Individual Male Subjects . . . . .	125

LIST OF TABLES

TABLE	Page
1. Characteristics of Female Subjects According to Age, Length of Residence, Visits to India, Source of Nutrition Information and Employment Status . . . . .	29
2. Characteristics of Male Subjects According to Age, Length of Residence, Visits to India, Source of Nutrition Information and Employment Status . . . . .	31
3. Characteristics of Parents of Subjects According to Educational Level, Region of Origin, Household Income . . . . .	36
4. Foods and/or Beverages Most Liked and Most Disliked by Female Subjects . . . . .	38
5. Foods and/or Beverages Most Liked and Most Disliked by Male Subjects . . . . .	40
6. Top Five American Snack Foods . . . . .	43
7. Top Five Indian Snack Foods . . . . .	44
8. Nutritional Supplement Usage . . . . .	46
9. Asian/Indian Foods and Major Ingredients . . . . .	48
10. Summary of Usage of 15 Typically Asian/Indian Foods by Females and Males Expressed as Percentages Intensively and Less Intensively Used . . . . .	49
11. Fifteen Typically Asian/Indian Foods Ranked in Descending Order According to Percent of Females Using Them on an Intensive Basis . . . . .	50
12. Fifteen Typically Asian/Indian Foods Ranked in Descending Order According to Percent of Males Using Them on an Intensive Basis . . . . .	51



	Page
13. Mean and Range for Kcal (energy) and Nutrient Intakes from Foods and Beverages and Mean Percent of RDA . . . . .	53
14. Number and Percent of Female Subjects Grouped According to Kcal (Energy) and Nutrient Intake Levels Representing Different Percentages of the 1980 RDA . . . . .	54
15. Number and Percent of Male Subjects Grouped According to Kcal (Energy) and Nutrient Intake Levels Representing Different Percentages of the 1980 RDA . . . . .	55

## Chapter I

### INTRODUCTION

Different nations, social classes, and religious groups have specific preferences and prejudices which influence food choices. Food habits, characteristic of various cultural groups, reflect the ways in which certain foods are culturally defined by that particular group. According to Giffit et al., "the food habits of an individual are the characteristic and repetitive acts that he performs under the impetus of the need to provide himself with nourishment and simultaneously to meet an assortment of social and emotional goals." (1)

Situational factors associated with changes in the environment may be expected to affect food practices in varying degrees. For example, persons migrating to the United States from foreign countries will be living in a drastically different environment. Accommodations and adjustments may be needed as these individuals attempt to adapt to new ways of doing things. Although immigrants may strive to hold on to food habits linked to the country and culture of their origin, over a period of time there is the likelihood that there will be a merging of various aspects of the respective cultures resulting in modifications in food habits.

Food availability plays an important role. A food or food product that might have been readily available in the homeland may not be available in the United States. On the other hand, the

immigrant may find that he has a much wider range of foods from which to choose in his newly adopted land. Consequently, new and different foods will gradually be incorporated into the diet.

Food habits of first generation, American-born adolescents of immigrant families may be influenced by the cultural environment into which they have been born and by adolescent peers. Dietary habits which affect food preferences, energy consumption, and nutrient intake are generally formed early in life. Moreover, likes and dislikes of the individual for specific foods may be closely associated with the symbolic meanings of food. Thus, while family relationships may serve as a primary influence on the eating habits of a child the traditional values and norms of his culture may be intimately involved. The point has been made that:

"Learning food habits begins early since all societies deliberately inculcate their children with culturally determined attitudes and practices concerning food ... A child's tendency to imitate the actions of his elders and his peers reinforces his learning. In American society, peer influence is most noticeable during adolescence because this period of development is characterized by a desire for freedom from parental control."

Giffit et al. (1).

Recognition of the role of culture in the formation of food habits provides a base line for the study and assessment of the nutritional status of populations. An understanding of the impact of sociocultural factors on food acceptance is essential for the development of successful nutrition intervention and education programs.

## PURPOSE

The purposes of this study were:

- (1) to investigate food habits and dietary intake of adolescent sons and daughters of first-generation Asian/Indian immigrants residing in the Kansas City metropolitan area;
- (2) to determine if the food consumption patterns tend to reflect the influence of cultural heritage of the Indian-born parents and/or peers from different ethnic backgrounds;
- (3) to ascertain if Kcal (energy) and nutrient intakes of United States born Asian-Indian American adolescents revealed problem areas similar to those reported for other American adolescents.

## Definitions

The terms "teenagers" and "adolescents" have been used interchangeably throughout this report. According to Pipes, adolescence may be defined as the teenage years between twelve and twenty. (2)

Food habits, as defined by the Committee on Food Habits of the National Research Council, are standardized behaviors regarding food manifested by an individual raised within a given cultural tradition. (3)

Food habits have also been defined as the ways in which

individuals, or groups of individuals, in response to social and cultural pressures, select, consume, and utilize portions of the available food supply. (4)

Food acceptance, according to Schuh et al., is a complex reaction determined by the physiologic, psychologic, biological, social, educational and sensory reactions of individuals who move in a framework of race, religion, tradition, economic status and environmental conditions. (5)

Culture, as defined by Merrill, is the characteristically human product of social interaction; provides socially acceptable patterns for meeting biological and social needs; is cumulative as it is handed down from generation to generation; is meaningful to human beings because of its symbolic quality; is learned by each person in the course of his development; is a basic determinant of personality; and depends for its existence upon the continued functioning of the society but is independent of any individual or group. (6)

Eppright stated that a dietary pattern refers to a variety of foods consumed, but not to quantity. (7)

A snack has been defined as a food or beverage consumed between regular meals. (8)

"Recommended Dietary Allowances (RDA) are the levels of intake of essential nutrients considered, in the judgment of the Committee on Dietary Allowances of the Food and Nutrition Board on the basis of available scientific knowledge, to be adequate to meet

the known nutritional needs of practically all healthy persons".

(9)

## Chapter II

### REVIEW OF LITERATURE

Considerable research has been conducted on food habits and nutrient intakes of various ethnic groups both within the United States and abroad. Results of investigations of different age groups have been reported in the literature. No attempt has been made to review all such studies. The target population for this investigation consisted of native-born American teenagers who were sons and daughters of first generation Asian-Indian immigrants. Consequently, the major focus in the literature review has been on nutrient needs, dietary intake, and food habits of adolescents in the United States.

#### Nutrient Needs During Adolescence

Adolescence is the only period of life, after birth, in which the velocity of growth accelerates. (2) Acceleration of growth is accompanied by a variety of physical, hormonal, emotional, and cognitive changes. (10) Nutrient requirements increase to support the expansion of body mass, and the need is especially high for protein, minerals, and vitamins essential to cell proliferation. (10)

Nutrient requirements during this age span are dependent on the timing and amount of growth, physical activity, and other factors in body development and maintenance. Girls, on the average,

enter puberty approximately two years before boys, have a slightly smaller increment in height during adolescence, and attain terminal growth sooner. (11) Boys have a longer period of childhood growth and enter puberty taller, gain slightly more height over a longer period of time, and are taller as an adult.

The age of maximum growth or peak height velocity tends to be two years after onset of adolescent growth, or at averages of twelve years in girls and fourteen years in boys. The most rapid phase of adolescent growth is known as the growth spurt and the highest point is called the peak. (2) Thus, the time of greatest nutritional need for a given boy or girl is determined by the time at which the growth spurt occurs. (12)

In the United States nutritional needs are usually expressed in terms of the Recommended Dietary Allowances (RDA) of the Food and Nutrition Board of the National Research Council. The allowances are levels of the caloric and essential nutrient intakes which, in the judgment of the Food and Nutrition Board, are considered to be adequate to meet the known nutritional needs of almost every healthy person of the age and sex under consideration. (9)

The customary use of chronological age as a basis for determining allowances is unsatisfactory during this stage of development. In the RDA tables age groups have been divided on the basis of 11 to 14 years, representative of junior high school, and 15 to 18 years, representative of senior high school. (13) This is an arbitrary division and each group includes individuals at different stages of development. Few studies have been done



on the nutrient requirements of adolescents. (13) Nutritional requirements differ among individuals and from time to time for a given individual. The age-weight-sex groups in the table of allowances are based on the knowledge that requirements for most nutrients vary with body size, sex, and physiological state. Some are further influenced by level of activity and by the environment in which an individual lives. (9)

The allowances for calories are based on the lowest value thought desirable for optimal health. Caloric requirements are linked to age and weight with adjustment for activity and climate. The proposed allowances recognize that there are increased caloric needs once maturation has been reached. Caloric intakes for individual children should be adjusted to their stage of growth, size, and degree of activity to maintain a desirable body weight. (9)

The allowance for protein is calculated from information on growth rates and body composition. Thus, for an average-sized boy the allowance at 11 to 14 years is 45 grams and at 15 to 18 years, 56 grams; for girls, 46 grams for both age groups. (9)

The allowances for vitamin D and vitamin A, for which there is a need for studies to establish requirements, remain at 400 I.U. (10 ug) and 5,000 I.U. (1,000 ug RE) respectively for males through adolescence, but for the females the allowance for vitamin A has been reduced to 4,000 I.U. (800 ug RE). The RDA for vitamin C for children is 60 mg/day, an amount recommended as adequate to meet individual needs and to provide a margin of safety.

Niacin, thiamin, and riboflavin RDAs are related to the caloric allowances. (9)

The calcium allowance for adolescents of both sexes is 1,200 mg/day for the 11 to 14 and 15 to 18 year-olds in the 1980 publication. The RDA for iron has been set at 18 mg/day for males during the years of rapid growth, primarily because of the marked increase in muscle mass which requires greater blood volume. (2) The needs for iron by the adolescent girl is less for increase in lean body tissue but greater for replacement of menstrual losses, and the RDA of 18 mg continues throughout the reproductive years of the woman. Since most diets in the United States contain approximately 6 mg of iron per 1,000 Kcal, the RDA is unlikely to be reached even with extremely careful selection of foods on intakes of 2,100 to 2,400 Kcal (energy). (10)

### Nutrient Intakes and Food Habits of Adolescents in the United States

#### Dietary Studies

Studies of nutrient content of the diets of 421 adolescent boys and girls, age 13 to 18, by Wharton in Illinois, and of 122 adolescent boys and girls by Huenemann et al. in California revealed less than adequate intakes of vitamin A, vitamin C, calcium, and iron for many subjects. Two-thirds of the RDA was the cutoff point. (14,15)

Hampton et al. investigated the caloric and nutrient intakes of 122 teenage boys and girls in Berkeley, California. Thirty-one white boys and 45 white girls, 20 black boys and 26 black girls

participated in the study. From the standpoint of mean nutrient intake levels and percentage of subjects having intakes below two-thirds of the RDA, the most neglected nutrients were calcium and iron particularly for girls. Negro subjects and those in the lower socioeconomic group tended to have lower intakes of nutrients than did other boys and girls. (16)

Schorr et al. reported that 118 teenagers who participated in a study conducted in western New York state liked a wide variety of foods. The investigators felt that possibly these subjects, 54 males and 64 females, would consume nutritionally adequate diets by selecting only popular foods. However, when the nutrient intakes were calculated, findings revealed that the percentages of subjects consuming less than two-thirds of the RDA for ascorbic acid, calcium, vitamin A, and iron were 21, 44, 51, and 60 percent respectively. (17)

Data collected in the Ten-State Nutrition Survey indicated that adolescents in the 15 to 16 year age bracket had the highest evidence of unsatisfactory nutritional status of any of the age groups surveyed. Diet records showed that a large percentage of the 15 to 16 year-olds had intakes below two-thirds of the RDA for calcium, iron, and vitamin A. Blacks generally had lower levels of intake than did white subjects, and Spanish Americans appeared to be at a greater risk. (18)

Duyff et al. studied food habits of 75 teenage girls from the Puerto Rican community in Chicago. Nutritional adequacy, dietary diversity, frequency of consumption of foods, nutrition

knowledge, and socioeconomic factors were assessed. The consumption of traditional ethnic foods made significant contributions to the diet with substantial amounts of vitamin C, calcium, and iron being provided. Typical United States' patterns of consumption also emerged, such as intake of low-nutritive, high-calorie snack foods. Subjects with more adequate diets exhibited a greater knowledge of nutrition, were older, and came from homes where the mother did not work. Employed teenagers were reported to have more adequate food intake patterns than teenagers who were not working. (19)

Lee reported on a study of dietary practices of 118 boys and girls in Kentucky. The sample consisted of 34 white boys and 51 white girls, and 12 black boys and 21 black girls. All subjects were in the 12 to 19 year-old age bracket. When levels of nutrient intake were examined for the girls, intakes of less than two-thirds of the RDA were found for iron and calcium by 75 percent, for vitamin A by 70 percent, and for vitamin C by 50 percent. Of the boys, approximately 50 percent had iron, vitamin C, and vitamin A intakes below two-thirds of the RDA. (20)

Gregar et al. investigated nutrient intakes of 178 adolescent girls living in Indiana. Intakes of less than two-thirds of the RDA were reported for iron, calcium, vitamin A, and ascorbic acid by 50, 35, 42, and 26 percent of the subjects respectively. (21)

Haider and Wheeler studied the nutrient intakes of 75 black and 75 Hispanic teenage girls in Brooklyn, New York. All subjects were in the 13 to 19 year-old age group. Analysis of the diet

records showed intakes of less than two-thirds of the RDA for these subjects for all nutrients with the exception of protein and ascorbic acid. (22)

The dietary intakes of children from 250 low income black families in Claiborne County in southwestern Mississippi were investigated by Koh and Caples. Boys and girls from 11 to 18 years old were the subjects. Adequacy of the nutrient intakes was evaluated by comparing the data with the 1974 RDA. Mean intakes for protein, vitamin A, thiamin, riboflavin, and ascorbic acid for all subjects exceeded two-thirds of the RDA, while those for energy, calcium, and iron were below two-thirds of the recommended allowances. Sixty percent of the children had calcium intakes below two-thirds of the RDA. (23)

Gaines and Daniel studied the dietary iron intakes of 370 low income adolescents between the ages of 11 to 18 who resided in Jefferson County, Alabama. One-hundred-and-thirty black boys and 188 black girls, 71 white boys and 51 white girls participated. Analysis of the findings revealed that all of the female subjects had mean intakes of less than two-thirds of the RDA for iron, while mean intakes for 11, 12, 13, 15, and 18 year-old boys were below two-thirds of the recommended allowances for this nutrient. The mean intakes of all boys at ages 14, 16, and 17 were 74, 85, and 71 percent of the RDA respectively for iron. (24)

Frank et al. conducted an investigation of the diets of 68 school children, ranging in age from 10 to 16 years, in Franklinton, Louisiana. Forty-nine subjects were black (25 girls and 24 boys),

and 19 were white (11 boys and 8 girls). Comparison of selected nutrients from the intake of each child with the 1974 RDA showed that boys fared better than girls. One-third of the boys ingested less than two-thirds of the RDA for calories, vitamin A, ascorbic acid, iron, calcium, and niacin. Forty-five percent of the girls did not meet two-thirds of the recommended allowances for vitamin A, iron, calcium, ascorbic acid, thiamin, and niacin. Eighty-three percent of the boys and 70 percent of the girls consumed more than 100 percent of their allowances for protein. Riboflavin intakes above 100 percent of the allowances were noted for 69 percent of the boys and 52 percent of the girls. (25)

Brown et al. studied the nutrient intakes and food habits of 278 Rhode Island home economics students, 13 to 14 years of age. The sample consisted of 205 females and 73 males. Data were derived from ten-day dietary records. If a diet contained less than two-thirds (67 percent) of the RDA for a given nutrient, intake was considered less than adequate. The nutrient intakes of males were higher than those of the females for all nutrients except vitamin A and ascorbic acid. None of the females met the allowance for iron, and 61 percent had intakes of less than 50 percent of the RDA. For the males, 36 percent had intakes of iron below 50 percent of the RDA. The average intake of calcium of the males was adequate, however, 17 percent had intakes below two-thirds of the RDA. Fifty-four percent of the females had low intakes of calcium, and 27 percent had intakes below 50 percent of the RDA. Intakes of 51 percent of the females and 57 percent of the males were less than

two-thirds of the RDA for vitamin A. Allowances for protein, riboflavin, and ascorbic acid were met by both males and females. (26)

In a Boston study, Peckos and Ross investigated the nutrient intakes of 150 male and female twin pairs ranging in age from 3 to 17 years. All subjects at all ages met or exceeded two-thirds of the RDA for all nutrients except iron, calcium, and vitamin A. The girls, 11 to 17 years of age, had mean iron intakes 50 percent or more below two-thirds of the RDA. Mean calcium intakes were below two-thirds of the RDA for both sexes, 11 to 17 years of age, with that of girls being considerably lower than that of the boys. (27)

Sprauve and Dobbs investigated the nutrient intakes of a group of adolescents in the eleventh and twelfth grades of two secondary schools in St. Thomas, Virgin Islands of the United States. The sample was composed of 68 subjects, 22 boys and 46 girls, who recorded food intakes for seven consecutive days. Adequacy of intake was based on two-thirds of the 1964 RDA. In general, the diets provided two-thirds or more of the RDA with the exception of calories and calcium. Mean calcium intake of the 22 boys was slightly below two-thirds of the RDA. Low calcium intakes were due to low consumption of milk and milk products. The average caloric intake of the 46 girls was low. Average intakes of both boys and girls exceeded the vitamin A and ascorbic acid allowances. The native soups and mixed dishes contained significant amounts of protective nutrients and did not contribute excessive calories to the diet. Fifty-nine percent of the subjects participated in the

school lunch program. The diets of those taking lunch at school and those taking lunch at home provided approximately the same amount of nutrients with the exception of calcium and vitamin A. Mean intakes of these nutrients were greater for boys eating lunch at school than for boys eating lunch at home. (28)

The Health and Nutrition Examination Survey, conducted from 1971 to 1974, measured nutritional status of 20,749 persons 1 to 74 years of age. Dietary intake was analyzed with reference to age, sex, race, and two income levels identified as below poverty level and above poverty level. The only two racial groups studied were blacks and whites. An intake of a nutrient was described as below standard when it amounted to less than 2/3 of the RDA. (29)

Findings showed iron intake below the standard for 98.4% of the white females and 96.2% of the black females, in the 15 to 17 year age group, at the below poverty income level. Iron intake below the standard was found for 75.2% of the white males and for 86.4% of the black males, in the age range of 15 to 17 years, at the below poverty income level. (30)

#### Other Related Studies

In recent years, irregular eating habits such as between meal snacking, skipping meals, and increased eating away from the home have become a common and accepted part of American family life. The food habits of adolescents seem to reflect this pattern as shown by results of studies conducted in this area.

Snacking is an important part of adolescent food behavior.



A national survey of families with adolescent members showed that 90 percent or more of the 178 girls who participated snacked at least once during the day, over 75 percent in the interval between when school was out and dinner, and more than half snacked after dinner. (21)

In the Ten-State Nutrition Survey (1968-1970), the 15 to 16 year-old age group reported the highest proportion of total calories from between-meal intakes of the groups surveyed. In white male teenagers, in high income states, between-meal foods and beverages provided 20 percent of the calories, 12 percent of the protein, 20 percent of the calcium, 11 percent of the iron, 14 percent of the vitamin A, 13 percent of the thiamin, 17 percent of the riboflavin, and 18 percent of the vitamin C. (18)

Huenemann and co-workers, in a study of 122 male and female junior and senior high school students in California, reported high frequency snacking was part of the adolescent eating pattern. Those individuals who ate regularly structured meals, usually augmented by snacks, tended to have better nutrient intakes than the irregular eaters. Favorite snacks listed in order of popularity of the boys were: cereal, bread, pie, cake, pastry, cookies, soft drinks, milk, fruit, eggs, meat, cheese, ice cream, candy, and potato chips. For the girls, snack foods listed in order of popularity were: pie, cake, pastry, cookies, candy, fruit, cereal, bread, soft drinks, ice cream, milk, eggs, meat, potato chips, and vegetables. (15)

Hampton et al. reported that the 122 teenagers in their study, who ate frequently, tended to have good diets. (16) Brown

et al. studied 278 male and female teenagers and concluded that girls benefited more than boys from snacks. Snacks contributed between 8 and 17 percent of the total daily intake of all nutrients for girls, while for boys snacks contributed an average of 11 percent. (26)

Meal skipping is a common phenomenon with breakfast and lunch appearing to be the most frequently missed meals. (15) School and social activities and part-time jobs may also require the teenager to miss many of the family evening meals. (2) Because of busy schedules during and after school, the teenager may eat sparingly of poor quality foods during the day and then "catch up" on food intake in the late evening hours. (31)

Many young people may skip meals altogether. Bender et al. found that seven percent of the children they studied went to school without breakfast (32), and Lynch indicated that the figure may indeed be as high as one in five in the United Kingdom. (33)

In a study conducted on 68 subjects in the United States, Frank et al. revealed that 24 percent of the school children did not eat breakfast, and that 96 percent of all the children reported eating snacks which, on an average, supplied almost one-quarter of the daily energy intake and apparently replaced a meal for some of the children. (25)

Findings from a study conducted by Hodges and Krehl with 124 girls and 128 boys as subjects showed that many teenagers ate no breakfast, a habit which was associated with low ascorbic acid intake. The evening meal for this group often consisted of only

meat, potatoes, and dessert, although vegetables and salad were available. Results indicated that milk, ice cream, and cheese made substantial contributions to the snack time items favored by the participants. Consumption of dairy products was very high, and the consumption of sugar, as contained in such foods and/or beverages as candy and soft drinks, was also high. (34)

Brown et al. investigated the contribution of breakfast and snacks to the daily calorie and nutrient intakes of 205 females and 73 males. Seventy-five and 63 percent of the males and females, respectively, consumed breakfast every day. Those individuals who ate breakfast daily had diets adequate with respect to all nutrients except iron. The diets of those who missed breakfast were inadequate with respect to energy and iron for both males and females, calcium and thiamin for the females, and vitamin A for the males. In general, the females benefited more from snacks than did the males. Without the snacks the energy intakes, together with calcium and thiamin for the females, and vitamin A for the males, would have been low. (26)

Consumption of franchise fast foods either for meals or snacks has become a way of life for many Americans. (35) This practice is especially popular with busy teenagers. Nutritionists have commented on the receptivity of adolescents to "fast" food, snack type meals. (36,37) According to Greenwood and Richardson, "young people want to seek and develop their own identity and one form of this independence is reflected in the number of meals the adolescents, particularly the older teenager, eats away from home

and outside the school environment". (38)

Fast food items, which tend to feature few fruits and vegetables, may contribute to the low dietary intakes of vitamin C, vitamin A, and folic acid in many adolescents. So-called fast foods also tend to be high in energy, fat, and sodium, and low in fiber, all of which have been implicated in the etiology of degenerative diseases of later life. (38)

Teenagers have rather sharply defined food likes and dislikes. Greenwood and Richardson concluded from their review of studies of adolescents conducted in the United States that the most popular food items include milk, ice cream, steak, roast beef, hamburgers, pork chops, ham, chicken, turkey, orange juice, oranges, apples, French fried potatoes, chips, corn, peas, bread, cake, and pie. There is a reluctance to eat salads, green-leafy vegetables, and casserole dishes. (38) Schorr et al. identified 24 items most liked by 118 teenagers, 54 males and 64 females, in the Cornell University region of New York state. Listed in descending order were soft drinks, milk, steak, hamburgers, pizza, chicken, French fries, ice cream, spaghetti, orange juice, corn, turkey, lobster, candy, roast beef, eggs, ham, shrimp, beer, pie, milk shakes, pork chops, apples, bread, frankfurters, oranges, lasagna, tuna fish, cake, peas, wine, cheese, clams, and cereals. Disliked foods were liver, fish, squash, clams, coffee, spinach, cabbage, and beets. (17)

Adolescents -- A Nutritionally Vulnerable Group

The food habits of many adolescents in the United States today reflect the weakening influence of the parents, increasing social involvement with peers, concern about appearance, and high energy needs. The diversity of cultural and ethnic backgrounds adds yet another dimension.

Although adolescents have been identified as a nutritionally vulnerable group, there is a scarcity of information regarding their nutritional status. In Community Nutrition in Preventive Health Care Services the following statement is written: "Compared to other age groups there is limited data on the nutritional status of adolescents. The studies that have been conducted have found inadequate calcium, iron, vitamin C, and vitamin A consumption as well as anemia and lack of physical activity". (39)

No reports of investigations of food habits and nutrient intakes of Asian/Indian American teenagers were found in the literature.

## CHAPTER III

### METHODS AND MATERIALS

Asian-Indian/American adolescents residing in the greater Kansas City metropolitan area were the subjects of this study of food habits and dietary intakes in the fall of 1982. Food habits and dietary intakes were investigated through determinations of 1) frequency of consumption of foods listed in the Missouri Nutrition Survey which focuses on representative foods in the American diet, and 2) frequency of consumption of 15 typically Asian/Indian foods specially selected for inclusion in this study. Additional information relevant to food likes and dislikes and snacking patterns was also obtained. Of particular interest was the extent to which food consumption patterns of the subjects might tend to reflect the influence of the cultural heritage of the parents, all of whom were born in India, and/or the influence of interaction with peers who came from different ethnic backgrounds than the adolescent subjects.

#### Sample

The sample consisted of 25 females and 25 males, 15 to 18 years of age, who were first generation American-born children of Asian/Indian immigrants. All of the participants had lived in the United States since birth. The adolescents were selected from approximately 300 Asian/Indian families residing in the Kansas City

area. Prospective subjects were contacted by telephone or in person by the investigator, who was trained at the Master's degree level. Each teenager who agreed to participate signed the human consent form (Appendix E).

### Measuring Instruments

Instruments used for collection of data consisted of:

1) a Demographic Check Sheet (Appendix A) constructed to solicit socioeconomic and other pertinent information about subjects and parents;

2) a Supplementary Dietary Form (Appendix B) developed to procure information related to food likes and dislikes, snacking patterns, food supplement usage, and factors influencing food habits, and to determine frequency of consumption of 15 typically Asian/Indian dishes;

and

3) the Missouri Nutrition Survey (Appendix C) designed to collect food and nutrient intake data based on frequency of consumption of selected foods and beverages.

The Demographic Check Sheet consists of two sections, one for responses of the adolescent subjects (Section A), and the other for responses of parents of the adolescents (Section B). Both sections contain items related to selected sociological and other variables. Section A, answered by the adolescents, solicited information concerning birthplace, age, sex, length of residence in Kansas City, visits to India, education, source of

nutrition information, and employment status. Section B, answered by parents of the subjects, provided information regarding educational attainment of father and mother, income level of the family, and region of origin in India of father and mother.

The two-part Supplementary Dietary Form was designed to obtain information related to food habits and to determine frequency of consumption and serving size of 15 typically Asian/Indian foods by the teenage subjects. Open-ended response questions were included in Part 1 of the Supplementary Dietary Form to solicit information relevant to food likes and dislikes, snacking patterns, food supplement usage, and factors influencing food habits. Part 2 of the form consists of a specially constructed food record for determining frequency of consumption of the 15 typically Asian/Indian foods which were chapati, pakora, samosa, murch mussalam, palak paneer, sheek kebab, dhal, mutton korma, aloo masala, raita, pillau, fresh mint chutney, burtha, kabli channa, and lemon pickle. All were selected by the investigator and Mrs. Rebekah Mani, M.S.,R.D., both of whom were born in India. Ingredients for the dishes were readily available in supermarkets or Indian specialty stores in the Kansas City metropolitan area at the time of the study. Since the Missouri Nutrition Survey form did not list any Asian/Indian foods the investigator prepared the recipe, determined yield, and calculated Kcal (energy) and nutrient content for 100 gram portions of each of the 15 Asian/Indian dishes listed on the Supplementary Dietary Form (Appendix D). References used for calculation of Kcal (energy) and nutrient values were Nutritive



Value of Indian Foods by Gopalan et al. (40), and Nutritive Value of American Foods in Common Units, Agriculture Handbook No. 456.

(41) A Ohaus dietetic scale was used to insure accuracy in weight of ingredients and in final yields. Values obtained for Kcal (energy), protein, calcium, phosphorus, iron, vitamin A, thiamin, riboflavin, niacin (preformed), and vitamin C were sent to Lincoln University and incorporated into the computer program used for analysis of nutrient intake for foods listed in the Missouri Nutrition Survey.

The Missouri Nutrition Survey, which was used to collect and evaluate nutrient intake data, was developed at Iowa State University and later modified for use by the Human Nutrition Laboratory at Lincoln University, Jefferson City, Missouri.

(42,43) The instrument, which had been tested and proved reliable in earlier studies, contains a comprehensive series of questions related to kinds and amounts of foods consumed and frequency of consumption on a per day, per week, per month, or per year basis.

(43,44,45) The survey form was precoded for computer analysis.

All of the measuring instruments were pretested in interviews with three teenagers, 15 to 18 years of age, to evaluate time required for administration and effectiveness in obtaining data needed for the study.

#### Collection of Data

The investigator collected data through a prearranged individual interview conducted in the home of each subject. Partic-

ipants from the same family were interviewed separately and were not permitted to discuss content of the measuring instruments until interviews for both teenagers had been completed. Information related to parents was obtained directly from the parents. Graduated polyurethane food models were shown to the subjects to facilitate accuracy in estimation of serving sizes of foods ingested. Responses of the participants to items on the Missouri Nutrition Survey were coded on the dietary form by the investigator, who also recorded answers to the other items contained in the measuring instruments.

#### Analysis of Data

At the conclusion of each interview the data collection forms were reviewed by the investigator for accuracy and completeness. After all data had been collected, coding was carried out and the MNS forms were sent to Lincoln University for computer analysis.

Answers to items on the Demographic Check Sheet, which pertained to sociological and other variables, provided a description of the sample in number and percent information and were subsequently used in the statistical analysis of data.

Frequencies were tabulated for answers to questions in the Food Habits Profile (Part 1 of the Supplementary Dietary Form) relating to food likes and dislikes, factors influencing food habits, snacking patterns, and use of food supplements. Replies were then rank-ordered by number and percent.

The Missouri Nutrition Survey forms and the food records listing frequency of consumption and serving size for 15 typically Asian/Indian dishes (Part 2 of the Supplementary Dietary Form) were sent to Lincoln University for computer calculation and analysis of dietary intakes of Kcal (energy), protein, calcium, phosphorus, iron, vitamin A, thiamin, riboflavin, niacin, and vitamin C. Adequacy of Kcal (energy) and nutrient intake was evaluated by comparison with the 1980 Recommended Dietary Allowances. An intake of less than 67% was considered inadequate. According to Guthrie, "In most studies of dietary adequacy, intakes of two thirds the recommended allowances have been considered adequate and those below this level as indicative of a possible suboptimal state of nutrition." (29)

Pertinent data from the Demographic Check Sheet were cross classified into contingency tables. The chi-square procedure was performed to determine if differences existed between sex of the subjects and the following demographic variables: age, length of residence in Kansas City, visits to India in the last 10 years, present educational level, main source of nutrition information, employment status, educational level (parents), region of origin of parents in India, and household income. The same statistical treatment was carried out to determine if differences existed between sex of the subjects and intakes of Kcal (energy), protein, calcium, phosphorus, iron, vitamin A, thiamin, riboflavin, niacin, and vitamin C. A significance level of .05 was selected for all hypothesis tests. Fisher's exact test was used on tables

with small expected values where the standard chi-square test was not applicable. (46)

#### Limitations of the Study

Sample size was relatively small with only 25 females and 25 males serving as subjects. Determination of Kcal (energy) and nutrient intake depended on the accuracy with which participants recalled foods and beverages consumed and frequency of consumption.

## CHAPTER IV

### RESULTS AND DISCUSSION

Data for the assessment of food habits and Kcal (energy) and nutrient intake were collected from 50 Asian/Indian American adolescents, 15 to 18 years of age, in the Kansas City metropolitan area in the fall of 1982. Twenty-five males and 25 females participated in the study.

Results are presented and discussed in three sections: 1) demographic data which describe characteristics of the subjects and their parents, 2) supplementary dietary information and frequency of consumption of 15 typically Asian/Indian foods, and 3) Kcal (energy) and nutrient intake.

#### Section 1 -- Demographic Data

All subjects were born in the United States (Appendix F). The adolescents were described by the following variables: age, sex, length of residence in Kansas City, visits to India within the last ten years, present educational level, main source of nutrition information, and present employment status. Parents of the adolescents were described in terms of these variables: educational level, region of origin in India, and total household income. Findings were expressed in number and percent for female and male subjects (Tables 1 and 2).

TABLE 1

Characteristics of Female Subjects According to Age,  
Length of Residence, Visits to India, Educational Level,  
Source of Nutrition Information, and Employment Status  
n=25

CLASSIFICATION	NUMBER	PERCENT
Age		
15 Years	14	56
16 Years	5	20
17 Years	4	16
18 Years	2	8
Total	25	100
Length of Residence in Kansas City		
< 5 Months	1	4
6-11 Months	0	0
1- 3 Years	5	20
4- 7 Years	2	8
8-11 Years	4	16
12-15 Years	8	32
16-18 Years	5	20
Total	25	100
Visits to India Within Last Ten Years		
Yes	24	96
No	1	4
Total	25	100
Present Educational Level		
8th Grade	0	0
9th Grade	3	12
10th Grade	11	44
11th Grade	6	24
12th Grade	3	12
Beyond High School	2	8
Total	25	100

TABLE 1 - Continued

CLASSIFICATION	NUMBER	PERCENT
Main Source of Nutrition Information		
Health Education Class	1	4
Home Economics Class	3	12
Formal Course in Nutrition	6	24
Radio, Television, Newspaper	2	8
Popular Magazines and Books	0	0
Mother	12	48
Father	1	4
Friends	0	0
Doctor	0	0
Nurse	0	0
Dietitian/Nutritionist	0	0
Coach	0	0
Teacher	0	0
Health Food Store	0	0
Other	0	0
Total	25	100
Employment Status		
Full Time	0	0
Part Time	4	16
Unemployed	21	84
Total	25	100

TABLE 2

Characteristics of Male Subjects According to Age,  
Length of Residence, Visits to India, Educational Level,  
Source of Nutrition Information, and Employment Status  
n=25

CLASSIFICATION	NUMBER	PERCENT
Age		
15 Years	9	36
16 Years	5	20
17 Years	4	16
18 Years	7	28
Total	25	100
Length of Residence in Kansas City		
< 5 Months	0	0
6-11 Months	0	0
1- 3 Years	2	8
4- 7 Years	2	8
8-11 Years	6	24
12-15 Years	10	40
16-18 Years	5	20
Total	25	100
Visits to India Within Last Ten Years		
Yes	24	96
No	1	4
Total	25	100
Present Educational Level		
8th Grade	0	0
9th Grade	7	28
10th Grade	2	8
11th Grade	3	12
12th Grade	6	24
Beyond High School	7	28
Total	25	100



TABLE 2 - Continued

CLASSIFICATION	NUMBER	PERCENT
Main Source of Nutrition Information		
Health Education Class	2	8
Home Economics Class	0	0
Formal Course in Nutrition	0	0
Radio, Television, Newspaper	3	12
Popular Magazines and Books	0	0
Mother	17	68
Father	3	12
Friends	0	0
Doctor	0	0
Nurse	0	0
Dietitian/Nutritionist	0	0
Coach	0	0
Teacher	0	0
Health Food Store	0	0
Other	0	0
Total	25	100
Employment Status		
Full Time	0	0
Part Time	3	12
Unemployed	22	88
Total	25	100

### Adolescent Subjects

#### Age--

Fifty-six percent (14) of the female subjects were 15 years of age; 20% (5) were 16 years old; 16% (4) were 17 years of age, and 8% (2) were 18 years old. Of the male subjects, 36% (9) were 15 years old; 28% (7) had attained 18 years; 20% (5) were age 16; and 16% (4) were 17 years old. Mean age for the girls, boys, and the entire sample of 50 N was 16 years.

#### Length of residence in Kansas City--.

Fifty-two percent of the females and 60 percent of the males had resided in Kansas City from 12 to 18 years.

#### Visits to India within last ten years--.

Ninety-six percent of both the girls and the boys had visited India within the time period specified which would appear to indicate that strong ties had been maintained with the homeland of the parents.

#### Present educational level--.

Sixty-eight percent of the females were in the 10th or 11th grades. The majority of the males (56%) either had attained an educational level beyond high school or were enrolled in the 9th grade.

#### Main source of nutrition information--

Of the females, 48% indicated mother as the main source

of information concerning nutrition, and 24% specified a formal course in nutrition. Other sources identified were home economics class; radio, television, newspaper; health education class; and father.

Of the males, 68% depended on the mother as the primary source of nutrition information. Other sources listed were father; radio, television, newspaper; and a health education class.

Reliance on the mother as the main source of nutrition information was apparent in both groups. Although 24% of the females indicated that a course in nutrition education served as the primary source of information about nutrition, the investigator did not determine if the nutrition education class actually constituted "formal" coursework in the subject in terms of duration and content. No male subjects had taken such a course. Whether any of the mothers had ever taken a formal course in nutrition was not determined. In a study of 75 female students reported by Duyff et al. the mothers or other relatives were ranked as the most influential sources of nutrition information. (19)

#### Employment status--.

Sixteen percent of the females and 12% of the males had part time employment.

#### Parents of the Adolescents

Data were collected from 94 parents, 47 mothers, and 47 fathers. Of the couples, 44 had 1 child who participated in the

the study, while each of the other 3 couples had 2 children who served as subjects. Characteristics of the parents are presented in Table 3.

#### Educational level of parents--.

One-hundred percent of the fathers and 87% of the mothers were college graduates.

#### Region of origin in India--.

Forty percent of the fathers and 43% of the mothers were from the western region of India; 34% of the fathers and 32% of the mothers were from the northern region; 15% of both fathers and mothers were from the southern region of the country; 9% of both fathers and mothers came from the eastern region; and 2% of both fathers and mothers came from the central region of India.

The food habits of the Indian people have been influenced by many factors including religious and caste restrictions, weather, geography, and the impact of foreigners.

#### Total household income--.

Eighty-one percent of the households indicated an annual income equal to or greater than \$25,000, and 19% reported an annual income ranging from \$15,000 to \$24,999.

The chi-square test was applied to the demographic data to see if differences existed between the females and males with respect to certain variables. No statistically significant differences were found, at the .05 level, for the following variables:

TABLE 3

Characteristics of Parents of Subjects According  
to Educational Level, Region of Origin,  
Household Income (n=94)

CLASSIFICATION	FATHER		MOTHER	
	NUMBER	PERCENT	NUMBER	PERCENT
Educational Level				
< 5th Grade	0	0	0	0
6th- 8th Grade	0	0	0	0
9th-11th Grade	0	0	0	0
High School	0	0	5	11
Some Technical Training or College	0	0	1	2
College Graduate	47	100	41	87
Total	47	100	47	100
Region of Origin in India				
North	16	34	15	32
South	7	15	7	15
East	4	9	4	9
West	19	40	20	43
Central	1	2	1	2
Total	47	100	47	101*
Total Household Income				
	NUMBER		PERCENT	
< \$ 5,000	0		0	
\$ 5,000-\$ 9,999	0		0	
\$10,000-\$14,999	0		0	
\$15,000-\$24,999	10		21	
≥ \$25,000	84		79	
Total	94**		100	

\* Percentage total exceeds 100 due to rounding effects.

\*\* 94 (47+47)

age, length of residence in Kansas City, number of visits to India, educational attainment of the parents, income level, and region of origin in India of the father and mother (Appendix G). Results also showed that the differences between sex of the subjects and educational attainment was statistically significant. The male subjects had a higher educational attainment than their female counterparts simply because the boys in the sample came from an older age group than did the girls. When Fisher's exact test was performed no significant differences were found between sex and present employment status of the subjects. Tables are presented in Appendix G.

Section 2 -- Supplementary Dietary Information and  
Frequency of Consumption of 15 Typically  
Asian/ Indian Foods

Food likes and dislikes--.

Findings relevant to food likes and dislikes are summarized in Table 4 for females and Table 5 for males. The foods most liked by 20% or more of the female subjects were the following American foods: soft drinks by 44%, orange juice by 32%, milk by 24%, and hamburgers by 20%. Also mentioned were foods originating in other countries but which have become "Americanized" due to widespread use and assimilation into American culture: pizza which was listed as most liked by 76%, nachos by 20%, and rice by 20%. Rice, a food frequently used by Americans, is also often consumed by other ethnic and racial groups including Asian/Indians.

TABLE 4  
 Foods and/or Beverages Most Liked and Most Disliked,  
 by Female Subjects (n=25)

CLASSIFICATION	NUMBER	PERCENT
Foods Most Liked		
Pizza	19	76
Soft Drinks	11	44
Orange Juice	8	32
Milk	6	24
Nachos	5	20
Hamburgers	5	20
Rice	5	20
Puri Saag	4	16
Dhal	4	16
Chips	3	12
Dosa	3	12
Chicken Curry	2	8
Tacos	2	8
Foods Most Disliked		
Liver	18	72
Squash	10	40
Eggplant	9	36
Spinach	6	24
Root Beer	5	20
Fish	3	12
Diet Soda	3	12
Anchovies	3	12
Dr. Pepper	3	12
Avocados	3	12
Broccoli	2	8
Cottage Cheese	1	4

Foods most liked by 20% or more of the male subjects were the following American foods: soft drinks by 80%, orange juice by 20%, milk by 20%, and hamburgers by 20%. Foods having their origin in other countries but "Americanized" due to widespread popularity and use in the United States were also listed with pizza reported as most liked by 52%, nachos by 23%, and burritos by 20%. Puri saag and chicken curry, both Asian/Indian foods, were listed as most liked foods by 44% and 24% respectively.

Foods listed as most liked by female and male participants revealed similarities with soft drinks, pizza, orange juice, milk, hamburgers, and nachos ranking high for both sexes. Forty-four percent of the females and 80 percent of the males included soft drinks among the most liked items. This finding agreed with results of a study of teenagers conducted by Schorr et al. in which "soda pop" ranked at the top of a long list of foods most liked. (17) Other foods designated as most liked by Asian/Indian American females and males were orange juice, milk, hamburgers, and pizza. Participants in the study by Schorr et al. also liked these foods. (17) Orange juice, milk, and hamburgers were identified by Greenwood and Richardson, who reviewed studies of teenagers conducted in the United States, as among the most popular foods. (38)

Foods most disliked by 20% or more of the female adolescents were liver by 72%, squash by 40%, eggplant by 36%, spinach by 24%, and Root Beer by 20%. Mentioned less often were fish, diet soda, anchovies, Dr. Pepper, avocados, broccoli, and cottage cheese.

Foods most disliked by 20% or more of the male adolescents



TABLE 5  
 Foods and/or Beverages Most Liked and Most Disliked,  
 by Male Subjects (n=25)

CLASSIFICATION	NUMBER	PERCENT
Foods Most Liked		
Soft Drinks	20	80
Pizza	13	52
Puri Saag	11	44
Nachos	6	24
Chicken Curry	6	24
Orange Juice	5	20
Milk	5	20
Hamburgers	5	20
Burritos	5	20
Chips	3	12
Dosa	3	12
Tacos	3	12
Foods Most Disliked		
Liver	17	68
Diet Soda	13	52
Squash	11	44
Spinach	8	32
Fish	6	24
Cottage Cheese	6	24
Sour Cream	5	20
Anchovies	4	16
Broccoli	4	16
Eggplant	3	12
Dr. Pepper	2	8
Avocados	2	8

were liver by 68%, diet soda by 52%, squash by 44%, spinach by 32%, fish by 24%, cottage cheese by 24%, and sour cream by 20%. Foods listed less frequently were anchovies, broccoli, eggplant, Dr. Pepper, and avocados.

Eight items -- pizza, orange juice, milk, hamburgers, nachos, chips, tacos, and burritos which were popular with various numbers of the Asian/Indian American subjects were also favorites of adolescents in studies conducted by Schorr et al., Duyff et al., and Peckos and Ross. (17,19,27)

Both Asian/Indian American females and males shared a common dislike for liver, squash, and spinach. Liver, fish, squash, clams, coffee, spinach, cabbage, and beets were foods reported as disliked by teenagers in the study conducted by Schorr et al. (17) No Asian/Indian foods were placed in the most disliked category by either females or males.

#### Snacking patterns--.

Listed in descending order of the frequency with which they were mentioned, the five favorite American snacks of the girls were potato chips, pizza, ice cream, candy, and nachos; of the boys--potato chips, nachos, soft drinks, pizza, and cookies. Results are summarized in Table 6.

The junior and senior high school students who participated in the California study of Huenemann et al. identified potato chips, ice cream, candy, cookies, and soft drinks as favorite snacks. (15) Pizza and nachos, also mentioned by the Kansas City subjects, may

not have been widely marketed at the time of the California investigation. Ice cream was also listed as a popular snack by teenage subjects in the study reported by Hodges and Krehl. (34)

Listed in descending order, based on frequency with which they were mentioned, the five favorite Indian snacks of the girls were samosa, chiwda and barfi (tie), pakora, gulab jamun, and rasgulla; of the boys -- samosa, chiwda, pakora, barfi, and rasgulla. Findings are presented in Table 7.

Since no reports of studies of food habits and nutrient intake of Asian/Indian American adolescents were found in the literature, comparison of Indian snacking patterns of current subjects with those of subjects in earlier studies was not possible.

#### Factors influencing food habits--.

The factors that influenced food habits of females and number of times each was mentioned were: family (12); literature, magazines, books (10); mother (9); school (9); friends (6); peer influence (5); myself (4); television (3); American culture (2); doctor (2); like American and Indian food (1); and like something will eat it (1). If "friends" are identified as "peers", the peer influence total would increase to 11.

For males, factors listed and number of times each was mentioned were: mother (17); literature, magazines, books (8); peer influence (8); family (7); friends (6); school (5); participation in the School Lunch Program (5); television (4); environment and surroundings, time factor, and extra curricular activities (2)

TABLE 6  
Top Five Favorite American Snack Foods (n=25)

CLASSIFICATION	NUMBER	PERCENT
<b>Females</b>		
Potato Chips	23	92
Pizza	15	60
Ice Cream	13	52
Candy	11	44
Nachos	10	40
<b>Males</b>		
Potato Chips	22	88
Nachos	16	64
Soft Drinks	14	56
Pizza	10	40
Cookies	9	36

TABLE 7  
 Top Five Favorite Indian Snack Foods (n=25)

CLASSIFICATION	NUMBER	PERCENT
<b>Females</b>		
Samosa	20	80
Chiwda	18	72
Barfi	18	72
Pakora	16	64
Gulab Jamun	9	36
Rasgulla	5	20
<b>Males</b>		
Samosa	23	92
Chiwda	22	88
Pakora	18	72
Barfi	16	64
Rasgulla	12	48

each. Mentioned 1 time each were: myself -- more aware, doctor, American culture, being Indian, season, no spicy food, Mexican ethnic influence, visit to India, and like something will eat it. If "friends" are identified as "peers", the peer influence total would increase to 14.

Factors most frequently mentioned as influencing food habits of both female and male subjects as a group were: mother (26); family (19); literature, magazines, books (18); school (14); peer influence (13); and friends (12). If "friends" are identified as "peers", the peer influence total would increase to 25. Peer group influence has been pointed out by Giffit et al. who stated that "In American society, peer influence is most noticeable during adolescence." (1)

#### Nutritional supplement usage--.

Nutritional supplements were used by 64% (16) of both the females and males. In no case was the supplement prescribed by a physician. Details regarding type of supplement, frequency with which the preparation was used, and dosage were not obtained, since an investigation of nutritional supplement usage was not the purpose of this study. The findings are summarized in Table 8. Nutrient intake derived from the supplements was not determined since computer analysis of Kcal (energy) and nutrient intake for the Missouri Nutrition Survey did not provide this information.

#### Frequency of consumption of 15 typically Asian/Indian foods --.

The 15 foods were grouped into 4 categories: Bread/Cereal

Table 8  
Nutritional Supplement Usage

TYPE	FEMALE	Number of Subjects	MALE
One a Day	7		9
Multiple Vitamin	5		4
Centrum	3		2
Flintstone	2		0

One a Day: vitamin A, vitamin D, vitamin E, vitamin C, folic acid, thiamin, riboflavin, niacin, vitamin B6, and vitamin B12.

Multiple Vitamin: vitamin A, vitamin D, vitamin E, vitamin C, folic acid, thiamin, riboflavin, niacin, vitamin B6, and vitamin B12.

Centrum: vitamin A, vitamin D, vitamin E, vitamin C, folic acid, thiamin, riboflavin, niacin, vitamin B6, vitamin B12, calcium, phosphorus, and iron.

Flintstone: vitamin A, vitamin D, vitamin E, vitamin C, folic acid, thiamin, riboflavin, niacin, vitamin B6, and vitamin B12.

Products, Main Dishes/Entrees, Accompaniments, and Relishes. Names of the products and major ingredients are presented in Table 9. Consumption frequencies were reported by subjects as never, or as number of times a food was consumed on a daily, weekly, monthly, or yearly basis. Results are shown, expressed as percentages and numbers, for frequency of consumption of the 15 typically Asian/Indian foods by females (Appendix I) and by males (Appendix J).

To facilitate interpretation of the data, foods ingested on a daily and/or weekly basis were designated as "intensively used" and those consumed on a monthly or yearly basis as "less intensively used". Table 10 presents a summary of intensive and less intensive food usage for the 15 typically Asian/Indian dishes expressed as percentages for females and males.

In Tables 11 and 12, the 15 foods are listed in descending order according to percent of females and males using them on an intensive (daily or weekly) basis. For many of the foods intensive usage by females was somewhat greater than intensive usage by males. The exceptions were murgh mussalam, palak paneer, pakora, and mutton korma. Chapati, dhal, aloo masala, and lemon pickle were used on an intensive basis by 60% or more of both the girls and boys. Chapati, the most popular item, was used intensively by 100% of the female adolescents and by 84% of the male adolescents. Least popular was samosa which none of the females and only 4% of the males used intensively.

Results indicated that the cultural heritage of the Indian-born parents did influence the food habits of the Asian/Indian



Table 9

## Asian/Indian Foods and Major Ingredients

Bread/Cereal Products

Chapati (wheat flour)  
Pakora (graham flour plus a vegetable)  
Samosa (all-purpose flour plus potatoes)  
Pillau (rice plus a vegetable)

Main Dishes/Entrees

Murgh Mussalam (chicken, onion, and spices)  
Sheek Kebab (beef and seasonings)  
Mutton Korma (goat, onions, yogurt, and seasonings)  
Palak Paneer (milk and spinach)  
Dhal (lentils, water, and seasonings)  
Kabli Channa (garbanzo beans and seasonings)

Accompaniments

Aloo Masala (potatoes, tomatoes, and seasonings)  
Burtha (eggplant, onions, tomatoes, spices, and seasonings)  
Raita (yogurt, cucumber or other vegetables, and seasonings)

Relishes

Chutney (fresh mint leaves, coriander leaves, lemon juice, and seasonings)  
Lemon Pickel (lemon, spices, and seasonings)

TABLE 10

Summary of Usage of 15 Typically Asian/Indian  
Foods by Females and Males Expressed as Percentages  
Intensively and Less Intensively Used

Food	Females				Males			
	Never Used	Used Inten- sively	Used Less Inten- sively	Total	Never Used	Used Inten- sively	Used Less Inten- sively	Total
<b>BREAD/CEREAL PRODUCTS</b>								
Chapati	0	100	0	100	0	84	16	100
Pakora	0	16	84	100	0	28	72	100
Samosa	8	0	92	100	16	4	80	100
Pillau	8	44	48	100	16	32	52	100
<b>MAIN DISHES/ENTREES</b>								
Murgh Mussalam	16	52	32	100	20	52	28	100
Sheek Kebab	68	12	20	100	84	4	12	100
Mutton Korma	84	12	4	100	84	16	0	100
Palak Paneer	52	16	32	100	64	16	20	100
Dhal	4	88	8	100	12	80	8	100
Kabli Channa	4	32	64	100	20	24	56	100
<b>ACCOMPANIMENTS</b>								
Aloo Masala	8	84	8	100	20	64	16	100
Burtha	44	32	24	100	56	20	24	100
Raita	24	68	8	100	60	20	20	100
<b>RELISHES</b>								
Chutney	20	52	28	100	40	36	24	100
Lemon Pickle	24	68	8	100	20	60	20	100

TABLE 11

Fifteen Typically Asian/Indian Foods Ranked  
in Descending Order According to Percent of  
Females Using Them on an Intensive Basis

Food	Percent Using Intensively
Chapati*	100%
Dhal**	88
Aloo Masala***	84
Lemon Pickle****	68
Raita***	68
Murgh Mussalam**	52
Chutney****	52
Pillau*	44
Kabli Channa**	32
Burtha***	32
Palak Paneer**	16
Pakora*	16
Sheek Kebab**	12
Mutton Korma**	12
Samosa*	0

\* Bread/Cereal Products

\*\* Main Dishes/Entrees

\*\*\* Accompaniments

\*\*\*\* Relishes

TABLE 12

Fifteen Typically Asian/Indian Foods Ranked  
in Descending Order According to Percent of  
Males Using Them on an Intensive Basis

Food	Percent Using Intensively
Chapati*	84%
Dhal**	80
Aloo Masala***	64
Lemon Pickle****	60
Murgh Mussalam**	52
Chutney****	36
Pillau*	32
Pakora*	28
Kabli Channa**	24
Burtha***	20
Raita***	20
Palak Paneer**	16
Mutton Korma**	16
Sheek Kebab**	4
Samosa*	4

\* Bread/Cereal Products

\*\* Main Dishes/Entrees

\*\*\* Accompaniments

\*\*\*\* Relishes

American teenagers. Although frequency of consumption of the 15 typically Asian/Indian foods varied between and within the groups of female and male subjects, they were nonetheless consuming these foods despite the fact that all were native-born Americans.

### Section 3 -- Kcal (Energy) and Nutrient Intake

Levels of dietary intake were determined for Kcal (energy), protein, calcium, phosphorus, iron, vitamin A, thiamin, riboflavin, niacin, and vitamin C. An intake of less than two-thirds (67%) of the 1980 Recommended Dietary Allowances was considered unsatisfactory. This figure is frequently used as the cutoff point in dietary studies. (29)

The mean Kcal (energy) and nutrient intakes from foods and beverages and mean percent of the RDA are shown in Table 13 for the 25 female and 25 male subjects. Individual intakes for all of the participants were determined and are presented in Appendix K for females and Appendix L for males.

Level of intake for Kcal (energy) and for each nutrient was calculated for all female and male subjects and categorized on the basis of 3 percentage or percentage ranges of the RDA: < 67%, 67-100%, and > 100%. Tables 14 and 15 show the number and percent of females and males, respectively, grouped according to Kcal (energy) and nutrient intake levels on the basis of different percentages of the RDA. Individual intakes shown as percentages of the RDA are recorded in Appendices M and N.

TABLE 13

Mean and Range for Kcal (Energy) and Nutrient  
Intakes from Foods and Beverages and Mean  
Percent of RDA\*

Energy or Nutrient	Females n=25			RDA (female 15-18)		Males n=25			RDA (male 15-18)			
	Mean	±	S.D.	Range	% RDA	Mean	±	S.D.	Range	% RDA		
Kcal (energy)	2,392	±	1,011	1,198 - 4,991	2,100	114	3,148	±	1,530	1,620 - 7,104	2,800	112
Protein (gm.)	84	±	30	32 - 157	46	182	110	±	51	50 - 273	56	196
Calcium (mg.)	1,339	±	557	431 - 2,467	1,200	112	1,998	±	1,144	643 - 5,425	1,200	124
Phosphorus (mg.)	1,627	±	596	602 - 3,082	1,200	136	2,010	±	882	1,053 - 5,489	1,200	168
Iron (mg.)	16.9	±	5.3	9.1 - 24.4	18	94	20.6	±	10.4	9.6 - 55.7	18	114
Vitamin A** (I.U.)	9,255	±	4,620	4,085 - 20,555	4,000	231	12,601	±	7,896	3,500 - 32,867	5,000	252
(R.E.)	1,851	±	924	817 - 4,111	800	231	2,502	±	1,575	700 - 6,573	1,000	250
Thiamin (mg.)	1.60	±	0.5	0.8 - 2.9	1.1	145	2.20	±	0.9	1.2 - 4.3	1.4	157
Riboflavin (mg.)	2.30	±	0.9	0.9 - 4.3	1.3	177	3.30	±	1.6	1.3 - 6.2	1.7	194
Niacin (mg N E)	32.1	±	10.9	13.1 - 54.9	14	229	40.3	±	15.0	20.9 - 69.5	18	224
Vitamin C (mg.)	212	±	83	88 - 416	60	353	224	±	111	113 - 477	60	373

\* Recommended Dietary Allowances for Females and Males 15 to 18 years, 1980 (9).

\*\* Vitamin A Expressed as IU on Missouri Nutrition Survey; Converted Here to ug RE. 4,000 IU = 800 ug RE for Females and 5,000 IU = 1,000 ug RE for Males

TABLE 14

Number and Percent of Female Subjects Grouped  
According to Kcal (Energy) and Nutrient Intake Levels  
Representing Different Percentages of the 1980 RDA\*

Nutrient	< 67%		67% to 100%		> 100%	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Kcal (energy)	4	16	14	56	7	28
Protein	0	0	2	8	23	92
Calcium	4	26	6	24	15	60
Phosphorus	1	4	6	24	18	72
Iron	6	24	8	32	11	44
Vitamin A	0	0	0	0	25	100
Thiamin	0	0	3	12	22	88
Riboflavin	1	4	1	4	23	92
Niacin	2	8	5	20	18	72
Vitamin C	0	0	0	0	25	100

\* Recommended Dietary Allowances for Females and Males 15 to 18 Years, 1980 (9)

TABLE 15

Number and Percent of Male Subjects Grouped  
According to Kcal (Energy) and Nutrient Intake Levels  
Representing Different Percentages of the 1980 RDA\*

Nutrient	< 67%		67% to 100%		> 100%	
	Number	Percent	Number	Percent	Number	Percent
Kcal (energy)	0	0	8	32	17	68
Protein	0	0	3	12	22	88
Calcium	2	8	6	24	17	68
Phosphorus	0	0	5	20	20	80
Iron	6	24	6	24	13	52
Vitamin A	0	0	3	12	22	88
Thiamin	0	0	7	28	18	72
Riboflavin	0	0	4	16	21	84
Niacin	1	4	7	28	17	68
Vitamin C	0	0	0	0	25	100

\* Recommended Dietary Allowances for Females and Males 15 to 18 Years, 1980 (9)



Females--.

Dietary intakes of all female subjects met or exceeded 67% of the RDA for protein, vitamin A, thiamin, and vitamin C. Inadequate intakes (< 67% RDA) were revealed for iron by 24% (6), calcium by 16% (4), Kcal (energy) by 16% (4), niacin by 8% (2), phosphorus by 4% (1), and riboflavin by 4% (1).

One hundred percent of the females had intakes greater than 100% of the RDA for both vitamin A and vitamin C, and 92% had intakes of protein and riboflavin in excess of 100% of the RDA. Eighty-eight percent of the female participants had intakes which exceeded 100% of the RDA for thiamin.

Males--.

Dietary intakes of all male subjects met or exceeded 67% of the RDA for Kcal (energy), protein, phosphorus, vitamin A, thiamin, riboflavin, and vitamin C. Less than adequate intakes (< 67% RDA) were found for iron by 24% (6), calcium by 8% (2), and niacin by 4% (1).

One hundred percent of the male participants had intakes greater than 100% of the RDA for vitamin C, and 88% had intakes in excess of 100% of the RDA for protein and vitamin A.

Since some female and male subjects had intakes of less than 67% of the RDA for Kcal (energy), calcium, phosphorus, iron, niacin, and riboflavin, chi-square analysis and Fisher's exact test were used to determine if significant differences in intakes existed between the adolescent females and males. Chi-square

analysis was applicable only in the case of iron, since expected frequencies were too small (less than 5) for the other nutrients mentioned. Fisher's exact test was utilized for Kcal (energy), calcium, phosphorus, niacin, and riboflavin (Appendix H). No statistically significant differences were found as a result of these analyses.

For the females, results of this investigation (Chaudhry) showed the most notable inadequacies (less than 67% RDA) were for iron by 24% (6), calcium by 16% (4) and Kcal (energy) by 16% (4). These findings were in agreement with those of Wharton, Huenemann et al., Hampton et al., Schorr et al., the Ten State Nutrition Survey, Lee, Gregar et al., Haider and Wheeler, Koh and Caples, Frank et al., Brown et al., and Peckos and Ross who also found less than satisfactory intakes of both calcium and iron for some of the girls who participated in their respective investigations. (14,15,16,17, 18,20,21,22, 23,25,26,27) Gaines and Daniel found mean intakes of less than 2/3 of the RDA for iron for all female subjects they studied. (24) The percentage of Asian/Indian females having a less than adequate intake of iron amounted to 24% (6). This figure was considerably smaller than the 98.4% for white females and the 96.2% for black females, age 15 to 17, reported in the Health and Nutrition Examination Survey. (30) Since the Asian/Indian females tended to come from higher socioeconomic groups, this may have accounted for the smaller percentage having a less than adequate iron intake as compared to the HANES subjects. Koh et al. reported energy intakes of less than 2/3 of the RDA for some subjects, and

Sprauve and Dodds found low caloric intakes for the girls in that study. (23,28)

Findings of this investigation (Chaudhry) revealed the most notable inadequacy (less than 67% RDA) for the males was for iron by 24% (6) subjects. Wharton, Huenemann et al., Schorr et al., the Ten State Nutrition Survey, Lee, Koh and Caples, Gaines and Daniel, Frank et al., and Brown et al. also found less than adequate intakes of iron for some of the boys who served as subjects in those studies. (14,15,17,18,20,23,24,25,26) A less than adequate intake of iron was found for 24% (6) of the Asian/Indian males. This percentage was much smaller than the HANES findings of 75.2% for white males and the 86.4% for black males in the 15 to 17-year age bracket. Like the Asian/Indian females, the males also tended to come from higher socioeconomic groups.

Although results of investigations conducted by Wharton, Huenemann et al., Schorr et al., the Ten State Nutrition Survey, Koh and Caples, Frank et al., Brown et al., Peckos and Ross, and Sprauve and Dodds have shown male adolescents to have less than satisfactory intakes of calcium (14,15,17,18,23,25,26,27,28) only 8% (2) of the Asian/Indian American boys had intakes of less than 67% of this nutrient.

While results of other studies have revealed inadequate vitamin C and vitamin A consumption by adolescents (39), 100% (25 each) of both female and male Asian/Indian American subjects had intakes of vitamin C in excess of 100% of the RDA. Vitamin A consumption was also high for these teenagers with 100% (25) of the

females and 88% (22) of the males ingesting intakes greater than 100% of the RDA.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

Twenty-five female and twenty-five male Asian/Indian American adolescents residing in the Kansas City metropolitan area served as subjects for this study of food habits and dietary intake. All participants were native born Americans, the sons and daughters of Asian/Indian immigrants. The study was conducted (1) to investigate food habits and dietary intake of the adolescents; (2) to determine if food consumption patterns tended to be influenced by cultural heritage of the Indian-born parents and/or peers from different ethnic backgrounds; and (3) to ascertain if Kcal (energy) and nutrient intakes of United States born Asian/Indian American adolescents revealed problem areas similar to those reported in studies of other American adolescents.

Data were collected from each subject through an individual interview conducted in the home. Informed consent procedures were followed and each person who agreed to participate signed the human consent form. Instruments utilized for data collection were a Demographic Check Sheet used to obtain pertinent sociological and related information from both the subjects and their parents; a Supplementary Dietary Form designed to solicit certain information concerning food habits, and to determine frequency of consumption and serving size of 15 typically Asian/Indian foods ingested by the subjects; and the Missouri Nutrition Survey procured from Lincoln

University in Jefferson City, Missouri, to obtain dietary data. The forms used for collection of data were checked by the investigator for accuracy and completeness following each interview. After all data had been gathered, the MNS forms were sent to Lincoln University, Jefferson City, Missouri, for computer calculation and analysis of dietary data. Adequacy of Kcal (energy) and nutrient intake was evaluated by comparison with the 1980 RDA. (9)

Through the use of summary statistics and frequency tabulations, data pertaining to sociological and other variables were analyzed to obtain number and percent information which provided a description of the sample. Frequency tabulations were also used to analyze data related to food habits.

The chi-square test was performed to determine if differences existed between males and females with respect to variables listed on the Demographic Check Sheet. Chi-square analysis was also utilized to ascertain if differences existed between sex of the subjects and dietary intakes. Fisher's exact test was used on tables with small expected values in which chi-square procedure was not applicable.

When chi-square analysis was used with the demographic variables no statistically significant differences were found with the exception of sex and educational attainment. Results of the test showed significant differences between boys and girls with boys having attained higher levels of education.

Ranking high on the list of foods most liked by both female and male teenagers were soft drinks, pizza, orange juice, milk,

hamburgers, and nachos. Foods frequently listed as among the most disliked by both females and males were liver, squash, and spinach.

Listed in descending order, based on how frequently they were mentioned, the five favorite American snack foods of the females were potato chips, pizza, ice cream, candy, and nachos; of the males, potato chips, nachos, soft drinks, pizza, and cookies.

Listed in descending order, according to the frequency with which they were mentioned, the five favorite Indian snack foods of the females were samosa, chiwda, and barfi (tie), pakora, gulab jamun and rasgulla; of the males, samosa, chiwda, pakora, barfi, and rasgulla.

Frequency of consumption of the 15 typically Asian/Indian foods was classified as never, daily, weekly, monthly, or yearly. Foods eaten on a daily or weekly basis were identified as "intensively used", and on a monthly or yearly basis as "less intensively used". Chapati, dhal, aloo masala, and lemon pickle were used on an intensive basis by 60% or more of both the girls and boys. The most popular Asian/Indian food was chapati which was used intensively by all of the girls and by 84% of the boys. Samosa, the least popular, was used intensively by none of the girls and by only 4% of the boys.

Analysis of Kcal (energy) and nutrient intakes revealed that, in terms of less than 67% of the RDA, the most notable inadequacies for the female adolescents were iron by 24% (6), calcium by 16% (4), and Kcal (energy) by 16% (4). For the male

adolescents, the most notable inadequacy was for iron by 24% (6) subjects. Some girls and boys had intakes of less than 67% of the RDA for Kcal (energy), calcium, phosphorus, iron, niacin, and riboflavin. Results of chi-square analysis and/or Fisher's exact test revealed no statistically significant differences between the sexes in intakes of Kcal (energy) and these nutrients. Nutrient intakes in excess of 100% of the RDA were found for females for vitamin A and vitamin C (by 100%), protein and riboflavin (by 92%), and for thiamin (by 88%). Of the males, intakes greater than 100% of the RDA were revealed for vitamin C (by 100%) and for protein and vitamin A (by 88%).

In conclusion, the food choices and food habits of the subjects tended to reflect a "mix" of several factors: (1) contact with the mainstream of American society and accompanying lifestyles, (2) the influence of the cultural heritage of the Indian-born parents, and (3) interaction with peers. Although frequency of consumption of the 15 typically Asian/Indian foods by the subjects varied, both girls and boys were eating those foods even though all were born and raised in the United States.

Analysis of Kcal (energy) and nutrient intake data revealed less than adequate intakes of notably iron, calcium, and Kcal (energy) in some females, and iron in some males. These findings support the results of other studies of adolescents and point to the need for development of effective communication strategies designed to successfully "sell" nutrition knowledge to adolescent audiences. While less than satisfactory dietary intakes may pose



problems, excessive intakes may also be a cause for concern. Although 100% of the females and 88% of the males had vitamin A intakes exceeding 100% of the RDA, the dietary intake came primarily from food sources containing the precursor form, beta-carotene. The conversion of the precursor to vitamin A does not take place rapidly enough in the body to cause toxicity. Toxic symptoms may appear only when excessive amounts of preformed vitamin A from animal foods or vitamin supplements are taken. Nutrition educators should alert teenage audiences to the possibility that toxic reactions may result when excessive amounts of preformed vitamin A or vitamin A supplements are consumed.

Additional research should be conducted to add to the existing body of knowledge concerning dietary habits and Kcal (energy) and nutrient intake of adolescents. Studies should focus on adolescents from the higher socioeconomic levels since many of the earlier investigations dealt with subjects from the lower income groups. Use of nutritional supplements and their contribution to Kcal (energy) and nutrient intake of teenagers should be investigated.

#### LITERATURE CITED

1. Giffit, H.H., Washbon, M.B., and Harrison, G.G. Nutrition, Behavior and Change. Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1972.
2. Pipes, L.P. Nutrition in Infancy and Childhood. 2nd Edition, The C.V. Mosby Company, St. Louis, Toronto, London, 1981.
3. Committee on Food Habits: The Problem of Changing Food Habits. Bulletin No. 108. National Research Council, Washington, 1943.
4. Committee on Food Habits: Manual for the Study of Food Habits. Bulletin No. III. National Research Council, Washington, 1945.
5. Schuh, D.D., Moore, A.N., and Tuthill, B.H. Measuring food acceptability by frequency rating. J. Am. Dietet. A. 5:340, 1967.
6. Merrill, F.E. Society and Culture. Fourth Edition. Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1972.
7. Eppright, E.S. Factors influencing food acceptance. J. Am. Dietet. A. 23:579, 1947.
8. Khan, M.A. and Lipke, L.K. Snacking and its contribution to food and nutrient intake of college students. J. Am. Dietet. A. 81:583, 1982.
9. National Academy of Sciences. Recommended Dietary Allowances. Ninth Revised Edition. Washington, D.C.: Office of Publications, National Academy of Sciences, 1980.
10. Martin, E.A. and Beal, V.A. Robert's Nutrition Work with Children. Fourth Edition. The University of Chicago Press, Chicago and London, 1978.
11. Heald, F.P. New reference points for defining adolescent nutrient requirement, in McKigney, J.L., and Munroe, H.N., (eds.) Nutrient Requirements in Adolescence. MIT Press, Cambridge, Mass. and London, England, 1976.
12. Daniels, W.A. Adolescents in Health and Disease. The C.V. Mosby Company, St. Louis, 1977.
13. Mueller, J.F. Current recommended dietary allowances for adolescents, in McKigney, J.L., and Munroe, H.N., (eds.) Nutrient Requirements in Adolescence. MIT Press, Cambridge, Mass. and London, 1976.

14. Wharton, M. Nutritive intake of adolescents. J. Am. Dietet. A. 42:306, 1963.
15. Huenemann, R.L., Shapiro, L.R., Hampton, M.C., and Mitchell, B.W. Food and eating practices of teenagers. J. Am. Dietet. A. 53:17, 1968.
16. Hampton, M.C., Huenemann, R.L., Shapiro, L.R., and Mitchell, B.W. Caloric and nutrient intakes of teenagers. J. Am. Dietet. A. 50:385, 1967.
17. Schorr, B., Sanjur, D., and Erickson, E. Teenage food habits. J. Am. Dietet. A. 61:415, 1972.
18. Ten State Nutrition Survey. USDHEW Publication No. (HSM) 72-8134, Health Services and Mental Health Adm., Center for Disease Control, Atlanta, Georgia, 1972.
19. Duyff, R.L., Sanjur, D., and Nelson, H. Food behavior and related factors of Puerto Rican-American teenagers. J. Nutr. Educ. 7:99, 1975.
20. Lee, C.J. Nutritional status of selected teenagers in Kentucky. Am. J. Clin. Nutr. 31:1453, 1978.
21. Gregar, J.L., Divilbin, L., and Aschenbeck, S.K. Dietary habits of adolescent females. Ecol. Food and Nutr. 7:213, 1979.
22. Haider, S.Q. and Wheeler, M. Dietary intake of low socioeconomic black and Hispanic teenage girls. J. Am. Dietet. A. 77:677, 1980.
23. Koh, E.T. and Caples, V. Nutrient intake of low-income, black families in Southwestern Mississippi. J. Am. Dietet. A. 75:665, 1979.
24. Gaines, E.A. and Daniel, W.A. Dietary iron intakes of adolescents. J. Am. Dietet. A. 65:275, 1974.
25. Frank, G.E., Voors, A.W., Schilling, P.E. and Berenson, G.S. Dietary studies of rural school children in a cardiovascular survey. J. Am. Dietet. A. 71:31, 1977.
26. Brown, P.T., Bergen, J.G. and Murgo, G.F. Current trends in food habits and dietary intakes of home economics students in three junior high schools in Rhode Island. Home Econ. Res. J. 7:325, 1979.
27. Peckos, P.S. and Ross, M.L. Longitudinal study of the caloric and nutrient intake of individual twins. J. Am. Dietet. A. 62:399, 1973.

28. Sprauve, M.E. and Dodds, M.L. Dietary survey of adolescent in the Virgin Islands. J. Am. Dietet. A. 47:287, 1965.
29. Guthrie, H.A. Introductory Nutrition, Fourth Ed. The C.V. Mosby Company, St. Louis, 1979.
30. Health and Nutrition Examination Survey, 1971-1974. USDHEW Publication No. (PHS) 79-1657, Office of Health Research, Statistics, and Technology, National Center for Health Statistics, Hyattsville, MD, 1979.
31. Leverton, R.M. The paradox of teen-age nutrition. J. Am. Dietet. A. 53:13, 1968.
32. Bender, A.E., Magee, P. and Nash, A.H. Survey of school meals. Br. Med. J. ii:383, 1972.
33. Lynch, G.W. School meals and the nutrition of school children. Br. J. Prev. Soc. Med. 29:182, 1975 b.
34. Hodges, R.E. and Krehl, W.A. Nutritional status of teenagers in Iowa. Am. J. Clin. Nutr. 17:200, 1965.
35. Marino, D.D. and King, J.C. Nutritional concerns during adolescence. Pediat. Clin. North Am. 27:125, 1980.
36. American Dietetic Association: Position paper on nutrition education and fast food service. J. Amer. Dietet. A. 65:54, 1974.
37. Greecher, C.P. and Shannon, B. Impact of fast food meals on nutrient intake of two groups. J. Am. Dietet. A. 70:368, 1977.
38. Greenwood, C.T. and Richardson, D.P. Nutrition during adolescence in Bourne, G.H. (ed.) World Rev. Nutr. Diet, 33:1, 1979.
39. Community Nutrition in Preventive Health Care Service. USDHEW Publication No. (HRA) 78-14017:32, Health Services and Mental Health Adm., Center for Disease Control, Atlanta, Georgia, 1978.
40. Gopalan, C., Ramashastry, S.C., and Balasubramaniam, S.L. Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, 1978.
41. United States Department of Agriculture. Nutritive Value of American Foods in Common Units. Agriculture Handbook No. 456, U.S. Government Printing Office, 1975.
42. Christenson, M. Reliability of a dietary history questionnaire to measure food habits. (Unpublished M.S. thesis, Iowa State University, 1973).

43. Kohrs, M.B., Nordstrom, J.W., Neal, R.O., Eklund, D., Paulsen, B.K. and Hertzler, A. Nutritional status of main food preparers and of nutrition education assistants. J. Am. Dietet. A. 72:282, 1978.
44. Brown, M.D. Dietary evaluation of pregnant teenagers in Kansas City. (Unpublished M.S. thesis, University of Kansas, 1978).
45. Scholten, A.M. A comparison of the nutrient intakes of women with and without a past history of anorexia nervosa. (Unpublished M.S. thesis, University of Kansas, 1980).
46. Rosner, B. Fundamentals of Biostatistics. Howard University, Duxbury Press, Boston, Mass., 1982.

## **APPENDICES**

**APPENDIX A**

**DEMOGRAPHIC CHECK SHEET**

DEMOGRAPHIC CHECK SHEETSECTION A: SUBJECTS (information about subjects)SUBJECT NO. \_\_\_\_\_  
\_\_\_\_\_

PLACE OF BIRTH \_\_\_\_\_

1. AGE 15 16 17 182. SEX Male Female3. LENGTH OF RESIDENCE IN KANSAS CITY < to 5 months 6 to 11 months 1 to 3 years 4 to 7 years 8 to 11 years 12 to 15 years 16 to 18 years4. VISITS TO INDIA WITHIN LAST TEN YEARS Yes No



IF YES, INDICATE

- Number of times
- Length of stay of each visit

5. EDUCATIONAL ATTAINMENT

Grade of school completed or presently enrolled in

- 8th grade
- 9th grade
- 10th grade
- 11th grade
- 12th grade
- beyond high school

6. MAIN SOURCE OF NUTRITION INFORMATION (check only one)

- Health education class
- Home economics class
- Formal course in nutrition
- Radio, television, newspaper
- Popular magazines and books
- Mother
- Father
- Friends
- Doctor
- Nurse
- Dietitian/Nutritionist
- Coach
- Teacher
- Health food store

Other

Please specify \_\_\_\_\_

7. PRESENT EMPLOYMENT STATUS

Full time

Part time

Unemployed

SECTION B: PARENTS (information about parents)

8. EDUCATIONAL ATTAINMENT (FATHER)

< 5th grade

6th to 8th grade

9th to 11th grade

High school

Some technical training or college

College graduate

9. EDUCATIONAL ATTAINMENT (MOTHER)

< 5th grade

6th to 8th grade

9th to 11th grade

High school

Some technical training or college

College graduate

10. INCOME LEVEL (TOTAL FOR HOUSEHOLD)

< \$5,000

\$5,000-\$9,999

\$10,000-\$14,999

\$15,000-\$24,999

> \$25,000

11. REGION OR ORIGIN IN INDIA (FATHER - check only one) North South East West Central12. REGION OR ORIGIN IN INDIA (MOTHER - check only one) North South East West Central

**APPENDIX B**

**SUPPLEMENTARY DIETARY FORM**

## SUPPLEMENTARY DIETARY FORM

## FOOD HABITS PROFILE

List the five foods and/or beverages you like the most.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

List the five foods and/or beverages you dislike the most.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

List the five favorite Indian and American snacks:

- | <u>Indian</u> | <u>American</u> |
|---------------|-----------------|
| 1. _____      | 1. _____        |
| 2. _____      | 2. _____        |
| 3. _____      | 3. _____        |
| 4. _____      | 4. _____        |
| 5. _____      | 5. _____        |

List any nutritional supplements you use which are not mentioned in the Missouri Nutrition Survey.

	Prescribed by Physician		Amount	Frequency
1. _____	_____ yes	_____ no	_____	_____
2. _____	_____ yes	_____ no	_____	_____
3. _____	_____ yes	_____ no	_____	_____

List the three factors which you feel have had the greatest influence on your food habits.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

FREQUENCY OF CONSUMPTION OF TYPICALLY  
ASIAN/INDIAN DISHES

PLEASE INDICATE BY CHECKING HOW OFTEN THE FOLLOWING FOOD ITEMS ARE CONSUMED.

FOOD ITEM	NO. OF TIMES	SERVING SIZE	FREQUENCY
1. CHAPATI			D W M Y
2. PAKORA			D W M Y
3. SAMOSA			D W M Y
4. MURGH MUSSALAM			D W M Y
5. PALAK PANEER			D W M Y
6. SHEEK KEBAB			D W M Y
7. DHAL			D W M Y
8. MUTTON KORMA			D W M Y
9. ALOO MASALA			D W M Y
10. RAITA			D W M Y
11. PILLAU			D W M Y
12. FRESH MINT CHUTNEY			D W M Y
13. BURTHA			D W M Y
14. KABLI CHANNA			D W M Y
15. LEMON PICKLE			D W M Y

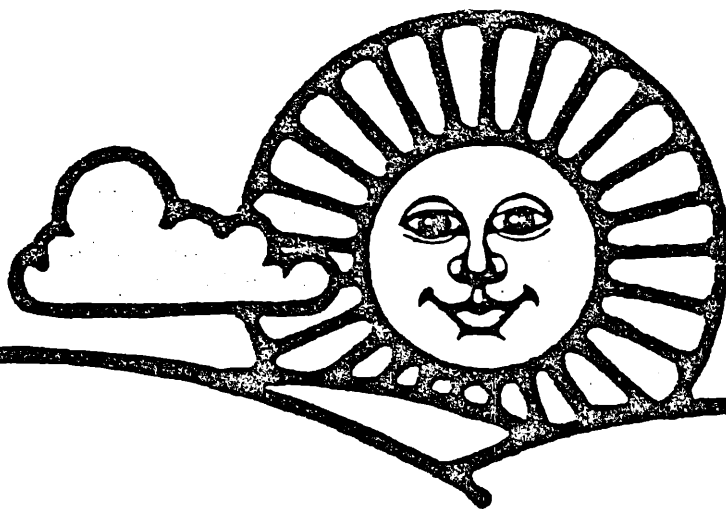
**APPENDIX C**

**MISSOURI NUTRITION SURVEY**

**and**

**INSTRUCTIONS FOR SCORING**





# DIETARY

## History Form



Department of Agriculture,  
Natural Resources and Home Economics

Human Nutrition Laboratory, Cooperative Research,  
Lincoln University, Jefferson City, Missouri 65101

### INSTRUCTIONS

WRITE IN THE INTAKE FREQUENCY AND FOOD CODE WHERE APPLICABLE IN THE BOXES ABOVE THE GRIDS WITH A YELLOW FELT TIP PEN, THEN USING A NO.2 SOFT LEAD PENCIL ONLY FILL IN THE CIRCLE COMPLETELY WHICH CORRESPONDS TO THE BOX ABOVE.

*Revised 1982*



ITEM	NO.	F	CODE		
1. Whole milk			0 1 3 2 0		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
5. Evaporated milk <i>Circle response</i> full strength or reconstituted			0 1 3 2 4		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
2. 2% milk			0 3 6 0 2		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
6. Sweetened condensed milk			0 1 3 2 5		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
3. Skim milk, re- constituted dry and buttermilk			0 3 6 0 3		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
7. Instant Break- fast <i>1 pkg dry</i>			0 3 6 0 7		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
4. Chocolate milk and cocoa			0 3 6 0 4		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	

ITEM	NO.	F	CODE		
8. Slender and Metracal <i>1 pkg dry</i>			0 3 6 0 8		
	0	0	D	0 0 0 0 0 0 0	A
	1	1	W	1 1 1 1 1 1 1	B
	2	2	M	2 2 2 2 2 2 2	C
	3	3	Y	3 3 3 3 3 3 3	D
	4	4		4 4 4 4 4 4 4	E
	5	5		5 5 5 5 5 5 5	
	6	6		6 6 6 6 6 6 6	
	7	7		7 7 7 7 7 7 7	
	8	8		8 8 8 8 8 8 8	
	9	9		9 9 9 9 9 9 9	



ITEM	NO.	F	CODE							
9. Sego 1 can			0	3	6	0	9			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
13. Soft ice cream, ice milk and sher- bet			0	3	6	1	3			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
10. Pudding, cus- tard and tapioca  Child = ¼ C. Adult = ½ C.			0	3	6	1	0			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
14. Malted milk and milk shake			0	3	6	1	4			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
11. Yoghurt <i>partially skimmed</i>  Child = ½ C. Adult = 1 C.			0	3	6	1	1			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
15. Cottage Cheese			0	3	6	1	5			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
12. Ice cream 12% fat			0	3	6	1	2			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	

ITEM	NO.	F	CODE							
16. Other cheeses and cheese dishes			0	3	6	1	6			
	0	0	D	0	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	3	D
	4	4		4	4	4	4	4	4	E
	5	5		5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	
	7	7		7	7	7	7	7	7	
	8	8		8	8	8	8	8	8	
	9	9		9	9	9	9	9	9	



ITEM	NO.	F	CODE
17. Light, table and sour cream			03617
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
21. How many of these _____ servings would usually be ham and pork? Do not include bacon or sausage			03620
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
18. Whipped topping			03618
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
22. ...sausage, cold cuts and hot dogs?			03621
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
19. Whipped cream			03619
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
23. ...beef, hamburger and lamb?			03622
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
20. How many times in a week do you eat meat and fish? This is meat of any kind, plain, in mixtures, or in sandwiches. Do not include bacon or liver.			0
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	

ITEM	NO.	F	CODE
24. ...venison?			03623
	0	0	00000000
	1	1	11111111
	2	2	22222222
	3	3	33333333
	4	4	44444444
	5	5	55555555
	6	6	66666666
	7	7	77777777
	8	8	88888888
9	9	99999999	



Both the sum of the number of times in question 21-29 and the sum of the number of times in question 30-32 must equal the total number of times 84 in question 20.

ITEM	NO.	F	CODE					
25. ...raccoon?			0	3	6	2	4	
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
29. ...canned fish, such as, tuna, salmon, sardines, etc.?			0	3	6	2	7	
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
26. ...chicken, turkey, quail, duck, squirrel, rabbit and opossum?			0	3	6	2	5	
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
30. Of the _____ meat servings how many would be mixtures, such as, casseroles, stew, meaty soups, spaghetti with meat sauce, chili, etc. <i>Serving = 1 oz. per cup casserole</i>			0					
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
27. ...variety meats, such as, pork stomach, pig's feet, pig's ear, ham hocks, oxtail, tripe, brains, sweetbreads, tongue and kidney? <i>Circle response</i>			0					
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
31. Of the _____ meat servings, how many would be sandwiches, hot dogs or small hamburgers? <i>Child = 22g. Adult = 45g.</i>			0					
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
28. ...fresh or frozen fish and frog?			0	3	6	2	6	
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		

ITEM	NO.	F	CODE					
32. Of the _____ meat servings how many would be plain meat, not mixed with anything?			0					
	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	
9	9	9	9	9	9	9		



ITEM	NO.	F	CODE						
33. How often do you eat bacon? 1 slice			0	3	6	2	8		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
37. Soybeans mature			0	3	6	3	1		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
34. Liver List Kind  serving = 2oz.			0						
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
38. Peanut butter and nuts			0	3	6	3	2		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
35. Eggs, such as, scrambled, fried, poached, deviled, etc. Do not include those used in baking (1 egg)			0	3	6	2	9		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
39. Carrots, cook- ed and raw			0	3	6	3	3		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
36. Cooked dried beans and peas, such as, navy, kidney and pinto beans, lentils and blackeye peas Used in pork and beans, ham and beans, soup, chili, refried beans, etc.			0	3	6	3	0		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	W	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		

ITEM	NO.	F	CODE						
40. Squash, all kinds except zucchini			0	3	6	3	4		
	0	0	D	0	0	0	0	0	A
	1	1	W	1	1	1	1	1	B
	2	2	M	2	2	2	2	2	C
	3	3	Y	3	3	3	3	3	D
	4	4		4	4	4	4	4	E
	5	5		5	5	5	5	5	
	6	6		6	6	6	6	6	
	7	7		7	7	7	7	7	
	8	8		8	8	8	8	8	
9	9		9	9	9	9	9		



ITEM	NO.	F	CODE
41. Sweet potatoes, yams and pumpkin			0 3 6 3 5
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
45. Cabbage, cooked and raw			0 3 6 3 9
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
42. Broccoli			0 3 6 3 6
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
46. Tomatoes, in season: include raw, canned, sauce and juice <i>Do not include catsup</i>			0 3 6 4 0
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
43. Green beans, peas and corn			0 3 6 3 7
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
47. Tomatoes, out of season			0 3 6 4 1
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
44. Brussels sprouts			0 3 6 3 8
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
48. Dark leafy greens in season: include chard, spinach, beet and turnip greens and wild greens, such as, polk; lambsquarter, dock and dandelion greens			0 3 6 4 2
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	



ITEM	NO.	F	CODE
49. Dark leafy greens, out of season			0 3 6 4 3
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
53. Noodles, macaroni and spaghetti			0 3 6 4 4
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
50. Seasonal vegetables frequently eaten <i>Specify</i>			0
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
54. Grits			0 3 6 4 5
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
51. Other vegetables frequently eaten <i>Specify</i>			0
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
55. Potatoes, instant			0 3 6 4 6
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
52. Rice, such as, instant, regular, long-cooking, converted, brown, wild and rice mix <i>Specify</i>			0
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
56. Potatoes, frozen: French fries, tater tots and hash browns			0 3 6 4 7
	0	0	0 0 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 1 B
	2	2	w 2 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5 5
	6	6	6 6 6 6 6 6 6
	7	7	7 7 7 7 7 7 7
	8	8	8 8 8 8 8 8 8
9	9	9 9 9 9 9 9 9	





ITEM	NO.	F	CODE						
57. Potatoes, fresh <i>prepared by any method</i>			0	3	6	4	8		
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
61. Orange and grapefruit juice; and oranges, grapefruit and tangerines			0	3	6	5	1		
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
58. Pizza			0	3	6	4	9		
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
62. Other fruit juice <i>Do not include tomato, fortified fruit-flavored drinks and orange and grapefruit juice</i> <i>Specify</i>			0						
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
59. Lettuce Salad			0	3	6	5	0		
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
63. Other fruit juice <i>Specify</i>			0						
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
60. Fortified fruit flavored drinks: include Hi-C, Tang, Start, Awake, Orange Plus, Wagner's, Kool-Aid <i>Circle response</i>  <i>(If R. is unable to give a usual brand, but has 2 or 3 on equal basis, circle all mentioned)</i>			0						
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	

ITEM	NO.	F	CODE						
64. Apples and bananas, fresh  <i>Child = 75g.</i> <i>Adult = 150g.</i>			0	3	6	5	2		
	0	0	0	0	0	0	0	0	A
	1	1	1	1	1	1	1	1	B
	2	2	2	2	2	2	2	2	C
	3	3	3	3	3	3	3	3	D
	4	4	4	4	4	4	4	4	E
	5	5	5	5	5	5	5	5	
	6	6	6	6	6	6	6	6	
	7	7	7	7	7	7	7	7	
	8	8	8	8	8	8	8	8	
	9	9	9	9	9	9	9	9	



ITEM	NO.	F	CODE
65. Canned fruit: include peaches, applesauce, fruit cocktail, pears, apricots, pineapple, plums, etc.			0 3 6 5 3
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
69. Other fresh, frozen or canned fruit or juice not mentioned <i>Specify</i> _____			0
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
66. Fresh fruit, such as, peaches, pears, pineapple, etc. <i>Specify</i> _____  Child = 75g. Adult = 150g.			0
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
70. Hot or cold cereal <i>Specify brand</i> _____ _____ _____			0
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
67. Dried fruit, such as, apricots, prunes, raisins, figs, etc. <i>Specify</i> _____			0
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
71. Milk on cereal <i>Serving = 3/4 quantity of cereal</i>			0
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
68. Muskmelons: canteloupe, honeydew and casaba <i>In season</i>  Child = 50g. Adult = 100g.			0 3 6 5 4
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	

ITEM	NO.	F	CODE
72. Bread: include bread, toast, French toast, rolls, biscuits and muffins  <i>Count 1 piece as a serving</i>  <i>Serving size = 23g.</i>			0 3 6 5 5
	0 0	D	0 0 0 0 0 0
	1 1	W	1 1 1 1 1 1
	2 2	M	2 2 2 2 2 2
	3 3	Y	3 3 3 3 3 3
	4 4		4 4 4 4 4 4
	5 5		5 5 5 5 5 5
	6 6		6 6 6 6 6 6
	7 7		7 7 7 7 7 7
	8 8		8 8 8 8 8 8
9 9		9 9 9 9 9 9	



QUESTION 77, 78, 79 ASK:  
Do you fry or season any vegetables or fruits with.... 90

ITEM	NO.	F	CODE
73. Hamburger and hot dog buns, bagels and English muffins  Count each bun as 2 servings Serving size = 23g.			0 3 6 5 5
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
77. Vegetable oil, such as, corn, cottonseed, peanut, soybean and sunflower  Circle response			0
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
74. Sweet rolls and donuts  1 piece Child = 22g. Adult = 45g.			0 3 6 5 8
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
78. Hydrogenated vegetable shortening, such as, Crisco, etc.			0 3 6 6 0
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
75. Pancakes and waffles  1-4" diameter 45g.			0 3 6 5 9
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
79. Bacon grease, suet, lard and fat-back  Circle response			0 1 2 4 1
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
76. Butter or margarine, used on potatoes, vegetables, bread, etc. Do not include when used in baking  Regular or Diet Circle response			0
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
80. Gravy, drippings only			0 3 6 6 2
	0	D	0 0 0 0 0 0 0 0 A
	1	W	1 1 1 1 1 1 1 1 B
	2	M	2 2 2 2 2 2 2 2 C
	3	Y	3 3 3 3 3 3 3 3 D
	4		4 4 4 4 4 4 4 4 E
	5		5 5 5 5 5 5 5 5
	6		6 6 6 6 6 6 6 6
	7		7 7 7 7 7 7 7 7
	8		8 8 8 8 8 8 8 8
9		9 9 9 9 9 9 9 9	

ITEM	NO.	F	CODE
81. Gravy, drippings thickened with flour and water			0 3 6 6 3
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
85. Cake			0 3 6 6 7
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
82. White sauce or gravy made with milk			0 3 6 6 4
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
86. Cookies			0 3 6 6 8
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
83. Salad dressing of any kind, including mayonnaise			0 3 6 6 5
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
87. Candy and candy bars <i>Specify kind and amount</i>			0
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

*Child = 15g.  
Adult = 35g.*

ITEM	NO.	F	CODE
84. Pie and pastry			0 3 6 6 6
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
88. Crispy munchy foods, such as, chips, (potato chips, corn chips and fritos) pretzels, popcorn, etc. <i>Circle response</i>			0
	0	0	D 0 0 0 0 0 0 A
	1	1	W 1 1 1 1 1 1 B
	2	2	M 2 2 2 2 2 2 C
	3	3	Y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	



ITEM	NO.	F	CODE
89. Crackers			0 3 6 6 9
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
93. Low calorie soda <i>Specify brand</i>			0
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
90. Honey, ice cream toppings and syrups, including molasses, sorghum and table blends			0 3 6 7 0
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
94. Regular soda			0 0 4 0 4
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
91. Jams, jellies and preserves			0 3 6 7 1
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
95. Tea and coffee			0 0 8 0 0
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
92. Sugar, brown, white and confectioners			0 2 2 3 0
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	

ITEM	NO.	F	CODE
96. Milk or cream in coffee <i>Specify kind</i>			0
	0	0	D 0 0 0 0 0 0 A
	1	1	w 1 1 1 1 1 1 B
	2	2	m 2 2 2 2 2 2 C
	3	3	y 3 3 3 3 3 3 D
	4	4	4 4 4 4 4 4 E
	5	5	5 5 5 5 5 5
	6	6	6 6 6 6 6 6
	7	7	7 7 7 7 7 7
	8	8	8 8 8 8 8 8
9	9	9 9 9 9 9 9	



ITEM	NO.	F	CODE
97. Beer, wine, whiskey or other alcohol <i>Specify kind</i>			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
101.			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
98. Salt: iodized, plain or unknown <i>Circle response</i>			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
102. Fruit drink ONLY			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
99. Vitamin or mineral supplements <i>Give brand, quantity and frequency.</i>			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
103. Cereal ONLY			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
100.			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	

ITEM	NO.	F	CODE
104.			0
	0	0	0
	1	1	1
	2	2	2
	3	3	3
	4	4	4
	5	5	5
	6	6	6
	7	7	7
	8	8	8
9	9	9	



ITEM	NO.	F	CODE											
104a.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					

ITEM	NO.	F	CODE											
104e.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					

ITEM	NO.	F	CODE											
104b.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					

ITEM	NO.	F	CODE											
104f.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					

ITEM	NO.	F	CODE											
104c.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					

ITEM	NO.	F	CODE											
104d.			0											
	0	0	D	0	0	0	0	0	0	A	A			
	1	1	W	1	1	1	1	1	1	B	B			
	2	2	M	2	2	2	2	2	2	C	C			
	3	3	Y	3	3	3	3	3	3	D	D			
	4	4		4	4	4	4	4	4	E	E			
	5	5		5	5	5	5	5	5					
	6	6		6	6	6	6	6	6					
	7	7		7	7	7	7	7	7					
	8	8		8	8	8	8	8	8					
	9	9		9	9	9	9	9	9					



GRAY	MODEL		PROPORTION		
109. Ice cream and sherbet	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
110. Cottage Cheese	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
111. Whipped cream and whipped topping	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
112. Rice	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
113. Grits	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
114. Potatoes	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
115. Popcorn	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
116. Canned fruit	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
117. Dried fruit	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
118. Casseroles	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
119. Cooked vegetables	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		

GRAY	MODEL		PROPORTION		
120. Cooked dried beans and peas	0 0		0 0 0		
	1 1		1 1 1		
	2 2		2 2 2		
	3 3		3 3 3		
	4 4		4 4 4		
	5 5		5 5 5		
	6 6		6 6 6		
	7 7		7 7 7		
	8 8		8 8 8		
	9 9		9 9 0		





BOWL <i>Model 18 ONLY</i>	MODEL	PROPORTION
121. Cereal	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

BOWL <i>Model 18 ONLY</i>	MODEL	PROPORTION
122. Lettuce salad	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

BOWL <i>Model 18 ONLY</i>	MODEL	PROPORTION
123. Chips, pretzels, etc.	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

BROWN	MODEL	PROPORTION
124. Plain meat, no fat or bone	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

GLASSES	MODEL	PROPORTION
125. Milk	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

GLASSES	MODEL	PROPORTION
126. Milk shake	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

GLASSES	MODEL	PROPORTION
127. Fruit juices and fruit drinks	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

GLASSES	MODEL	PROPORTION
128. Soda <i>regular and diet</i>	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

GLASSES	MODEL	PROPORTION
129. Alcohol	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

ORANGE	MODEL	PROPORTION
130. Cheese	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

ORANGE <i>Model 90 ONLY</i>	MODEL	PROPORTION
131. Pie	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0

ORANGE <i>Model 92 ONLY</i>	MODEL	PROPORTION
132. Pizza	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 0



ORANGE Model 94 ONLY	MODEL	PROPORTION
133. Cake	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

ORANGE Model 96 ONLY	MODEL	PROPORTION
134. Cookies	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

ORANGE Model 98 ONLY	MODEL	PROPORTION
135. Crackers	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

YELLOW	MODEL	PROPORTION
136. Butter and oleo	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
137. Peanut butter and nuts	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9
58 = 1T.		
52 = 1t.		
50 = 1/2t.		
30 = 1/4t.		

SPOONS	MODEL	PROPORTION
138. Vegetable oil and vegetable shortening	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
139. Bacon grease, fat-back and lard	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
140. Gravy	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
141. Sugar	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
142. Honey, toppings and syrup	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
143. Jellies, jams and preserves	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9

SPOONS	MODEL	PROPORTION
144. Salad dressing and mayonnaise	0 0	0 0 0
	1 1	1 1 1
	2 2	2 2 2
	3 3	3 3 3
	4 4	4 4 4
	5 5	5 5 5
	6 6	6 6 6
	7 7	7 7 7
	8 8	8 8 8
	9 9	9 9 9



SPOONS	MODEL		PROPORTION		
145. Sour cream and light table cream	0	0	0	0	0
	1	1	1	1	1
	2	2	2	2	2
	3	3	3	3	3
	4	4	4	4	4
	5	5	5	5	5
	6	6	6	6	6
	7	7	7	7	7
	8	8	8	8	8
	9	9	9	9	9

IDENTIFICATION NO.									
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

RACE
Caucasian ①
Am. Indian ②
Black ③
Oriental ④
Spanish ⑤
Other ⑥

HEIGHT (in.)		
0	0	0
1	1	
2	2	
3	3	
4	4	
5	5	5
6	6	
7	7	
8	8	
9	9	

WEIGHT (lb.)			
0	0	0	0
1	1	1	
2	2	2	
3	3	3	
4	4	4	
5	5	5	5
6	6	6	
7	7	7	
8	8	8	
9	9	9	

SEX
Male ①
Female ②
Pregnant ③
Lactating ④

DATE OF BIRTH		
Mo.	Day	Yr.
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

EXAM DATE		
Mo.	Day	Yr.
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

RELIABILITY
Poor ①
Average ②
Good ③



## DIRECTIONS FOR USING OPTICALLY SCANNED

## DIETARY HISTORY FORM

The dietary history form has been designed to measure an individual's average daily intake of a wide variety of foods over a one year period of time. The form can be adjusted to report intake over a shorter period of time if the yearly frequency is omitted.

The printout obtained reports not only the total daily intake of calories and other nutrients but also reports calories and servings by the basic four food groups. To accomplish this, each food is classified as to its main contribution to the diet (a classification chart has been included).

To simplify recording the foods eaten over an extended period of time many similar food items have been grouped together (such as peas, beans and corn). Other food items that may be prepared by a variety of methods have been grouped together (such as fried hamburger, pot roast, steak, rib roast). The nutrients in the foods within each group have been averaged and a dietary form code number assigned. The dietary form code numbers have been printed in the book and along with the classification by food group are a part of the program.

There are also many questions where the appropriate food must be coded and usually classified. Only 52-Rice, 76-Butter or Margarine, 87-Candy, and 97-Alcohol have had the classification pre programmed.

The dietary form code numbers may be changed as long as the new food is within the same food group (is classified the same). This is particularly important if you plan to use the calories and servings by basic four food groups.

The booklet is divided into two parts. In part one, the questions ask the number of times and frequency (day, week, etc.) a food is consumed. The foods are grouped by the basic four beginning with dairy, then meat, vegetable, fruit, breads and cereals, fat, desserts, snacks and other sweets and finally beverages. Part two asks the serving size. Questions are grouped by the type of food model used. Note that often a model question applies to several food questions. For example, all vegetables must fit one vegetable serving size, therefore, if the subject consumes only a few carrot sticks, but a fairly large serving of other vegetable, the number of servings of the carrots should be adjusted to fit the food model selected.

The 100 questions provide extra space if needed. The models do not apply, all servings are 100 grams therefore frequency must often be adjusted. For example, if the subject consumes both ready-to-eat cereal and hot cereal you may put one under 1. 70 and the other under q. 103. Hot cereal being the larger is easier to work with. 1C hot cereal per week = 2.40g per week  $240/100 = 2.4$  100g serving per week.  $2.4 \times 4.5$  (no. week per mo.) = 10.8 or 11 serv. per month.

Directions for administering and coding:

Use a colored pen (any color except green). Ask the questions so that you are not suggesting an answer. Be non judgemental. Write in their response as to the number and frequency in boxes provided. The space within the question boxes may be used for notes. After the interview code and classify the questions that do not have a dietary form code. Then fill in the circles using a dark soft #2 lead pencil for the numbers and letters you have coded. It is not necessary to fill in circles for the printed dietary codes.

Under the model questions you must use only gray models for q. 109 - 120, bowls for 121 - 123 brown for 124 glasses for 125 - 129 orange models for q. 130 - 135, yellow only for q. 136. Measuring spoons for the remainder of the questions. All the spaces must be filled in for the ID, Race, Height and Weight and reliability are optional. You must fill in sex and both dates to enable the computer to calculate RDA group.

APPENDIX D

KCAL (ENERGY) AND NUTRIENT CONTENT PER 100 GRAM  
PORTION OF 15 TYPICALLY  
ASIAN/INDIAN DISHES

KCAL (ENERGY) AND NUTRIENT CONTENT PER 100 GRAM PORTION OF 15 TYPICALLY ASIAN/INDIAN DISHES

Dishes	Kcal (energy)	Protein (gm)	Calcium (mg)	Phosphorus (mg)	Iron (mg)	Vitamin A (I.U.)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg NE)	Vitamin C (mg)
Chapati	239.2	8.9	27.7	297	2.2	75.3	.44	.08	2.9	-
Pakora	210.7	5.8	31.6	100	2.5	170.5	.07	.04	.66	13.96
Samosa	260.5	4.8	28	59.4	1.8	39.2	.19	.14	1.71	37.2
Murgh Mussalam	231	22.9	69.5	227.4	6.2	149.7	.11	.02	6.8	20.7
Palak Paneer	119.7	4.9	117.2	55.7	1.7	5770.5	.08	.12	.38	21.21
Sheek Kabab	290	29.74	41.4	276.7	3.1	34.4	.14	.26	6.7	5.4
Dhal	125.5	5.9	48.8	88.5	2.8	54.9	.13	.08	.95	21.3
Mutton Korma	244.7	13.1	172	165.4	5.4	308.9	.17	.2	6.2	4.7
Aloo Masala	47.5	1.93	24.5	74.3	2.2	432.4	.3	.06	2.3	42.4
Raita	50.8	2.8	96.5	76.3	.59	160.9	.03	.11	.3	6.3
Pillau	191.3	4.5	24.5	74.3	2.2	245.3	.3	.06	2.3	9.8
Mint Chutney	50.6	4.1	140.0	56.3	12.4	160.1	.04	.2	.7	33.9
Burtha	152.6	2.1	30.1	47.6	4.2	377.9	.06	.04	.79	30.23
Kabli Channa	140.9	6.6	71.0	114.7	2.8	269.1	.16	.07	.93	14.2
Lemon Pickle	26.5	1.1	27.8	18	.7	406.9	.03	.03	.13	35.7



**APPENDIX E**

**CONSENT FORM**



**APPENDIX F**

**BIRTHPLACE OF SUBJECTS**

## BIRTHPLACE OF SUBJECTS

---

CITY	STATE	NUMBER
Kansas City	Kansas	16
Boston	Massachusetts	4
New York City	New York	4
Fairmont	W. Virginia	3
Kansas City	Missouri	3
Cincinnati	Ohio	2
Chicago	Illinois	2
Los Angeles	California	2
Raleigh	N. Carolina	2
Seattle	Washington	2
Charleston	N. Carolina	1
Columbus	Ohio	1
Durham	N. Carolina	1
Detroit	Michigan	1
Denver	Colorado	1
Grand Rapids	Michigan	1
Hartford	Connecticut	1
Houston	Texas	1
Madison	Wisconsin	1
Pittsburgh	Pennsylvania	1

---

APPENDIX G

CHI-SQUARE CONTINGENCY TABLES

and

FISHER'S EXACT TEST TABLE FOR

DEMOGRAPHIC CHECK SHEET

## Chi-square Contingency Tables

## Age

		15-16 years	17-18 years	
Sex	Male	14	11	25
	Female	19	6	25
		33	17	50

$$x^2 = 2.228$$

## Length of Residence in Kansas City

		5 to 7 years	8 to 18 years	
Sex	Male	4	21	25
	Female	8	17	25
		12	38	50

$$x^2 = 1.647$$

## Number of Visits to India

		1-2 times	3-5 times	
Sex	Male	16	8	24
	Female	14	10	24
		30	18	48

$$x^2 = .3556$$

## Educational Attainment of Subjects

		9th-11th grade	12th grade - beyond high school	
Male		12	13	25
Female		20	5	25
		32	18	50

$$x^2 = 5.556$$

$$x^2_1, .05 = 3.841$$

## Present Employment Status of Subjects

		Part time	Unemployed	
Sex	Male	3	22	25
	Female	4	21	25
		7	43	50

$$p = .291286$$

## Educational Attainment of Parents

## College Graduate

		Father	Mother	
Sex	Male	23	20	43
	Female	25	21	46
		48	41	89

$$x^2 = .0066$$

## Region of Origin of Father in India

		North	West	
Sex	Male	6	8	14
	Female	10	11	21
		16	19	35

$$x^2 = 0.768$$

## Region of Origin of Mother in India

		1-2 times	3-5 times	
Sex	Male	6	8	14
	Female	9	12	21
		15	20	35

$$x^2 = 0.000$$

		Income Level		
		> \$25,000	\$15,000 to \$24,999	
Sex	Male	18	4	22
	Female	19	6	25
		37	10	47

$$\chi^2 = 0.23650$$



**APPENDIX H**

**FISHER'S EXACT TEST TABLES**

**and**

**CHI-SQUARE CONTINGENCY TABLE**

**FOR NUTRIENT INTAKE DATA**

## Kilocalories (energy)

		> 67%	< 67%	
Sex	Male	25	0	25
	Female	21	4	25
		46	4	50

$p = .054923$

## Calcium

		> 67%	< 67%	
Sex	Male	23	2	25
	Female	21	4	25
		44	6	50

$p = 0.238818$

## Iron

		> 67%	< 67%	
Sex	Male	19	6	25
	Female	19	6	25
		38	12	50

$\chi^2 = .1166$

		Phosphorus		
		> 67%	< 67%	
Sex	Male	25	0	25
	Female	24	1	25
		49	1	50

p = .49999

		Niacin		
		> 67%	< 67%	
Sex	Male	24	1	25
	Female	23	2	25
		47	3	50

p = .382653

		Riboflavin		
		> 67%	< 67%	
Sex	Male	25	0	25
	Female	24	1	25
		49	1	50

p = .49999

**APPENDIX I**

**FREQUENCY OF CONSUMPTION OF 15 TYPICALLY ASIAN/INDIAN  
FOODS EXPRESSED AS PERCENTAGES AND NUMBERS FOR FEMALES**

**Frequency of Consumption of 15 Typically Asian/Indian Foods  
Expressed as Percentages and Numbers for Females (n=25)**

FOODS	NEVER	Number of times												PERCENT	
		DAILY			WEEKLY			MONTHLY							
		1	5	4	3	2	1	3	2	1	4	3	2	1	
<b>BREAD/CEREAL PRODUCTS</b>															
Chapati	0	24(6)*	8(2)	12(3)	16(4)	16(4)	24(6)								100
Pakora	0						16(4)	4(1)	32(8)	44(11)	4(1)				100
Samosa	8(2)								24(6)	60(15)	8(2)				100
Pillau 2	8(2)				12(3)		32(8)		20(5)	28(7)					100
<b>MAIN DISHES/ENTREES</b>															
Murgh Mussalam 1	16(4)				4(1)	4(1)	44(11)	8(2)		16(4)	8(2)				100
Sheek Kebab 1	68(17)						12(3)	4(1)		12(3)		4(1)			100
Mutton Korma 1	84(21)						12(3)					4(1)			100
Palak Paneer 2	52(13)				4(1)	4(1)	8(2)	8(2)		16(4)	8(2)				100
Dhal 2	4(1)	24(6)	4(1)	8(2)	12(3)	28(7)	12(3)	4(1)	4(1)						100
Kabli Channa 2	4(1)						32(8)		16(4)	44(11)				4(1)	100
<b>ACCOMPANIMENTS</b>															
Aloo Masala 2	8(2)			8(2)	8(2)	20(5)	48(12)	4(1)	4(1)						100
Burtha 2	44(11)					4(1)	28(7)		4(1)	16(4)				4(1)	100
Raita 2	24(6)			8(2)	4(1)	12(3)	44(11)			4(1)				4(1)	100
<b>RELISHES</b>															
Chutney	20(5)				8(2)	16(4)	28(7)		4(1)	16(4)	4(1)	4(1)			100
Lemon Pickle	24(6)	16(4)		4(1)	20(5)	4(1)	24(6)			8(2)					100

\* numbers in parenthesis  
1 non vegetarian  
2 vegetarian

**APPENDIX J**

**FREQUENCY OF CONSUMPTION OF 15 TYPICALLY ASIAN/INDIAN  
FOODS EXPRESSED AS PERCENTAGES AND NUMBERS FOR MALES**

**Frequency of Consumption of 15 Typically Asian/Indian Foods  
Expressed as Percentages and Numbers for Males (n=25)**

FOODS	NEVER	Number of times											PERCENT	
		DAILY		WEEKLY			MONTHLY							
		1	5	4	3	2	1	3	2	1	4	3	2	1
<b>BREAD/CEREAL PRODUCTS</b>														
Chapati	0	20(5)*	4(1)	8(2)	16(4)	16(4)	20(5)		12(3)	4(1)				100
Pakora	0				4(1)		24(6)		20(5)	52(13)				100
Samosa	16(4)						4(1)		12(3)	12(3)	4(1)		4(1)	100
Pillau 2	16(4)					16(4)	16(4)	12(3)		36(9)			4(1)	100
<b>MAIN DISHES/ENTREES</b>														
Murgh Mussalam 1	20(5)				4(1)	4(1)	44(11)			28(7)				100
Sheek Kebab 1	84(21)						4(1)			8(2)			4(1)	100
Mutton Korma 1	84(21)				4(1)	4(1)	8(2)							100
Palak Paneer 2	64(16)						16(4)		12(3)	4(1)			4(1)	100
Dhal 2	12(3)	28(7)	4(1)	8(2)	8(2)	8(2)	24(6)		8(2)					100
Kabli Channa 2	20(5)					4(1)	20(5)		8(2)	40(10)		4(1)	4(1)	100
<b>ACCOMPANIMENTS</b>														
Aloo Masala 2	20(5)	12(3)				28(7)	24(6)		8(2)	8(2)				100
Burtha 2	56(14)						20(5)			20(5)		4(1)		100
Raita 2	60(15)						20(5)		12(3)	8(2)				100
<b>RELISHES</b>														
Chutney	40(10)	8(2)				4(1)	24(6)	4(1)	8(2)	8(2)		4(1)		100
Lemon Pickle	20(5)	20(5)				4(1)	36(9)			16(4)			4(1)	100

\* numbers in parenthesis  
1 non vegetarian  
2 vegetarian

**APPENDIX K**

**KCAL (ENERGY) AND NUTRIENT INTAKE DATA  
FOR INDIVIDUAL FEMALE SUBJECTS**



KCAL (ENERGY) AND NUTRIENT INTAKE DATA FOR INDIVIDUAL FEMALE SUBJECTS

Subject Number	Kcal (energy)	Protein (gm)	Calcium (mg)	Phosphorus (mg)	Iron (mg)	Vitamin A (I.U.)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg NE)	Vitamin C (mg)
3	4025.9	137.7	2467.4	2908	23.4	16576	2.9	4.3	53.2	406.5
4	3195.3	100.7	1186.3	1818	25.0	16985	2.2	2.2	45.8	283.3
6	4991.2	157.8	2395.7	3082	27.5	9585	2.8	3.8	54.9	286.2
9	2916.2	84.4	1424.9	1921	19.7	5440	2.2	2.7	33.9	133.1
10	3377.9	122.4	2277	2446	24.4	15724	2.1	3.6	42.7	248.5
12	2476.7	82.6	1044.7	1504	18.8	6511	1.8	1.8	32.9	231.8
18	3075.2	97.3	1715.5	1882	21.3	9432	2.2	3.0	40.5	274.6
21	2307.5	95.4	1272.3	1601	19	9486	1.7	2.6	41.8	197.7
22	1861	65.5	1213.1	1382	11.8	7120	1.2	2.0	24.2	152.2
23	3633.9	111.1	2143.4	2237	23.7	17946	2.4	3.4	41.3	415.9
24	2053.6	53.1	752.2	1100	17.2	7353	1.4	1.4	21.9	194.9
28	1437.5	31.7	431.1	602	10.9	7186	.8	.6	13.1	172.1
30	1740.2	57.8	771.4	1042	12.9	5995	1.3	1.6	23.5	131.2
31	2247	83.4	1392.2	1595	12.2	5960	1.4	2.4	30.7	141.6
32	2357.6	83.8	1350.4	1610	15.4	7189	1.7	2.4	22.8	219.6
35	2484	79.0	1298.5	1526	13.9	8627	1.8	2.3	32.2	225.6
37	2469.3	81.8	1018.9	1468	19.0	8309	1.8	1.8	31.8	251.1
38	2478.2	67.6	1336.0	1626	12.2	5339	1.9	2.5	28.0	87.9
41	1198	35.4	644.9	881	9.7	4805	1.0	1.0	13.5	89.7
42	1494.5	53.4	804.2	976	9.1	4886	1.1	1.6	22.1	109.3
43	1769.1	65.4	893.6	1162	11.4	4085	1.4	1.6	26.1	192.1
44	2529.8	106.3	1955.5	2019	16.3	6159	1.8	3.5	36.1	239.7
46	2334.1	99.3	1623.5	1787	15.7	20555	1.8	3.0	39.0	204.2
49	1326.1	55.0	871.7	1030	11.8	10411	1.1	1.5	21.0	167.0
50	2305.0	80.0	1208.4	1472	20.0	9711	1.4	1.9	31.3	249

**APPENDIX L**

**KCAL (ENERGY) AND NUTRIENT INTAKE DATA  
FOR INDIVIDUAL MALE SUBJECTS**

KCAL (ENERGY) AND NUTRIENT INTAKE DATA FOR INDIVIDUAL MALE SUBJECTS

Subject Number	Kcal (energy)	Protein (gm)	Calcium (mg)	Phosphorus (mg)	Iron (mg)	Vitamin A (I.U.)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg NE)	Vitamin C (mg)
1	7104	273	5424.9	5489	55.7	13064	3.9	6.2	45.8	432.3
2	4622.7	153.6	2207.6	2886	31.5	17210	2.8	3.9	65.3	393.7
5	2893.6	64.4	726.1	1053	11.3	3500	1.6	1.5	27.3	117.9
7	2030.6	81.4	1060	1301	11.3	5134	1.2	1.9	28.8	152.1
8	3173.6	85.7	1125.8	1490	16.6	13469	1.5	1.8	33.4	124.4
11	4910.7	110	2138.4	2237	24.1	20205	2.4	3.5	41.5	274
13	2024.4	79.2	1402.8	1533	14.1	8607	1.4	2.4	29.5	149
14	5615.5	177.8	3707.3	3684	31.0	14987	3.7	6.4	69.5	374
15	3736.9	125.6	2318.8	2562	20.1	18347	2.3	4.0	42.8	210.3
16	2494.1	108.9	2280.0	2280	19.0	10846	2.1	3.2	41.9	215.6
17	5421.8	153.2	3201.0	3235	20.6	32867	2.7	5.6	54.3	233.6
19	1978.8	53.1	810.3	1194	15.1	4355	1.4	1.3	22.7	118.3
20	5343	160	3337.1	3391	30.9	11138	4.3	5.5	69.2	419.9
25	3697.1	135.4	2889.3	2907	20.0	13250	2.4	4.8	49.3	233.7
26	6325.6	171.3	3402.8	3548	34.4	27516	3.3	5.8	64.1	476.6
27	2781.9	87.5	1831	1871	18.8	7058	1.9	3.0	33.5	182.8
29	2780.1	96.1	1780	1883	29.8	8969	2.0	3.2	37.9	261.4
33	1858.9	72.4	1884.8	1725	9.6	7250	1.3	3.0	23.0	131.9
34	2965.9	95.6	1328	1865	18.0	10350	2.0	2.5	40.9	177.9
36	3199.7	104.7	1893.2	2215	17.1	15046	2.3	3.4	39.5	175.2
39	3727.8	123.9	1983.7	2288	18.8	28188	2.1	3.6	48.5	201.2
40	1647.5	52.4	643.1	1053	11.4	3978	1.4	1.3	23.4	122.7
45	1964.6	71.1	1022	1194	11.1	8473	1.4	2.1	29.9	113.1
47	1881.4	60	1027.6	1215	10.1	5950	1.3	1.8	24.5	172.3
48	1619.8	50.8	881.2	1155	13.5	5261	1.4	1.6	20.9	134.3

APPENDIX M

% RDA KCAL (ENERGY) AND NUTRIENT INTAKE  
FOR INDIVIDUAL FEMALE SUBJECTS

% RDA KCAL (ENERGY) AND NUTRIENT INTAKE FOR INDIVIDUAL FEMALE SUBJECTS

Subject Number	Kcal (energy)	Protein	Calcium	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Vitamin C
3	159	299	206	242	130	414	265	330	216	677
4	127	219	99	152	139	425	201	171	207	472
6	196	343	200	257	153	240	253	295	204	477
9	114	183	119	160	109	136	199	207	141	222
10	132	266	190	204	135	393	190	276	159	414
12	97	180	87	125	105	163	166	138	137	386
18	121	212	143	157	118	236	202	231	174	458
21	90	207	106	133	106	237	152	199	185	329
22	73	142	101	115	66	178	106	151	95	254
23	143	242	179	186	132	449	217	263	163	693
24	81	115	63	92	95	184	128	110	93	325
28	56	69	36	50	61	180	76	49	55	287
30	68	126	64	87	72	150	115	120	99	219
31	88	181	116	133	68	149	123	185	120	236
32	92	182	113	134	85	180	154	185	135	366
35	97	172	108	127	77	216	166	178	136	376
37	97	178	85	122	105	208	163	137	130	418
38	97	147	111	135	68	133	171	190	120	147
41	47	77	54	73	54	120	87	76	54	149
42	59	116	67	81	50	122	104	125	94	182
43	69	142	74	97	63	102	126	125	109	320
44	99	231	163	168	91	154	162	267	131	399
46	92	216	135	149	87	514	166	230	160	346
49	52	119	73	86	66	260	96	117	85	278
50	90	174	101	123	111	243	130	145	128	416

APPENDIX N

% RDA KCAL (ENERGY) AND NUTRIENT INTAKE  
FOR INDIVIDUAL MALE SUBJECTS

% RDA KCAL (ENERGY) AND NUTRIENT INTAKE FOR INDIVIDUAL MALE SUBJECTS

Subject Number	Kcal (energy)	Protein	Calcium	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Vitamin C
1	347	489	452	457	309	261	282	362	242	721
2	225	341	184	240	175	522	204	245	221	787
5	141	115	61	88	63	70	113	91	92	196
7	99	145	88	108	63	103	83	111	85	253
8	155	153	94	124	92	269	109	109	106	207
11	240	197	178	186	134	404	172	208	128	457
13	99	141	117	128	78	172	100	140	90	248
14	274	317	309	307	172	300	263	375	222	623
15	182	279	193	214	112	556	163	252	122	421
16	122	194	160	190	106	217	152	188	132	359
17	264	274	267	270	114	657	190	328	160	390
19	97	95	68	99	84	87	99	76	77	197
20	261	286	278	283	171	223	307	326	236	700
25	180	242	241	242	111	265	169	284	148	389
26	309	306	284	296	191	550	237	343	198	794
27	136	156	153	156	104	141	135	179	105	305
29	136	172	148	157	165	179	142	189	122	436
33	96	129	157	144	53	145	94	178	61	220
34	145	171	111	155	100	207	141	144	138	296
36	156	233	158	185	95	456	161	212	122	350
39	182	221	165	191	104	564	147	214	155	335
40	80	94	54	88	64	80	97	75	82	205
45	96	127	85	100	62	169	97	123	100	188
47	92	107	86	101	56	119	95	107	81	287
48	79	91	73	96	75	105	98	92	69	224