

A STUDY OF EATING HABITS OF SELECTED  
OKLAHOMA TEEN-AGERS

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A STUDY OF EATING HABITS OF SELECTED  
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## PREFACE

The study, designed to discover what the eating habits of Oklahoma teen-agers actually are, grew out of a need to have a basis for developing programs for Oklahoma teen-agers that would result in better teaching of nutrition in high school classes and in 4-H Clubs.

Two groups of teen-agers were used in obtaining (1) a record of foods eaten by 770 4-H Club boys and girls and (2) reports from 150 high school boys and girls indicating foods eaten over a two-day period and also a checked list of foods indicating their food preferences.

The writer wishes to express appreciation to her adviser, Miss Rowan Elliff, for her guidance and encouragement throughout the planning and writing of the study.

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Sincere thanks are also expressed to the boys and girls who cooperated and to the following school officials who granted permission for the surveys to be made in their respective schools: R. C. Nichols, Superintendent, Fred Kelton, Principal of Miami High School, N. G. Carter, Superintendent of Port High School, Rector Johnson, Superintendent, and Bill Orr, Principal of Broken Bow High School. Appreciation is due the teachers in these schools for their assistance in making the survey and to the State 4-H Club staff for giving permission for a survey to be made at the State Fair Schools.

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## CHAPTER I

### THE NEED FOR A FUNCTIONING NUTRITION PROGRAM FOR TEEN-AGERS

Leaders in American life are beginning to realize what an important potential our country has in the young people who comprise that group known as adolescents. They are aware of the importance of good physical and mental health and the need for helping young people, especially teen-agers, develop strong physical bodies coupled with mental alertness.

One of the important concerns of educators who have this point of view is how to help young people develop the kind of eating habits that are essential to maximum growth and development. They realize that guiding teen-agers in developing good eating habits is a challenge. This is particularly true of Home Economics educators both in resident and extension teaching.

Teachers are beginning to question the results of their teaching in this respect and many of them feel that the entire approach to the teaching of nutrition needs careful examination and revision in order to be of adequate help in improving the nutritional status of the adolescent or teen-age group.

People in Oklahoma who have this responsibility feel the need for knowing existing eating practices as a basis for making their teaching of nutrition more functional. This need prompted the making of a limited study of the eating habits of Oklahoma teen-agers.

The writer's observations over a period of years indicated that

young people are increasingly assuming responsibility for their own growth and development. Such a situation has elements of danger. Many people are asking whether young people are taking their responsibilities seriously. Equally important is what responsibilities do adults have in guiding growing young people. One specific question arouses real concern in the minds of teachers and others who work with teen-agers--are young people of this generation eating the food they need in order to grow and maintain healthy bodies and keen minds, capable of withstanding the tensions of the age? If the answer is in the negative, what steps should be taken to remedy the situation?

The writer's observations led to the assumption that teen-agers, as a group, have an inadequate intake of the foods needed for maximum health. Such a conclusion is unwarranted unless supported by evidence, but in order to be in a position to develop a program designed to bring about improvement it became necessary to ascertain facts regarding the eating habits of adolescents; that is, to find what food teen-agers eat. It was soon evident that one could work with only a selected group and the results of such a study would be indicative rather than definitive but might well serve as a starting point in efforts to determine the situation that exists and then to devise ways of attacking problems uncovered. She, therefore, proposed to study the problem: What are the eating habits of selected Oklahoma teen-agers?

One of the recent studies dealing with teen-age nutrition has this statement regarding the nutritional problems of teen-agers:

Product development and marketing programs have brought the best of food within the reach of every family. Older people have been shown the food way to lengthen active, productive years. Widespread education in menu-planning has expanded knowledge and changed eating habits. But in the middle of this concerted drive for better living through better nutrition, we have not focused effectively on a most important segment of



our population--the teen-agers, some 16,000,000 strong, yet the food needs and patterns of this vast group are peculiar to their age, and their eating habits have long been appallingly poor.<sup>1</sup>

Many people are beginning to be concerned about the situation and are recognizing the need to find what the situation is, what improvements need to be made, and some effective ways of achieving desirable changes. In other words, home economists are beginning to question how effective their teaching has been and how weaknesses in the teaching program can be remedied. The great need for stressing the importance of nutrition to teen-agers is emphasized. Adult leaders in Home Economics have a problem facing them, that of making the subject of eating good food interesting and challenging to young people.

Observations indicate that nutrition is generally uninteresting to adolescents. The previously mentioned survey suggests a question frequently raised by teen-agers:

When so much that is important is going on, why spend time on the dull subject of foods good for you? This lack of interest in nutrition, plus lack of knowledge on the close relationship of food, good looks and vitality, does a great deal to shape poor food habits. Despite all the good efforts of parents and teachers, teen-agers are not being truly motivated to take nutrition seriously.<sup>2</sup>

If this observation is true changes need to be made in existing educational programs.

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<sup>1</sup>Pauline Berry Mack, Teen-Age Food Patterns, Pennsylvania State University, Texas State College for Women (Lever Brothers, 1955) p. 3.

<sup>2</sup>Ibid. p. 3-4.

## CHAPTER II

### BASIS FOR A STUDY OF FOOD PREFERENCES AND CHOICES

Limitations of the study. Before recommendations can be made for an effective program designed to guide young people in concentrated effort to improve diets it is necessary to know what they eat. Knowledge of eating habits is needed in order to be able to suggest changes that will help individuals maintain good health; therefore the question arises, how can information concerning eating habits be secured?

The logical approach for obtaining facts concerning the eating habits of present day teen-agers in Oklahoma seemed to be through a series of surveys designed to disclose what foods young people eat. A tentative plan for making the study was developed during the summer of 1955. At that time a general plan was outlined for collecting data needed to solve the problem. The tentative plan was revised and data were collected in the fall and winter of 1955-56.

The study was based on the hypothesis that a survey of eating habits of selected Oklahoma teen-age young people would indicate to some extent the dietary habits of Oklahoma teen-agers and data obtained might be used as a basis for making recommendations for an improved instructional program in nutrition.

It was assumed that teen-agers tend to have somewhat similar eating patterns and that there would be comparatively little variation in eating patterns within the state of Oklahoma. It was also assumed that it would be possible to secure the cooperation of young people in making needed

surveys.

Two groups were available for use in making the study:

1. 4-H Club members attending the three Oklahoma State Fair Schools at Muskogee, Tulsa and Oklahoma City.
2. Students from three high schools in different sections of Oklahoma: Miami, Broken Bow and Port.

In order to carry out such a study the writer proposed to:

1. Record the food left on individual trays by 365 boys and 365 girls who attended the three 4-H State Fair Schools.
2. Obtain information through check sheets from 150 high school students concerning:
  - a. Foods eaten for two consecutive days.
  - b. Likes and dislikes of specific foods included on a check list. (Referred to later as "Food Preferences").
3. Analyze the information thus obtained to determine patterns of eating and food preferences.
4. Compare patterns disclosed with recognized authoritative standards to disclose strengths and weaknesses in dietary patterns.
5. Summarize findings and make recommendations in light of the strengths and weaknesses disclosed for use in developing more effective instructional programs in nutrition for high school classes and 4-H club work.

Obtaining data at state fair schools. The first step was to secure a list of foods eaten and refused by 4-H Club members representing every county in Oklahoma.

The young people ate their meals cafeteria style. The planned menus were nutritious and well balanced. Only one menu was served for each meal.

Trays were checked at the completion of each meal to observe and record the foods left on the plates. This was done as each individual passed through a line to deposit soiled dishes.

The foods served on plates or in side dishes were handed to the boys and girls as they passed through the line. The bread, oleomargarine and drinks were arranged for each individual to choose or refuse. It was possible to get an accurate record of the foods, accepted or rejected, as the young people returned their trays at the completion of the meals. A system was used to identify the food and size of the serving by using small colored cards placed on the trays to indicate bread, oleomargarine and drinks. A green card represented bread and as many green cards were placed on an individual's tray as he desired slices of bread. A pink card was placed on the tray of a person requesting oleomargarine and a blue card was given the teen-ager choosing milk. Yellow cards were used to identify tea, and orange cards, coffee. White cards represented fruit juice.

Obtaining data concerning food consumed by high school students. The second survey used as a means of obtaining evidence concerning the food habits of teen-agers was the collection of a two-day dietary from boys and girls in three selected high schools in the State. Each of these three high schools, referred to as A, B, and C, represented communities in a wide area. Information secured from the teen-agers was obtained by means of a check list which contained all the most commonly eaten foods in the south central section of the United States. The writer went into each of the three schools on two consecutive days and supervised the checking of these lists. There was no discussion of food requirements or any pressure used by any adult. The boys and girls were given freedom to

refuse to check the list if they so desired. The information on the list was explained and the young people were told that there was no penalty for the response recorded. The only reason for having them check the list was to secure true information concerning the foods they had actually eaten for the two-day period.

Obtaining data concerning food likes and dislikes from high school students. Data for the third or last part of the survey were obtained from the same group of teen-agers in the three selected high schools, who had checked their diets for two consecutive days. It was concerned with obtaining information as to the food likes and dislikes of those who responded. Again a list of foods was given each boy and girl. This list included the foods most commonly eaten in this section of the United States. The list was so arranged that it was easy to check the foods as to whether they ate it every day, three times a week, or more often, once or twice a week, occasionally, or never.

Data were recorded, tabulated and analyzed in each case in order to find what foods were eaten at the Fair Schools, what foods high school students reported they had eaten for two days, and what foods high school students reported they liked to eat or did not like to eat.

In order to be able to help young people attack this problem for themselves it is necessary to know what they are like and what habits they really practice. It is axiomatic that we start to give help to people where they are at the time selected for helping or teaching them.

#### Basic Philosophy Underlying the Study

The value of the developmental concept. The average individual is aware of many of the tremendous changes taking place in the developing

person from birth into adulthood and his decline into senility. The study of human development reveals that many psychologists believe they have been able to note various stages of development in different age groups. Studies have shown that individuals tend to go through predictable developmental stages. Growth in any respect is contingent upon the development of the whole individual rather than in relation to only one particular category.

In guiding human development it is important that opportunity be provided for the individual to develop in the various ways characteristic of the human species. Many educators have used this particular concept of growth as a means of recognizing what may be expected of young people at any particular stage in their development. An understanding of this concept helps leaders of young people to gauge teaching in terms of the needs of the learner. The growing person needs to be aware of predictable stages beyond the immediate present and to shape his goals in terms of what he wishes to become. He is ever striving to become an independent, responsible adult, capable of solving his own problems and adjusting to reality.

Teachers who make use of this concept in developing educational programs for youth are careful to point out that while individuals at a given stage of growth may be expected to react similarly, yet there is a wide variation among people within any age group. Consequently, each individual may set goals for his own growth.

No doubt this is one reason why some leading educators speak of education in terms of growth. Spafford has this to say concerning the role of education; "Education is seen as a continuous process, as providing tools for meeting changes when that is more desirable; to be

measured by the intelligence and adequacy with which an individual meets the various life situations in which he finds himself."<sup>1</sup> The realization that education is continuous is both challenging and encouraging because it provides a daily opportunity for leaders of youth to try to do a better teaching job.

The adolescent years are very important and so recognized by teachers, 4-H Club leaders, and community workers whose responsibility it is to direct and guide young people. Youth leaders recognize that all children have basic needs which must be planned for and directed in desirable ways if the individual is to achieve his maximum growth and development. Home Economics leaders in Oklahoma recognized this factor to the extent that they recorded the following statement in their material which is used as a basis for developing a homemaking program: "The youth is urged in the direction of maturity, in emotional, social, psychosexual, and intellectual development, through the combined pressures of inner drives and the insistence of society."<sup>2</sup>

Educators have given much study to developmental needs and have grouped them in different ways, however all have the same purpose--that of meeting the inner needs of adolescents. A grouping has been accepted by home economics leaders in the Oklahoma Agricultural and Mechanical College in Stillwater, Oklahoma, as a basis for planning high school programs. These groupings are:

1. Egotistic needs (need for achievement, recognition, and independent action).

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<sup>1</sup>Ivol Spafford, A Functioning Program of Home Economics (New York, 1946) p. 62.

<sup>2</sup>Oklahoma State Board for Vocational Education, "Bases for Developing a Homemaking Program" (Bulletin No. 1, Oklahoma City, 1954) p. 5.

2. Social needs (need for belonging to a close adhesive group, affiliation, and assuming socially responsible behavior).
3. Psychosexual needs (need for affection, and response in human relations, for emancipation from parental love to be replaced with person-to-person love, and to form an intimate emotional and physical relation with a member of the opposite sex).
4. Spiritual, aesthetic, and creative needs.
5. Emotional health and physical health needs.<sup>3</sup>

Knowledge of the needs of adolescent development thus provides a basis for understanding teen-agers. Other groups of educators are in accord with this concept as indicated by the following quotation: "The faculty of the University School of Ohio State University believes that an understanding of the growth and development of children and adolescents is fundamental to the building of an effective curriculum."<sup>4</sup>

Various theories have been developed which help to explain individual growth and development. All theories have somewhat the same purpose, that of securing a better understanding of the individual in relation to his development and of seeing how guidance can be given.

This belief was a major concern in the minds of Oklahoma Home Economists. For this reason leaders of the Home Economic teaching field in Oklahoma believed the time had come to revise the curriculum. It was their desire to revise it to meet present day needs of Oklahoma homes and communities. Knowing the needs of the individuals must be the first step in this undertaking. Home Economics Curriculum workshops were organized in Oklahoma University, Norman, Oklahoma; Oklahoma College for Women, Chickasha, Oklahoma; and Oklahoma A. and M. College, Stillwater, Oklahoma. The workshops were conducted during the summers of 1953, 1954, 1955, and

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<sup>3</sup>Ibid. pp. 6-7.

<sup>4</sup>"How Children Develop" Ohio State University Bulletin No. 3 (Columbus, 1949). p. lll.



1956. The following organization of developmental goals or needs was accepted by workshop groups at the Oklahoma Agricultural and Mechanical College in the summer of 1954:

1. Achievement of personal competence adequate to develop a sense of personal worth.
2. Achievement of social competence sufficient to give the individual status in social groups.
3. Achievement of an aesthetic sense with an appreciation for establishing values for the cultural things in life and a creative desire for cultural progress.
4. Achievement of a working philosophy of life which would involve a life philosophy composed of beliefs and values integrated into personality structure.
5. Achievement of optimal mental and physical health adequate to the development needs of a proper and functioning human body.<sup>5</sup>

It is well to point out here that the individual must undertake such developmental tasks as are needed in order to achieve his goals. The achievement of each goal or the successful mastery of each task or job strengthens the individual in accomplishment of future endeavors. Brannon gives an excellent interpretation of this idea, as follows: "The developmental task concept provides an organizational framework of youth's needs and interest which are related to developmental stages of growth."<sup>6</sup>

Throughout civilization people have had problems which were recognized as needs to be met. In past decades the wisdom of the mature adult was considered as the authority for providing the answers for problem solving. With the development of many new avenues of learning, problem solving has come to be more and more an individual responsibility. One reason for this is that the present day system of education provides teaching and learning techniques for all age groups. This stimulates

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<sup>5</sup>"Basis for Developing a Homemaking Program," Oklahoma State Board of Vocational Education Bulletin No. 1 (Oklahoma City, 1954).

<sup>6</sup>Betty Jean Brannon, "A Developmental Approach to the Teaching of Clothing in the Ninth Grade" (Unpublished M.S. thesis, Division of Home Economics, Oklahoma A. & M. College, 1955). p. 12.

thinking in the minds of both the young and the mature; and thinking is problem solving. An encouraging factor in this era of increased learning is that much material is readily available for adults to be used by them in guiding others. Much responsibility for guidance falls on Home Economics teachers and Extension workers.

An understanding of human development helps the adult leader to guide adolescents in understanding themselves. A mutual understanding between the leader and learner helps the adult in guiding young people into mature, healthy, happy, successful men and women. Home economists are becoming increasingly aware of their responsibilities in guiding the growth and development of teen-agers. One writer had this to say about the part of home economists in the guidance of youth: "It is our responsibility to our family and friends, and to our profession, to build and maintain good health, both of body and of mind."<sup>7</sup> Most educational leaders are in agreement with Mort and Vincent concerning the starting point in education. They say, "You start to grow from where you are and not from some artificial starting point."<sup>8</sup>

Characteristics of Teen-agers. Parents, teachers, youth leaders and others need to know what teen-agers are like, what they need and what to expect of them if they are to guide them. The faculty of Ohio University believed that an understanding of the growth and development of children is fundamental; therefore they summarized the results of research in a

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<sup>7</sup>Jardine C. Winnifred, "The Nutrition of Teen-Agers," Journal of Home Economics, 47, No. 5, May 1955, p. 333.

<sup>8</sup>Paul R. Mort and William S. Vincent, Modern Educational Practices (New York, 1950), p. 403.

report which has done much to help others understand some of the complexities of adolescent growth and development. The following statements summarize ten characteristics which describe the teen-agers of this generation in aspects related to physical growth.

1. They are likely to feel they have unlimited resistance and unlimited energy.
2. This is a period of rapid growth and development.
3. Rapid growth is likely to cause either a tremendous increase in appetite, or, sometimes, particularly in girls, a fickleness with loss of appetite.
4. Most girls of this age are taller and proportionately heavier than boys.
5. Some adolescents have periods of sluggishness while others desire activities which will release excess energy. Growth is rapid and uneven. The long bones of the body are continuing to grow rapidly. There is also rapid muscular development. Glandular changes are taking place which influence the whole tone and effectiveness of the organism.
6. Skin disorders, especially acne, continue to be of major concern to young people.
7. They are especially anxious to conform to standards of their age group.
8. They are over confident in their ability to take care of their health problems.
9. These individuals are striving for independence and at the same time clinging to security.
10. These young people are also beginning to recognize and to think vaguely about some of the basic problems they will have to solve, such as marriage and the choice of a career.

Because of continued change and growth teen-agers need to be well fed. Proper nutrition is necessary for development, both physical and mental. One educator writes concerning proper diet, "Because these are the growing years and the years when physical changes are taking place, it is especially important that teen-agers have the proper diet."<sup>10</sup> The author of one textbook used in home economics classes has this comment on the value of proper food for youth: "Your capacity for joyful living .

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<sup>9</sup>"How Children Develop," Ohio State University Bulletin No. 3, (Columbus, Ohio, 1949), pp. 40-63.

<sup>10</sup>Dorothy E. Shank, "Self-Interest as Motivation in Teaching Nutrition to Teens," What's New in Home Economics, XVII, No. 7, (September, 1953), p. 61.

is partially dependent upon the food you eat."<sup>11</sup>

The teaching of nutrition. Much teaching of nutrition has been attempted, yet it is believed by many that not all adolescents are eating the foods which will contribute most to growth and development. Evidence on this point is difficult to obtain, but studies have been made which give reason to support this belief. An article which reported on a study was summarized by Dorothy Shank as follows: "Recent information on studies made of the diets of children and teen-agers indicate that their diets need to be improved and that more forceful education is needed."<sup>12</sup>

In order to arrive at what the responsibility of the teacher or leader is, it is desirable to turn to a review of what educators have to say about teaching and teaching methods. Counts speaks of an enduring civilization based on the success of present day educational methods and results of these methods. He says, "Education is more than mental training; it is first of all a process of inducting the young into ways, privileges and responsibilities of a given society."<sup>13</sup> Teaching them should have firmly woven into its methods a high appreciation of the patriotic privilege of living, learning and developing in a nation of abundance; but it should not lose sight of the fact that abundant food does not necessarily mean well-fed people. This nation is known world-wide for success in producing food, but we are not known world-wide as a nation with masses of teen-agers who practice eating the proper amounts and kinds from the abundance of food which our country produces.

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<sup>11</sup>Florence La Ganke Harris and Ruth A. Henderson, Foods, Their Nutritive Economics and Social Values, (Boston, 1949), p. 4.

<sup>12</sup>Shank, p. 61.

<sup>13</sup>George S. Counts, Education and American Civilization, (New York, 1952), p. 33.

Much experimentation has been done on the effect of diet with livestock by Land Grant College Experiment Stations. As a result of such studies there is a continuous growth and development in the livestock industry. The advance in animal nutrition at a greater rate than nutrition in the human species may be because animals have little or no opportunity to make food choices, therefore foods given them are usually consumed. This same method is usable in most part for babies but not for adolescent age groups. By this age the individual has usually developed ability to make distinct choices; therefore the problem faces the leaders of teenagers, what can be done to get young people to assume responsibility for making wise food choices? What guidance can be given in selecting and eating the kind of diet that is essential to physical well-being? There is an abundance of knowledge available for teen-agers concerning selection of adequate meals but adults must find ways to convince young people of its importance. Youth must be brought to realize that the continued use of a diet that is inadequate will have permanent and harmful effects on adult maturity. Methods should be devised to instill an awareness that daily consumption of a first-rate diet is necessary for an individual to live abundantly. Home Economists are again reminded of the need for a better nutrition program that will give emphasis to improved eating habits. Rountree believes that, "Students of all ages are highly immune to nutritional inoculation unless the serums of wisdom are carried in a solution of sympathy, understanding, and psychology. If facts fail to take, the individual profits little."<sup>14</sup> Thus, one of the challenging opportunities for home economists is to plan a program which will guide teen-agers to

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<sup>14</sup>Jennie Rountree, "The Human Factors in Nutrition," Journal of Home Economics, 41 (February, 1949), p. 433.

desire to improve their diets. Spafford says, "Home Economics offers unusual opportunities for meeting adolescent needs and interests."<sup>15</sup> It follows then that the teaching techniques used should be adapted to the teen-age spirit and be made attractive enough to stimulate adolescents to eat the foods they know they should.

Related studies. Eating habits of adolescents are of concern to all educational leaders and to home economists in particular. Leaders in this field have assisted with the making of surveys to discover the eating habits of teen-agers.

Some states have made such surveys. State experiment stations located at Land Grant Colleges in each of the four regions of the United States have made extensive studies of the eating habits of children and adolescents. A report from one college survey recorded these findings: "As these children reached their teens about fifty-five percent or more had intakes of nutrients below the National Research Council's recommendations according to evidence obtained in the New York (Cornell) station study."<sup>16</sup>

Additional information from regional studies on the diets of young people state that, "Recent information on studies made of the diets of children and teen-agers indicates that their diets need to be improved, and that more forceful nutrition education is needed."<sup>17</sup>

Many studies have been conducted that deal with the eating habits of adolescents. One made by Pauline Berry Mack was begun while in Pennsylvania State University and concluded at Texas State College for Women.

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<sup>15</sup>Ivol Spafford, Fundamentals in Teaching Home Economics, (New York, 1942), p. 59.

<sup>16</sup>Shank, p. 61.

<sup>17</sup>Ibid.

The Pennsylvania program surveyed about three thousand girls to ascertain what they ate. Inadequate diet was found among many. With this information a follow-up program was supervised in Texas to observe some results in girls when proper diet was practiced. The results of these findings disclose some tremendously important findings related to teen-age growth and development. The following statement is from these studies:

Physically speaking, the teen-age is in a period of growth and terrific physiological development--the involved physiological development of puberty. Growth, especially the rapid skeletal growth of childhood and the teens, puts extra stresses on the body. When the right kinds of foods do not compensate for these stresses there is failure of some sort. The failure may come in size--the body frame may not achieve its growth potentials. The failure may come in poor mineralization of the bones--they may not grow adequately dense. The failure may come in skeletal maturity, that gradual development of the skeleton on the way to adulthood, and maturity may be accelerated or retarded beyond the usual age. Usually, when food intake is so inadequate as to threaten all aspects of growth very seriously, nature slows growth in order that a smaller framework may have reasonable bone density.

Stunted teens mean stunted adults, with body frames not as big as they could be, with a skeletal box sometimes too small for the organs it must hold. As yet, we do not know all the dangers of stunting. What we do know is that stunting can be prevented.<sup>18</sup>

In 1952 in the Pennsylvania State University a teen-age eating habits survey was reported. This study checked the kinds and amounts of foods eaten regularly by 3000 teen-agers. The researchers drew conclusions and reported on how good or poor diet affected appearance, vitality and general physical well-being. Some of their reports follow:

1. Nearly half of the group did not get enough calories to keep them growing and going.
2. Half the girls and nearly three-quarters of the boys were too tired all the time.
3. One-third of the boys and two-thirds of the girls come up with low hemoglobin.
4. Nearly half of the boys and girls had a variety of skin problems.<sup>19</sup>

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<sup>18</sup>Mack, p. 4-5.

<sup>19</sup>Ibid.

Another study was made of the diets of teen-agers in Pennsylvania under the direction of Dr. Pauline Berry Mack. A statement made regarding the study follows: "The reports of the study indicate that young people between thirteen and twenty years of age are often undernourished; the diets of boys in this age group were better than those of girls."<sup>20</sup>

Some few years back the whole country became deeply interested in finding the kind of foods teen-agers were eating. This interest led to a series of regional studies. The following statement is indicative of the findings: "The reports of the study indicate that young people between thirteen and twenty years of age are often undernourished; the diets of the boys in this age group were better than those of the girls."<sup>21</sup> The California Home Economics Association made a study of the eating habits of school children in that state. Preceding the survey a preliminary survey was made to ascertain the opinion of home economics teachers as to primary causes of poor health. Teachers reported that, ". . . one-third were considered 'inadequate or omitted breakfast' one of the most serious health problems among their students."<sup>22</sup>

In Idaho a study of a group of school boys and girls fifteen and sixteen years of age was made. These results were reported:

Evaluation of the nutritional intake of these subjects showed that the average intake exceeded 80 percent of the 1953 recommended allowances except for iron for girls. On the other hand, 30 percent of the subjects reported diets which supplied less than one-half of the recommended

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<sup>20</sup>Ibid.

<sup>21</sup>Ibid.

<sup>22</sup>Kathleen P. Warnick, Shirley V. Breny, and Ellen Woods, "Nutritional Status of Adolescent Idaho Children," Journal of American Dietetics Association, Vol. 31, No. 11 (November, 1955), p. 1143.



allowances of one or more nutrients.<sup>23</sup>

A nation-wide survey was conducted by General Mills, Incorporated, of about 60,000 teen-agers in thirty-eight states. This survey showed that the diets of two out of three adolescents needed improvement. The following information from this study is of particular interest to people in this section of the United States:

In the nation-wide survey a look at foods eaten for breakfast showed that, although three-fourths or more reported eating enough bread and cereal, over eight percent in each region reported they did not have eggs. Fruits were most frequently omitted by students in the Southwest region. The South and the Southwest had the poorest showing for the consumption of butter, fortified margarine, and milk. For the country as a whole, milk, bread, and cereal appeared more often in the breakfast than eggs, fruit, and butter.<sup>24</sup>

The study goes further to say: "In the majority of the areas surveyed, there was a strong evidence of the change from good to poor food habits in general as students reached their teens."<sup>25</sup>

The girls in a ninth grade homemaking class in Michigan made a two-weeks survey of their own eating habits. The following results were reported:

More than eighty percent of the girls had good ratings for eating meat and bread or cereal, but more than two-thirds were poor in eating leafy green and yellow vegetables. Almost two-thirds were poor in eating citrus fruits, tomatoes and raw cabbage. Almost one-half were poor in drinking milk or eating milk products. Almost one-third were poor in eating other fruits and vegetables (not including potatoes). Over one-half were poor in the requirements of one egg every other day.<sup>26</sup>

These findings convinced these girls and the instructor that there was an immediate need for improvement of eating habits.

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<sup>23</sup>Ibid.

<sup>24</sup>General Mills Study, "Teen-Agers and Their Breakfasts," What's New in Home Economics, XVIII, (September, 1954), p. 245.

<sup>25</sup>Ibid.

<sup>26</sup>Dorothy J. Clark, "Operation Food Control," Forecast, Vol. 70 (January, 1955), p. 16.

## CHAPTER III

### AN ANALYSIS OF DATA REGARDING THE DIETS OF OKLAHOMA TEEN-AGERS

Recorded observations and information obtained by checking trays of 4-H Club boys and girls at three State Fair Schools and information from the survey of two check lists to high school students were the means for collecting data concerning the eating habits of two selected groups of teen-agers.

The first survey was a check of trays of 770 4-H Club boys and girls representing every county in Oklahoma. This was done at three Oklahoma State Fair Schools, Muskogee, Oklahoma City and Tulsa. The young people were told at the beginning of each of the Fair Schools that specific kinds of foods remaining on their trays would be recorded as a means of determining those refused by members of the group. In making the check it was assumed that foods not remaining on the trays at the end of the meal had been eaten by the individual possessing the tray.

Two surveys were administered to 75 teen-age boys and 75 teen-age girls to ascertain eating habits and food preferences. These boys and girls represented three separate high schools and many different communities. One high school was located at Miami, Oklahoma, in Ottawa County, which is the extreme northeastern county of the state. The second one was Broken Bow, in McCurtain County, the extreme southeastern county, and the third was at Port, in Washita County, located near Cordell in the southwestern section of the state.

The boys and girls in these schools first checked a food list

indicating the kind and amount of food they had eaten for a two day period. The same group of young people also checked a second food list on which they indicated the frequency of eating the various foods listed. They were told that the purpose of the survey was to obtain information on foods they had eaten. An opportunity was given for any individual to refuse to cooperate in the survey. In none of the groups was there a refusal and very polite cooperation was given by all participants. It was assumed that a food checked on the first list had been eaten by the individual checking the list. It was also assumed that foods checked on the second list were indications of the frequency various foods were eaten.

The various foods reported by boys and girls in this study through tray checks and check lists have been classified according to basic food groups. The Basic Food Guide is a guide for planning and eating the proper amount and kinds of foods by means of well-balanced meals. It is issued and endorsed by the Bureau of Human Nutrition and Home Economics which has since become the Institute of Home Economics.

The Basic Food Guide was made available by the Institute of Home Economics. It lists the following groups: Group I--leafy, green and yellow vegetables; Group II--citrus fruit, tomatoes, raw cabbage and other high Vitamin C foods; Group III--potatoes and other vegetables and fruits; Group IV--milk, cheese and ice cream; Group V--meat, poultry, fish, eggs, dried beans and peas and nuts; Group VI--bread, flour and cereal; Group VII--butter and fortified margarine; Energy Group--foods to be eaten in addition to the previous seven basic groups but not in place of them.

Table I which follows shows the percentage of acceptance of the

TABLE I  
 SUMMARY OF FOODS ACCEPTED AT THREE STATE FAIR SCHOOLS  
 BY 770 4-H CLUB MEMBERS

Groups of Foods	Foods Times Served	Number Varieties	Acceptance of Foods Served			
			Boys		Girls	
			Accepted	Percentage	Accepted	Percentage
I. Leafy green and yellow vegetables	10	3	1207	86	1050	76
II. Citrus fruit, tomatoes and other high vitamin C foods	18	3	1842	75	1850	76
III. Potatoes and other vegetables and fruits	10	2	1323	94	1190	84
IV. Milk, cheese and ice cream	22	3	2074	71	1897	64
V. Meat, poultry, fish, eggs, dried beans and peas, nuts	18	5	2120	92	1877	81
VI. Bread, flour and cereal	22	3	2802	96	2534	87
VII. Butter and fortified margarine	18	1	1847	80	1711	73
<u>Energy Group</u> to be eaten in addition to Basic Seven Foods but not in place of them	24	10	2939	91	2786	86

foods offered to 770 4-H Club members at the State Fair Schools.

Foods Accepted by 4-H Club Members at the State Fair Schools  
and Classified in the Basic Food Groups

A review of the information provided in Table I shows that the returned meal trays of a total of 770 boys and girls were studied for evidences of foods acceptance and rejection. This was reasonably easy to do because menus were known and devices for speedy tabulations could be improvised. Appendix A is the detailed compilation from which Table I has been summarized.

Foods offered from Basic Food Group I included green beans, carrots and peas. They were accepted by 86 percent of the 365 boys and 76 percent of the 365 girls in the following order: green beans were best accepted, peas second in acceptance and carrots, least.

Foods offered from Basic Food Group II were orange juice, mixed citrus juice, raw cabbage and green salad. Foods from this group were accepted by 75 percent of the boys and 76 percent of the girls. It should be noted that 77 percent of the boys and 74 percent of the girls accepted salads. Orange juice was the most frequently accepted food, with salads ranking second.

Foods offered in Basic Food Group III were potatoes and corn, and they were accepted by 94 percent of the boys and 84 percent of the girls. Potatoes were accepted by the majority of the teen-agers.

Foods offered in Basic Food Group IV were milk, cheese and ice cream. They were accepted by 71 percent of the boys and 64 percent of the girls, with ice cream first choice, milk second, and cheese third choice.

Foods offered in the Basic Food Group V were beef, chicken, ham, eggs and baked beans. The foods in this group were accepted by 92 percent

of the boys and 81 percent of the girls in the following order: beef, ham, eggs, chicken and baked beans.

Foods offered in Basic Food Group VI were bread and cereal and they were accepted by 93 percent of the boys and 84 percent of the girls. Bread was accepted better than cereal.

Food offered in Basic Food Group VII was fortified margarine and it was accepted by 80 percent of the boys and 50 percent of the girls.

Foods offered from the Energy Food Group were apple crisp, cake, cobbler, cookies, pudding, pie, sweet rolls, doughnuts, jelly, syrup, and bacon. The foods in this group were accepted by 91 percent of the boys and 86 percent of the girls in the following order: pie, sweet rolls, cookies, cake, pudding and cobbler, bacon, jelly and syrup, doughnuts and apple crisp.

Table II shows the number of times foods from the various groups were served and the percentage of boys and girls accepting. The table also shows the order of acceptance of the foods within the various groups. When the food acceptance as related to different groups was ranked, the Basic Food Group VI (bread and cereal) ranked first with both boys and girls. Ranking second with boys was Group III (potatoes and corn) while ranking second with girls was the energy group of foods (desserts, sweet rolls, jelly, syrup and bacon). Basic Food Group V (meat, dried beans and eggs) ranked third with boys and Group III (potatoes and corn) ranked third with girls. The Energy Food Group (desserts, sweet rolls, jelly, syrup and bacon) ranked fourth for boys while Group V (meat, dried beans and eggs) ranked fourth with girls. Basic food Group I (green beans, peas and carrots) ranked fifth with boys while ranking fifth with girls were Groups I (green beans, peas and carrots) and II (citrus fruit, raw

TABLE II

RANKING OF ACCEPTED BASIC FOOD GROUPS  
(Foods Served at 4-H Club Fair Schools)

Rank	Food Groups	Times Served	Total Number Times Accepted	Percentage Accepting
<u>Boys</u>				
1st	Group VI (bread, cereal)	22	2802	96
2nd	Group III (potatoes, corn)	10	1323	94
3rd	Group V (meat, dried beans, eggs)	18	2120	92
4th	Energy Foods (cake, pie, pudding, sweet rolls, jelly, syrup, bacon)	24	2786	91
5th	Group I (green beans, peas, carrots)	10	1207	86
6th	Group VII (fortified margarine)	18	1847	80
7th	Group II (citrus fruit, raw cabbage, green salad)	18	1842	75
8th	Group IV (milk, cheese, ice cream)	23	2074	71
<u>Girls</u>				
1st	Group VI (bread, cereal)	22	2534	87
2nd	Energy Foods (cake, pie, pudding, sweet rolls, jelly, syrup, bacon)	24	2786	86
3rd	Group III (potatoes, corn)	10	1190	84
4th	Group V (meat, dried beans, eggs)	18	1877	81
5th	Group II (citrus fruit, raw cabbage, green salad)	18	1850	76
5th	Group I (green beans, peas, carrots)	10	1050	76
6th	Group IV (milk, cheese, ice cream)	23	1897	64
7th	Group VII (fortified margarine)	18	1711	73

cabbage and green salad). Group VII (fortified margarine) ranked sixth for boys and Group IV (milk, cheese and ice cream) ranked sixth for girls. Group II (citrus fruit, raw cabbage and green salad) ranked seventh with boys while Group VII (fortified margarine) ranked seventh for girls. Group IV (milk, cheese and ice cream) ranked eighth with boys and there was no eighth place ranking for girls because two groups tied for the fifth rank.

Table III shows the foods eaten by 75 boys and 75 girls from three separate high schools as indicated by checked food lists, for a two-day period. Foods reported eaten were classified according to the Basic Food Groups. Appendix B is the detailed compilation from which Table III has been summarized.

The table shows the foods reported eaten. The 75 boys reported having eaten from Group I (leafy, green, and yellow vegetables) 187 times, while the 75 girls reported 201 servings. The foods reported from this group to have been eaten the most times by boys were first, green beans; second, carrots; third, spinach and other greens; fourth, sweet potatoes; fifth, green pepper and sixth, green peas. The girls reported the following vegetables from this group to have been eaten the most times: first, green beans; second, carrots; third, spinach and other greens; fourth, sweet potatoes; fifth, green peas and sixth, green pepper.

Boys reported having eaten 187 servings from Group II (citrus fruit, tomatoes, raw cabbage and green salad) while girls reported having eaten 210 servings from this group.

Food Group III (potatoes and other vegetables and fruits) were reported by boys to have been eaten 372 times and girls reported eating these foods 432 times. Both boys and girls seemed to show a tendency to



TABLE III

SUMMARY OF FOOD EATEN FOR TWO DAYS\* AS REPORTED  
BY 150 HIGH SCHOOL STUDENTS

Groups of Foods	Number Varieties	Acceptance of Foods Served	
		Boys	Girls
I. Leafy, green and yellow vegetables	11	187	201
II. Citrus fruit, tomatoes, raw cabbage, and other high vitamin C foods	8	187	210
III. Potatoes and other vegetables and fruits	23	372	432
IV. Milk, cheese and ice cream	4	263	245
V. Meat, poultry, fish, eggs, dried beans and peas and nuts	12	432	384
VI. Bread, flour and cereal	8	382	426
VII. Butter and fortified margarine	2	146	121
<u>Energy Food Group.</u> To be eaten in addition to Basic Foods but not in place of them	9	266	294

\*Number of servings of food reported for two days

have eaten the vegetables in this group better than the fruits. The potato was the vegetable reported to have been eaten most by both boys and girls. The fruits reported to have been eaten the most by boys were first, peaches; second, apples; and third, bananas. Girls reported eating apples most frequently, second peaches and third bananas.

Food Group IV (milk, cheese and ice cream) was reported eaten by boys 263 times and by girls 245 times. More servings of milk were reported to have been consumed by boys than by girls.

Group V (meat, poultry, fish, eggs, dried beans and peas, and nuts) were reported eaten 432 times by boys and 384 times by girls. Beef was the first choice meat reported by boys and girls and pork was the second choice. Dried beans were reported by more than two-thirds of the boys and the girls. Eggs were reported to have been eaten by almost 100 percent of the group.

Group VI (bread, flour, cereal) was reported eaten 382 times by boys and 426 times by girls. All boys and girls reported eating bread.

Group VII (butter and fortified margarine) was reported eaten 146 times by boys and 121 times by girls.

The foods recommended to give energy and to be eaten in addition to the Basic foods were reported eaten by boys 266 times and by girls 294 times. Desserts were reported eaten by girls more times than by boys. Cake was the dessert reported the most times by girls and pie by boys. Boys reported eating candy more times at mealtime than did girls. Bacon was reported to have been eaten more times by girls than by boys.

Table IV indicates the extent to which the 150 high school students reported eating foods in the Basic Groups. The daily recommendation for Group I (leafy, green, and yellow vegetables) is one or more servings.

TABLE IV

## SUMMARY OF ACCEPTANCE OF BASIC FOOD GROUPS

Number of Servings of Food Reported by 150 High School Students in a Two-Day Survey

Food Groups	6 or More Servings in Two Days		4-5 Servings in Two Days		2-3 Servings in Two Days		1 Serving in Two Days Less Than 1 a Day		None	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	I. Leafy, green and yellow vegetables	4	4	12	15	28	38	12	9	19
II. Citrus fruit, tomatoes, raw cabbage, green salad	8	10	13	16	30	34	15	6	9	9
III. Potatoes and other vegetables and fruits	39	37	19	27	14	10	1	0	2	1
IV. Milk, cheese, ice cream	39	33	24	14	3	11	0	4	9	13
V. Meat, poultry, fish, eggs dried beans and peas, peanut butter, nuts	35	34	26	25	12	11	1	3	1	2
VI. Bread, flour, cereal	31	42	29	25	13	7	2	1	0	0
VII. Butter and fortified margarine	11	8	19	18	21	26	13	13	11	10
<u>Energy foods</u> - eaten in addition to Basic Food-but not in place of them	18	19	19	20	21	24	12	10	5	2

Table IV shows that four boys and four girls reported having had six or more servings from this group during the two days; 12 boys and 15 girls reported four to five servings; 28 boys and 38 girls reported two to three servings; 12 boys and nine girls reported one serving in the two days which is below the minimum recommendation. Nineteen boys and nine girls reported no servings in this group. These figures indicate that 31 boys and 18 girls failed to meet the minimum recommendation. Two-thirds met or exceeded requirements.

The recommendation for Basic Group II (citrus fruit, tomatoes, raw cabbage and other high Vitamin C foods) is one or more servings daily. The boys reported having eaten during the two days, foods belonging in this group as follows: eight boys and ten girls, six or more servings; 13 boys and 16 girls, four to five servings; 30 boys and 34 girls reported two to three servings; 15 boys and six girls reported having eaten only one serving in the two days and nine boys and nine girls reported eating no food from Group II in the two days. These figures indicate that 24 boys and 15 girls failed to eat the recommended requirement from Group II.

The recommended serving for Group III (potatoes and other vegetables and fruits) is two or more servings daily. Thirty-nine boys and 37 girls reported having eaten foods from this group six or more times; 19 boys and 27 girls reported four to five servings in the two days; 14 boys and ten girls reported two to three servings; one boy and no girl reported one serving in the two days and two boys and one girl reported eating no food from this group. These figures indicate that 17 boys and 11 girls failed to eat the recommended amount of two or more servings daily from Group III.

The recommended daily servings of Group IV (milk, cheese and ice

cream) is a minimum of three cups of milk or the equivalent in cheese and ice cream. Thirty-nine boys and 33 girls reported having eaten six or more servings in the two days; 24 boys and 14 girls reported four to five servings; three boys and 11 girls reported two to three servings. One serving in two days was not reported by boys; however, girls reported only one serving in two days four times. Nine boys and 13 girls reported no servings from this group. The figures indicate that 36 boys and 42 girls failed to consume the minimum recommendation in this group.

In Basic Group V (meat, poultry, fish, dried beans and peas, eggs, peanut butter and nuts) the recommendation is one serving daily of meat, four or more eggs a week and two or more servings weekly of dried beans and peas, peanut butter and nuts. Thirty-five boys and 34 girls reported having eaten foods in this group six or more times in the two days; 26 boys and 25 girls reported four or more servings within two days; 12 boys and 11 girls reported two to three servings; one boy and three girls reported one serving while one boy and three girls reported one serving in two days and one boy and two girls reported no servings from this group. The figures indicate that the majority of the boys and girls had eaten the recommended amount because only two boys and five girls reported eating less than the minimum recommended daily servings.

The daily recommendation for Basic Seven Group VI (bread, flour and cereal) is some every day. Thirty-one boys and 42 girls reported six or more servings in the two days; 29 boys and 25 girls reported four to five servings; 13 boys and seven girls reported two to three servings; two boys and one girl reported only one serving in two days and no boy or girl reported failing to eat bread.

The recommendation for Basic Group VII (butter or fortified margarine)

is that each person should eat some daily. This table shows that eleven boys and eight girls reported eating six or more servings daily; 19 boys and 18 girls reported eating four to five servings daily; 21 boys and 26 girls reported eating two to three servings daily; 13 boys and 13 girls reported eating only one serving in two days and 11 boys and ten girls reported eating no butter or fortified margarine. The figures indicate that 24 boys and 23 girls did not eat the recommended daily servings.

The recommendation for the energy food group is the consumption each day of some of the foods from this group which are to be eaten for energy in addition to the foods in the seven basic groups, but in no case are they to be eaten in place of them. Foods in this energy group are such foods as cake, pie, pudding, jelly and jam, syrup and molasses, cookies, candy and bacon. Eighteen boys and 19 girls reported having had six servings or more from this group; 19 boys and 20 girls reported four to five servings; 21 boys and 24 girls reported two to three servings; 12 boys and ten girls reported one serving in two days which is below the minimum recommendation. Five boys and two girls reported eating no foods from the energy group for the two days. These figures indicate that 17 boys and 12 girls reported a low intake of energy foods.

Table V shows the ranking of acceptance of the Basic Food Groups as reported by the 150 high school boys and girls. The Basic Food Group V (meat, poultry, fish, eggs, dried beans and peas and nuts) ranked first with boys while ranking first with girls was Basic Food Group III (potatoes and other vegetables and fruits. Basic Food Group VI (bread, flour and cereal) ranked second with both boys and girls. Ranking third with boys was Basic Food Group III (potatoes, and other vegetables and fruits) while ranking third with girls was Basic Food Group V (meat poultry, fish,

TABLE V  
RANKING OF BASIC FOOD GROUPS REPORTED BY  
150 HIGH SCHOOL STUDENTS

Rank	Food Groups	Boys
1st	Group V (meat, poultry, fish, eggs, dried beans and peas and nuts)	432
2nd	Group VI (bread, flour and cereal)	382
3rd	Group III (potatoes and other vegetables and fruits)	372
4th	Energy Foods (cookies, cake, pie, pudding, jam, candy, bacon, etc.)	266
5th	Group IV (milk, cheese and ice cream)	263
6th	Group I (leafy green and yellow vegetables)	187
6th	Group II (citrus fruit, tomatoes, raw cabbage, and other high vitamin C foods)	187
7th	Group VII (butter and fortified margarine)	146
		Girls
1st	Group III (potatoes and other vegetables and fruits)	432
2nd	Group VI (bread, flour and cereal)	426
3rd	Group V (meat, poultry, fish, eggs, dried beans and peas, and nuts)	384
4th	Energy Foods (cookies, cake, pie, pudding, jam, candy, bacon, etc.)	294
5th	Group IV (milk, cheese and ice cream)	245
6th	Group II (citrus fruit, tomatoes, raw cabbage and other high vitamin C foods)	210
7th	Group I (leafy green and yellow vegetables)	201
8th	Group VII (butter and fortified margarine)	121

eggs, dried beans and peas and nuts). The Energy Food Group (cookies, cake, pie, pudding, jam, candy and bacon) ranked fourth with both boys and girls. Basic Food Group IV (milk, cheese and ice cream) ranked fifth with both boys and girls. Basic Food Group I (leafy green and yellow vegetables) and Basic Food Group II (citrus fruit, tomatoes, raw cabbage and other high vitamin C foods) ranked sixth with boys while ranking sixth with girls was also Basic Food Group II. Ranking seventh with boys was Basic Food Group VII (butter and fortified margarine) and ranking seventh with girls was Basic Food Group I (leafy, green and yellow vegetables). Ranking eighth with girls was Basic Food Group VII (butter and fortified margarine). Appendix C is the detailed compilation from which Table V has been summarized. This shows very close agreement of boys and girls in acceptance of foods.

The daily recommendations for Group I (leafy, green and yellow vegetables) is one or more servings. Table VI shows only 15 varieties of foods were preferred from Basic Food Group I. A fraction of a percent of the boys and none of the girls reported eating foods every day from this group.

The foods most often reported eaten occasionally were carrots, pumpkin, sweet potatoes, okra, and spinach. Foods reported most often as never preferred were asparagus, broccali, Brussels sprouts, collards, endive, and yellow squash.

The food from Group I which the boys reported they preferred to eat was carrots; while the girls reported they preferred green beans, carrots and green peas. From the list of 15 vegetables it would not be expected that a large number of these vegetables would be served daily.

The daily recommendation for Group II (citrus fruit, tomatoes, raw



TABLE VI  
FOOD PREFERENCES OF 150 HIGH SCHOOL STUDENTS

Groups of Foods	Number Varieties	Every Day		Three Times a Week		Once a Week	
		Boys	Girls	Boys	Girls	Boys	Girls
I. Leafy green and yellow vegetables	15	2	0	72	97	189	180
II. Citrus fruit, tomatoes, raw cabbage and other high vitamin C Foods	7	43	87	84	92	121	144
III. Potatoes and other vegetables and fruits	28	46	41	170	158	346	348
IV. Milk, cheese and ice cream	4	74	62	29	14	80	60
V. Meat, poultry, fish, eggs, dried beans and peas, and nuts	17	69	20	138	117	285	279
VI. Bread, flour and cereal	10	124	93	87	94	158	143
VII. Butter and fortified margarine	2	64	67	0	0	0	0
<u>Energy Food Group.</u> To be eaten in addition to Basic Food but not in place of them	9	141	123	211	167	245	237

cabbage and other high vitamin C foods) is one or more servings daily. Table VI shows seven varieties of foods were reported from this group. More than half of the boys and almost all of the girls reported eating foods every day from this group. The foods most often reported eaten occasionally were cabbage salad, green salad and tomato juice. The food most often reported as never eaten were tomato juice and lemons.

The food listed as preferred by the group was oranges or orange juice.

The recommendation for Group III (potatoes and other vegetables) is two or more servings daily. The table shows 28 varieties were reported from Group III. Almost two-thirds of the girls and boys reported eating foods from the group every day. The foods most often reported eaten occasionally were beets, cooked cabbage, sourkrout, apricots, bananas, cranberries, grapes, pears, and pineapple. All of the group reported as never eating specific foods in this group such as cauliflower, parsnips, avacado, dates, prunes and rhubarb.

There were no boys who reported that they never preferred to eat potatoes, while there were no girls who reported that they did not prefer to eat celery, corn, cucumbers, pickles, potatoes, apples, bananas, grapes, pears and pineapple.

The daily recommendation for Group IV (milk, cheese and ice cream) is a minimum of three cups of milk a day or the equivalent in milk, cheese and ice cream. Four varieties were reported eaten. Almost all the boys and more than two-thirds of the girls reported eating foods in this group every day. The foods most often eaten occasionally and never were cheese and cottage cheese. The food which they reported they preferred was ice cream.

The daily recommendation for Group V (meat, poultry, fish, eggs, dried beans and peas and nuts) is one serving daily of meat, poultry or fish, four or more eggs a week and two or more servings a week of dried beans or peas, nuts and peanut butter. From this group 17 varieties were reported eaten. About nine-tenths of the boys and less than one-third of the girls reported eating foods from this group every day. The food most often reported eaten occasionally were lunch meat, weiners, liver, poultry, sausage, dried beans and peas and peanut butter. Foods reported most often as never preferred were veal, lamb, heart, kidney, tongue, and game.

The food from Group V which all the boys reported they preferred was nuts and the one for the girls was poultry.

The daily recommendation for Group VI (bread, flour and cereal) is some daily. Table VI shows ten varieties were reported eaten. Almost all of the boys and girls reported eating foods from this group every day. The foods most often reported eaten occasionally were whole wheat bread, rye bread, rolls, crackers, corn bread, mush, grits and cooked cereal. Foods reported most often as never eaten were rye and white bread, grits, mush, cooked cereal, biscuits and crackers.

The foods reported from Group VI most preferred by boys and girls were white bread, biscuits, rolls and crackers.

The daily recommendation for Group VII (butter and fortified margarine) is some daily. More than two-thirds of the boys and girls reported eating these foods every day. Slightly more than one-seventh of the boys and about one-tenth of the girls reported as never eating butter or fortified margarine.

The daily recommendation for the energy food group is some daily in

addition to the Basic Foods but not in place of them. Nine varieties of foods were reported eaten from this group. Most of the boys and almost all of the girls reported eating some energy foods every day. The foods most often reported eaten occasionally were honey, molasses, syrup and pudding. The foods most often reported as never eaten were honey, molasses, syrup, cake, candy and pie.

The food from this group which the boys reported they preferred was cake while the girls reported they preferred cake, candy and pie.

Table VII shows the ranking preferences by 150 high school students. In order to get a basis for ranking Basic Food Groups according to preferences as shown by data from check sheets it was felt desirable to weight the different responses and to give consideration to the numbers of different foods in each group. The weighting was done by multiplying the number checking the foods every day by seven and three times a week by three. The total preferences were added for the choice for every day, three times a week and once a week and this number was divided by the total number of foods listed in the group.

Basic Food Group VII (butter and fortified margarine) was ranked first by both boys and girls. Ranking second by both boys and girls was the Energy Food Group (cookies, cake, pie, pudding, jam, candy and bacon). The boys ranked Basic Food Group IV (milk, cheese and ice cream) third while the girls ranked third Basic Food Group II (citrus fruit, tomatoes, raw cabbage and other high vitamin C foods). Ranking fourth for boys was Basic Food Group VI (bread and cereal) while ranking fourth for girls was Basic Food Group IV (milk, cheese and ice cream). Ranking fifth with boys was Basic Food Group II (citrus fruit, tomatoes, raw cabbage and other high vitamin C foods) while ranking fifth with girls was Basic

TABLE VII

## RANKING OF FOOD PREFERENCES OF 150 HIGH SCHOOL STUDENTS

Rank	Food Groups	Boys
1st	Group VII (butter and fortified margarine)	224
2nd	Energy Group (cookies, cakes, pies, pudding, jam, candy, bacon, etc.)	207
3rd	Group IV (milk, cheese and ice cream)	171
4th	Group VI (bread, flour and cereal)	128
5th	Group II (citrus fruit, tomatoes, raw cabbage and other high vitamin C foods)	96
6th	Group V (meat, poultry, fish, eggs, dried beans and peas and nuts)	69
7th	Group III (potatoes and other vegetables and fruits)	42
8th	Group I (leafy, green and yellow vegetables)	28
		Girls
1st	Group VII (butter and fortified margarine)	234
2nd	Energy Group (cookies, cake, pie, pudding, jam, candy, bacon, etc.)	177
3rd	Group II (citrus fruit, tomatoes, raw cabbage, and other high vitamin C foods)	147
4th	Group IV (milk, cheese and ice cream)	134
5th	Group VI (bread, flour and cereal)	107
6th	Group V (meat, poultry, fish, eggs, dried beans and peas, and nuts)	45
7th	Group III (potatoes and other vegetables and fruits)	39
8th	Group I (leafy, green and yellow vegetables)	31

Food Group VI (bread and cereal). Basic Food Group V (meat, poultry, fish, eggs, dried beans and peas and nuts) ranked sixth with both boys and girls. Ranking seventh with both boys and girls was Basic Food Group III (potatoes and other vegetables) and ranking eighth with both boys and girls was Basic Food Group I (leafy, green, and yellow vegetables).

Table VIII shows the results of the three methods used to ascertain acceptance of foods according to the Basic Groups. Each food group was ranked according to its acceptability to the 4-H Club members, the high school students and to the preference list marked by high school students. A study of the rankings gives rise to certain questions.

Foods in Group I were ranked fifth by both boys and girls in the 4-H Club group. They were ranked sixth by boys and seventh by girls in the high school group, while the preference list indicates that both boys and girls ranked this group eighth or last in terms of their preferences. Foods in Group II were ranked seventh by the boys and fifth by the girls in the 4-H Club group and ranked sixth by both boys and girls in the high school group while the preference list indicated that the boys ranked this group fifth and the girls ranked it sixth in terms of their preferences. Foods in Group III were ranked second by the 4-H Club boys and third by the 4-H Club girls. These goods were ranked third by the boys and first by the girls in the high school group, while the preference list indicates that both boys and girls ranked this seventh in terms of their preferences. Foods in Group IV were ranked eighth by the boys and sixth by the girls in the 4-H Club group. They were ranked fifth by both boys and girls in the high school group while the preference list indicates that the boys ranked this food group third and the girls ranked it fourth in terms of their preferences. Foods in Group V were ranked

TABLE VIII

A COMPARISON OF THE RESULTS OF THREE METHODS USED TO ASCERTAIN  
ACCEPTABILITY OF FOODS BY TEEN-AGE BOYS AND GIRLS

Group of Foods Eaten at Fair Schools	Group of Foods Eaten by High School Students	Group of Food Preferences of High School Students
Two or more servings of Group I were eaten in the two days by 86% of boys and 76% of girls.	The 75 boys reported 187 servings in two days and the 75 girls reported 201 servings in two days which is more than two servings per day per person.	Preferences were reported eaten every day twice by the 75 boys and no times by the 75 girls. Three times a week was reported 72 times by boys and 97 times by girls; once a week, 189 times by boys and 180 times by girls.
Rank: Boys 5th, girls 5th.	<p style="text-align: center;">Group I</p> Reporting one serving in two days were 12 boys and 9 girls and no servings were 19 boys and 9 girls, making 49 or approximately one-third of the group of 150 below the recommended standard.	Rank: Boys 8th, girls 8th.
Two or more servings of Group II were eaten in the two days by 75% of boys and 76% of girls.	<p style="text-align: center;">Group II</p> The 75 boys reported 187 servings in two days and the 75 girls reported 210 servings which is more than two servings per day per person.	Preferences were reported eaten every day 43 times by the 75 boys and 87 times by the 75 girls. Three times a week was reported 84 times by boys and 92 times by girls. Once a week, 121 times by boys and 144 times by girls.
Rank: Boys 7th, girls 5th.	Reporting one serving in two days were 15 boys and 6 girls and no servings were 9 boys and 9 girls, making 39 or approximately one-fourth of the group of 150 below the recommended standard.	Rank: Boys 5th, girls 6th.
	Rank: Boys 6th, Girls 6th.	

TABLE VIII (Continued)

Group of Foods Eaten at Fair Schools	Group of Foods Eaten by High School Students	Group of Food Preferences of High School Students
Group III		
Two or more servings of Group III were eaten each of the two days by 94% of boys and 84% of girls.	<p>The 75 boys reported 372 servings in two days and the 75 girls reported 432 servings in two days which is less than two servings per day per person.</p> <p>Reported 2 to 3 servings in two days were 14 boys and 10 girls and one serving in two days were 1 boy and 2 girls and no servings were 0 boys and 1 girl, making 28 or approximately one-fifth of the group of 150 below the recommended standard.</p>	<p>Preferences were reported eaten every day 46 times by the 75 boys and 41 times by the 75 girls. Three times a week was reported 170 times by boys and 158 times by girls. Once a week was reported by boys 346 times and by girls 348 times.</p>
Rank: Boys 2nd, girls 3rd.	Rank: Boys 3rd, girls 1st.	Rank: Boys 7th, girls 7th.
Group IV		
Three or more servings of Group IV were eaten each of the two days by 71% of boys and 64% of girls.	<p>The 75 boys reported 263 servings in two days and 75 girls reported 245 servings in two days which is not three servings per day per person.</p> <p>Reporting 4 to 5 servings in two days were 24 boys and 14 girls, 2 to 3 servings in two days were 3 boys and 11 girls, one serving in two days were 0 boys and 4 girls, no servings were 9 boys and 13 girls, making 78 or a few more than one-half of the group of 150 below the recommended standard.</p>	<p>Preferences were reported eaten every day 74 times by the 75 boys and 62 times by the 75 girls. Three times a week was reported 29 times by boys and 14 times by girls. Once a week was reported 80 times by boys and 60 times by girls.</p>
Rank: Boys 8th, girls 6th.	Rank: Boys 5th, girls 5th.	Rank: Boys 3rd, girls 4th.



TABLE VIII (Continued)

Group of Foods Eaten at Fair Schools	Group of Foods Eaten by High School Students	Group of Food Preferences of High School Students
Group V		
Two or more servings of Group V were eaten in the two days by 92% of boys and 81% of girls.	<p>The 75 boys reported 432 servings in two days and 75 girls reported 384 servings which is more than two servings per person per day.</p> <p>Reporting one serving two days were 1 boy and 1 girl and reporting no servings were 3 boys and 2 girls, making only 7 of the group of 150 below the recommended standard.</p>	<p>Preferences were reported eaten every day 69 times by the 75 boys and 20 times by the 75 girls. Three times a week was reported 138 times by boys and 115 times by girls. Once a week was reported 285 times by boys and 279 times by girls.</p>
Rank: Boys 3rd, girls 4th.	Rank: Boys 1st, girls 3rd.	Rank: Boys 6th, girls 6th.
Group VI		
Two or more servings of Group VI were eaten in two days by 96% of boys and 87% of girls.	<p>The 75 boys reported 382 servings and the 75 girls reported 426 servings which is two servings or more per day per person.</p> <p>Reporting 1 serving in two days were 2 boys and 1 girl and reporting no servings were no boys or girls, making only 3 persons of the 150 below the recommended standard.</p>	<p>Preferences were reported eaten every day 124 times by the 75 boys and 93 times by the 75 girls. Three times a week was reported 87 times by boys and 94 times by girls. Once a week was reported 158 times by boys and 143 times by girls.</p>
Rank: Boys 1st, girls 1st.	Rank: Boys 2nd, girls 2nd.	Rank: Boys 4th, girls 5th.

TABLE VIII (Continued)

Group of Foods Eaten at Fair Schools	Group of Foods Eaten by High School Students	Group of Food Preferences of High School Students
Group VII		
Two or more of Group VII were eaten in two days by 80% of boys and 73% of girls.	The 75 boys reported 146 servings in two days and the 75 girls reported 121 servings in two days which is less than one serving per day per person.  Reporting one serving in two days were 13 boys and 13 girls and no servings were reported by 11 boys and 10 girls, making 47 or approximately one-third of the group of 150 below the recommended standard.	Preferences were reported eaten every day 64 times by the 75 boys and 67 times by the 75 girls. Three times a week--none by both boys and girls. Once a week--none by both boys and girls.
Rank: Boys 6th, girls 7th.	Rank: Boys 7th, girls 8th.	Rank: Boys 1st, girls 1st.
Energy Group		
Two or more servings of the energy foods were eaten in the two days by 91% of boys and 86% of girls.	The 75 boys reported 266 servings in two days and the 75 girls reported 294 servings in two days which is more than one serving per day per person.  Reporting one serving in two days were 12 boys and 10 girls and no servings were 5 boys and 2 girls, making 29 or approximately one-fifth of the group of 150 below the recommended standard.	Preferences were reported eaten every day 141 times by the 75 boys and 123 times by the 75 girls. Three times a week was reported 211 times by boys and 167 times by girls. Once a week was reported 245 times by boys and 237 times by girls.
Rank: Boys 4th, girls 2nd.	Rank: Boys 4th, girls 4th.	Rank: Boys 2nd, girls 2nd.

third by the boys and fourth by the girls in the 4-H Club group. They were ranked first by the boys and third by the girls in the high school group while the preference list indicates that both boys and girls ranked this sixth in terms of their preferences. Foods in Group VI were ranked first by the boys and the girls in the 4-H Club group. They were ranked second by the boys and by the girls in the high school group, while the preference list indicates that the boys ranked this group fourth and the girls ranked it fifth in terms of their preferences.

Foods in Group VII were ranked sixth by the boys and seventh by the girls in the 4-H Club group. They were ranked seventh by the boys and eighth by the girls in the high school group, while the preference list indicates that the boys and girls ranked this group first in terms of their preferences.

Foods in the Energy Group were ranked fourth by the boys and second by the girls in the 4-H Club group. They were ranked fourth by both boys and girls in the high school group, while the preference list indicates that both boys and girls ranked this group second in terms of their preferences.

There is a striking similarity between ranking of foods eaten by 4-H Club members and high school students, and there is some similarity between these foods reported eaten, yet there are some noticeable differences between this report and the report of the foods checked as their food preference. It should be kept in mind that the ranking report in the first two columns in Table VIII (report of foods eaten by 4-H Club members and high school students) is the result of the foods eaten which had been prepared for them, while the ranking report in the third column in Table VIII (report of food preferences of high school students) is

the result of the foods they prefer to eat.

The Food Group II shows similarity in the ranking figures of all three columns; and Food Groups I, III, IV, V, VI, VII and the Energy Food Group show a difference in the ranking figures of the three columns.

## CONCLUSIONS AND RECOMMENDATIONS

The data from the study show that it was possible to identify certain eating habits of the groups studied, and it was assumed that they were typical of teen-agers in Oklahoma.

Certain important factors concerning eating habits of teen-age boys and girls are revealed by an analysis of the data concerning food choices and preferences. The records from both the 4-H Club members and high school students indicate that many of the young people are failing to eat the recommended requirement for adequate nutrition. It should be kept in mind when comparing the 4-H Club group with the high school group that the report of the two-day diet of selected 4-H Club members was based upon foods which they ate away from home and that the menus were planned especially for them, taking into consideration their likes and dislikes. The high school group record is a statement of the foods they ate for two days while at home and school with no selectivity other than personal choice in normal planning.

Four of the Basic Food Groups; namely, I, II, IV and VII, have figures indicating that many teen-agers fail to eat foods in these groups. The figures indicate that one-eighth of the boys and one-fourth of the girls in the 4-H Club group failed to eat the recommended amount from Group I (leafy, green and yellow vegetables) as compared with two-thirds of the boys and one-fifth of the girls in the high school group. The figures indicate that one-fourth of the boys and one-fourth of the girls in the 4-H group failed to eat the recommended amount of food in Group II (citrus fruit, tomatoes, raw cabbage and other high Vitamin C foods)

as compared with one-third of the boys and one-fifth of the girls in the high school group. The figures indicate that one-fourth of the boys and one-third of the girls in the 4-H Club group failed to eat the recommended amount of Group IV (milk, cheese, and ice cream) as compared with approximately one-half of the boys and one-half of the girls in the high school group.

The figures further indicate that almost one-fourth of the boys and one-fourth of the girls in the 4-H Club group failed to eat the recommended amount of foods in Group VII (butter and fortified margarine) as compared with one-third of the boys and one-third of the girls in the high school group.

Acceptability of foods as indicated on the food preference lists further emphasized that the preferences for Basic Food Groups I, II, IV and VII were below the recommended amounts. The foods noticeably low in acceptance were many of the green, leafy and yellow vegetables, slaw, salads, milk and butter or fortified margarine.

The three remaining food groups, III, V and VI, and the energy foods were preferred often as indicated by the data. The figures indicate that most of the boys and about three-fourths of the girls in the 4-H Club group reported eating the recommended amount from foods in Group III (potatoes and other vegetables and fruits) as compared with about three-fourths of the boys and five-sixths of the girls in the high school group. The figures indicate that about three-fourths of the boys and three-fourths of the girls in the 4-H Club group reported eating the recommended amount of Group V (meat, poultry, fish, eggs, dried beans and peas, and nuts) as compared with almost all the boys and girls in the high school group. The figures also indicate that most of the boys and practically three-fourths

of the girls in the 4-H Club group ate the recommended amount of food in Group VI (bread, flour and cereal) as compared with three-fourths of the boys and five-sixths of the girls in the high school group.

Acceptability of foods as indicated on the food preference lists further emphasized that the consumption of Basic food Groups III, V, VI and the energy foods were more adequately eaten than were Groups I, II, IV and VII. The foods reported to be eaten very often in these groups were potatoes, apples, peaches, beef, pork, white bread, bacon, jam, jelly and preserves, cake, candy, cookies, and pie.

The data compiled by these three methods in an attempt to identify food habits of Oklahoma teen-agers makes one realize more fully the strong influence of the family group in establishing food habits. It is generally accepted that:

1. Eating patterns are most likely the ones which they have formed with their families at home.
2. Eating patterns were probably influenced in childhood by the attitudes of adults toward them and toward food.
3. In the adolescent years eating habits have likewise been influenced by the foods prepared and served in the home and by the food habits of one's peers. Since food habits are made up of experiences, hearsay and examples, the individual's environment has contributed to the development of the food habits or patterns.

A study of the data indicates some factors that must be taken into consideration in the development and guidance of nutrition programs for teen-age young people. In light of the evidence as revealed by the data, leaders of young people should seek the answers to:

1. Do young people have opportunities to eat a variety of foods?
2. Which foods are commonly grown in the local communities?

3. Have they had opportunities to learn to prepare and serve foods properly and attractively?
4. What is the responsibility of the teachers and 4-H Club leader in teaching food acceptability:

If we accept the assumption that a variety of foods tends to increase the general nutritive value of the diet, it is reasonable to infer that one of the problems that arises is how can we guide people in developing a willingness to accept new foods so that ways may be found to expand their eating patterns. This has long been recognized by home economists as no easy task because the food habits of individuals are much stronger than any method yet devised for teaching nutrition.

The hypothesis upon which the study was based assumed that a study of the eating habits of selected Oklahoma teen-agers would indicate to some extent the dietary habits of this age group and would furnish data that might be used as a basis for making recommendations for an instructional program in nutrition. The three methods used have revealed inadequacies in the diets of Oklahoma teen-agers and show a need for improvement of diet, therefore the following recommendations are made. Leaders who work with young people need to:

1. Have a basic understanding of what has gone into making the individual's food patterns.
2. Make the less familiar foods available often enough that they become familiar.
3. Encourage raising vegetables and small fruits at home, using such authoritative publications as government garden bulletins.
4. Emphasize the art and science related to the cooking of foods.
5. Find ways of showing that a limited diet not only hampers good



health and good looks but is a social handicap.

6. Enlist the assistance of leaders of teen-age groups in the development of improved eating patterns.
7. Seize upon and use all opportunities offered to help young people face their eating problems and then work toward improving their eating patterns.
8. Acquaint adults, including parents, in adult classes with the picture of teen-age eating habits, acquainting parents and responsible adults with the results of this study pointing out inadequacy of teen-age eating patterns.
9. Enlist the assistance of organized home demonstration groups to help the public know the importance of improving teen-age eating habits.
10. Work through families to improve eating patterns and habits.
11. Make use of opportunities to appear before civic groups to present the need for improving teen-age eating patterns.
12. Acquaint teachers, 4-H Club leaders, and other leaders who work with young people with their responsibility in developing better eating habits with teen-agers.

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APPENDIX A

FOODS ACCEPTED AT THREE STATE FAIR SCHOOLS  
BY 770 4-H CLUB MEMBERS

State Fairs	Foods	Group I (Leafy, Green and Yellow Vegetables)			
		Boys		Girls	
		Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Green beans	65	100	57	88
65 boys	Green beans	55	85	41	63
65 girls	Peas and carrots	49	75	42	65
Total		169	87	140	72
Tulsa Fair School	Green beans	75	94	72	90
80 boys	Carrots	50	63	60	75
80 girls	Peas and carrots	74	93	63	79
Total		199	83	195	81
Oklahoma City Fair School	Green beans	234	98	225	94
240 boys	Peas (green)	195	81	180	75
240 girls	Green beans	212	88	173	72
Total	Peas (green)	198	83	137	57
Total		839	87	715	74
Grand Total		1207	86	1050	76

		Group II (Citrus Fruit, Tomatoes, Raw Cabbage and Other High Vitamin C Foods)			
State Fairs	Foods	Boys		Girls	
		Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Green salad	61	94	49	68
	Orange juice	61	94	59	90
	Slaw	48	74	30	46
	Slaw	53	82	40	62
	Orange juice	64	98	65	100
	Slaw	49	75	44	68
Total		336	86	287	74
Tulsa Fair School	Green salad	54	68	63	79
	Orange juice	65	81	78	98
	Green salad	61	76	59	74
	Green salad	50	63	60	75
	Orange juice	75	94	78	98
	Slaw	63	79	62	78
Total		368	77	400	86
Oklahoma City Fair School	Green salad	201	84	186	79
	Citrus fruit juice	175	73	214	89
	Cabbage salad	184	77	190	79
	Lettuce	210	88	182	76
	Orange juice	192	80	206	86
	Slaw	176	73	185	77
Total		1138	79	1163	81
Grand Total		1842	75	1850	76

State Fairs		Group III (Potatoes and Other Vegetables and Fruits)			
		Boys		Girls	
	Foods	Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Potatoes	55	85	54	83
	Potatoes	61	94	55	85
Total		116	89	109	84
Tulsa Fair School	Potatoes	78	98	71	89
	Potatoes	80	100	74	93
	Potatoes	78	98	64	80
	Potatoes	75	94	71	89
Total		311	97	280	88
Oklahoma City Fair School	Potatoes	229	95	211	88
	Corn	222	93	209	87
	Potatoes	215	90	165	69
	Potatoes	230	96	216	90
Total		896	93	801	84
Grand Total		1323	94	1190	84

State Fairs	Foods	Group IV (Milk, Cheese and Ice Cream)			
		Boys		Girls	
		Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Milk	48	74	34	53
	Milk	54	83	59	90
	Milk	19	29	48	52
	Cheese	57	88	53	82
	Milk	36	55	46	71
	Milk	59	90	55	85
	Milk	23	35	24	37
	Ice Cream	64	98	62	95
<b>Total</b>		<b>360</b>	<b>69</b>	<b>381</b>	<b>73</b>
Tulsa Fair School	Milk	41	51	66	83
	Milk	55	68	75	94
	Milk	16	20	42	53
	Milk	38	48	35	44
	Milk	69	86	74	93
	Milk	51	64	50	63
<b>Total</b>		<b>270</b>	<b>56</b>	<b>342</b>	<b>72</b>
Oklahoma City Fair School	Milk	160	67	96	36
	Ice cream	227	94	220	92
	Milk	227	94	231	96
	Milk	110	46	81	34
	Milk	170	71	99	41
	Ice Cream	234	98	229	95
	Milk	178	74	168	70
	Milk	138	58	50	20
<b>Total</b>		<b>1444</b>	<b>75</b>	<b>1174</b>	<b>61</b>
<b>Grand Total</b>		<b>2074</b>	<b>71</b>	<b>1897</b>	<b>64</b>



State Fairs		Group V (Meat, Poultry, Fish, Eggs, Dried Beans and Peas, Nuts)				
		Foods	Boys		Girls	
			Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Beef	61	94	47	72	
	Eggs	64	98	54	83	
	Chicken	47	72	48	73	
	Ham	65	100	54	83	
	Eggs	63	97	50	77	
	Beef	57	88	51	78	
	<b>Total</b>		<b>357</b>	<b>92</b>	<b>304</b>	<b>78</b>
Tulsa Fair School	Beef	59	74	52	63	
	Eggs	69	86	37	46	
	Ham	75	94	71	89	
	Beef	75	94	69	86	
	Beef	69	86	65	81	
	Baked beans	68	85	66	83	
<b>Total</b>		<b>415</b>	<b>86</b>	<b>360</b>	<b>75</b>	
Oklahoma City Fair School	Beef	225	94	204	85	
	Eggs	212	88	179	75	
	Beef	221	92	202	84	
	Beef	238	99	225	94	
	Eggs	222	93	185	77	
	Ham	230	96	218	91	
<b>Total</b>		<b>1348</b>	<b>94</b>	<b>1213</b>	<b>94</b>	
<b>Grand Total</b>			<b>2120</b>	<b>92</b>	<b>1877</b>	<b>81</b>

State Fairs		Group VI (Bread, Flour and Cereal)			
		Boys		Girls	
		Foods	Accepted	Percentage	Accepted
Muskogee Fair School	Bread	65	100	65	100
	Cereal	49	68	44	68
	Bread	65	100	63	97
	Bread	65	100	52	80
	Bread	65	100	65	100
	Cereal	48	73	33	52
	Bread	63	97	60	92
	Bread	65	100	55	85
<b>Total</b>		<b>485</b>	<b>93</b>	<b>437</b>	<b>84</b>
Tulsa Fair School	Bread	80	100	72	90
	Hot Cakes	75	94	67	84
	Bread	80	100	73	91
	Bread	80	100	75	94
	Hot Cakes	75	94	68	85
	Bread	80	100	71	89
<b>Total</b>		<b>470</b>	<b>98</b>	<b>426</b>	<b>89</b>
Oklahoma City Fair School	Bread	240	100	192	80
	Cereal	203	85	199	83
	Bread	240	100	227	94
	Bread	240	100	218	91
	Bread	240	100	198	83
	Cereal	204	85	163	68
	Bread	240	100	234	98
	Bread	240	100	240	100
<b>Total</b>		<b>1847</b>	<b>96</b>	<b>1671</b>	<b>87</b>
<b>Grand Total</b>		<b>2802</b>	<b>96</b>	<b>2534</b>	<b>87</b>

State Fairs		Group VII (Butter and Fortified Margarine)			
		Boys		Girls	
		Foods	Accepted	Percentage	Accepted
Muskogee Fair School	Fortified Margarine	65	100	60	92
	Fortified Margarine	64	98	63	97
	Fortified Margarine	65	100	48	52
	Fortified Margarine	65	100	65	100
	Fortified Margarine	63	97	60	92
	Fortified Margarine	63	97	48	52
Total		385	99	344	73
Tulsa Fair School	Fortified Margarine	54	68	56	70
	Fortified Margarine	15	21	21	26
	Fortified Margarine	68	75	58	73
	Fortified Margarine	41	51	36	45
	Fortified Margarine	54	68	51	64
	Fortified Margarine	43	54	38	48
Total		275	57	205	43
Oklahoma City Fair School	Fortified Margarine	163	68	190	79
	Fortified Margarine	238	99	197	82
	Fortified Margarine	167	70	180	75
	Fortified Margarine	186	79	199	83
	Fortified Margarine	224	93	223	93
	Fortified Margarine	209	87	173	72
Total		1187	82	1162	80
Grand Total		1847	80	1711	73

Energy Foods  
(To be Eaten in Addition to Basic Seven Foods  
But Not in Place of Them)

State Fairs	Foods	Boys		Girls	
		Accepted	Percentage	Accepted	Percentage
Muskogee Fair School	Apple Crisp	62	95	49	68
	Bacon	64	98	54	83
	Jelly	63	97	63	97
	Cake	62	95	50	77
	Cobbler	61	94	56	86
	Bacon	63	97	47	72
	Jelly	63	97	61	94
	Cookies	64	98	53	82
<b>Total</b>		<b>502</b>	<b>97</b>	<b>433</b>	<b>83</b>
Tulsa Fair School	Cake	78	98	79	99
	Syrup	75	94	67	84
	Pie	79	99	73	91
	Pie	79	99	79	99
	Syrup	75	94	68	75
	Bacon	74	93	64	80
	Pie	79	99	78	98
<b>Total</b>		<b>539</b>	<b>96</b>	<b>508</b>	<b>91</b>
Oklahoma City Fair School	Bacon	214	89	187	78
	Sweet Rolls	232	97	234	98
	Jelly	173	72	184	77
	Pie	235	98	230	99
	Cookies	232	97	222	93
	Bacon	231	96	202	84
	Doughnuts	171	71	203	85
	Jelly	178	74	168	70
	Pudding	232	97	207	86
<b>Total</b>		<b>1898</b>	<b>88</b>	<b>1845</b>	<b>85</b>
<b>Grand Total</b>		<b>2939</b>	<b>91</b>	<b>2786</b>	<b>86</b>

APPENDIX B

SUMMARY OF FOOD EATEN FOR TWO DAYS\*  
AS REPORTED BY 150 HIGH SCHOOL STUDENTS

Group I			Group II		
Leafy, Green and Yellow Vegetables			Citrus Fruit, Tomatoes, Raw Cabbage and Other High Vitamin C Foods		
Foods	Boys	Girls	Foods	Boys	Girls
Asparagus	1	6	Slaw	32	30
Beans (green)	58	64	Salad (green)	43	61
Broccoli	1	2	Tomatoes	29	35
Collards	2	3	Tomato juice	20	21
Carrots	43	43	Orange or juice	41	45
Okra	4	7	Lemon or juice	3	4
Peas (green)	12	16	Grapefruit or juice	19	14
Pepper (green)	18	12			
Spinach greens	25	22			
Pumpkin	4	7			
Sweet potatoes	19	19			
<b>Total</b>	<b>187</b>	<b>201</b>	<b>Total</b>	<b>187</b>	<b>210</b>

\* Number of servings of food reported for two days.

Group III			Group IV		
Potatoes and Other Vegetables and Fruits			Milk, Cheese and Ice Cream		
Foods	Boys	Girls	Foods	Boys	Girls
Beets	3	13	Milk	204	196
Cabbage (cooked)	16	16	Cheese	19	22
Cauliflower	4	2	Cottage cheese	5	7
Celery	22	30	Ice Cream	35	20
Corn	33	34			
Cucumber (pickle)	28	35			
Onions	51	49			
Parsnips	2	1			
Potatoes	109	129			
Radishes	13	11			
Sourkraut	2	9			
Apples	21	31			
Apricots	5	8			
Bananas	13	11			
Berries	2	4			
Cherries	3	3			
Cranberries	0	3			
Grapes	3	3			
Peaches	22	18			
Pineapple	8	6			
Plums	1	3			
Prunes	2	1			
Raisins	3	3			
<b>Total</b>	<b>372</b>	<b>432</b>	<b>Total</b>	<b>263</b>	<b>245</b>

Group V			Group VI		
Meat, Poultry, Fish, Eggs, Dried Beans and Peas, and Nuts			Bread, Flour and Cereal		
Foods	Boys	Girls	Foods	Boys	Girls
Beef	70	76	Bread (whole wheat)	29	27
Pork	59	45	Bread (white)	162	171
Poultry	19	23	Rolls	28	34
Fish	6	2	Biscuits	54	65
Liver	39	20	Corn bread	30	27
Lunch meat	26	21	Crackers	26	31
Weiners	11	12	Cooked cereal and rice, mush, etc.	31	43
Sausage	27	17	Prepared cereal	22	28
Dried beans	61	68			
Dried peas	18	7			
Peanut butter	20	14			
Eggs	76	79			
<b>Total</b>	<b>432</b>	<b>384</b>	<b>Total</b>	<b>382</b>	<b>426</b>
Group VII			Energy Foods		
Butter and Fortified Margarine			To be Eaten in Addition to Basic Foods but not in Place of Them		
Butter or fortified margarine	146	121	Cookies	21	22
			Cake	27	52
			Pie	34	33
			Pudding	5	5
			Jam, jelly and preserves	45	58
			Molasses and syrup	38	32
			Candy	22	19
			Honey	12	7
			Bacon	62	66
<b>Total</b>	<b>146</b>	<b>121</b>	<b>Total</b>	<b>266</b>	<b>294</b>

## APPENDIX C

## FOOD PREFERENCES OF 150 HIGH SCHOOL STUDENTS

Basic Food Groups	Every Day		Three Times a Week or More Often		Once a Week		Occasionally		Never	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
<u>Group I</u>										
Asparagus	0	0	5	1	9	0	29	28	32	46
Beans (green)	0	0	18	36	28	22	25	17	4	0
Broccoli	0	0	0	0	3	3	6	14	66	58
Brussels sprouts	0	0	0	0	3	3	9	11	63	61
Collards	0	0	1	0	0	7	15	19	59	49
Carrots	2	0	9	23	18	23	46	29	0	0
Endive	0	0	0	0	0	0	4	7	71	68
Greens	0	0	1	2	10	12	27	29	37	32
Okra	0	0	0	1	3	14	42	39	30	21
Peas (green)	0	0	18	20	29	33	21	22	7	0
Pepper (green)	0	0	6	2	23	15	35	29	21	19
Pumpkin	0	0	1	0	12	4	45	33	17	38
Spinach	0	0	3	3	25	16	34	22	13	34
Squash (yellow)	0	0	1	0	5	9	23	29	46	37
Sweet potatoes	0	0	9	9	21	19	43	47	2	0
Total	2	0	72	97	189	180	404	375	468	463
<u>Group II</u>										
Cabbage salad	5	11	17	14	16	18	32	32	5	0
Green salad	4	19	11	21	22	12	21	22	7	1
Tomatoes	3	6	18	14	24	38	27	27	3	0
Tomato juice	1	16	11	13	14	27	36	19	13	0
Oranges or juice	22	20	12	15	19	21	14	19	8	0
Lemons	0	0	4	0	9	4	47	56	15	15
Grapefruit or juice	8	15	11	15	17	24	29	21	10	0
Total	43	87	84	92	121	144	206	196	61	16



Basic Food Groups	Every Day		Three Times a Week or More Often		Once a Week		Occasionally		Never	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
<u>Group III</u>										
Beets	1	0	1	5	15	15	41	42	17	13
Cabbage (cooked)	0	0	5	0	7	13	39	41	24	21
Cauliflower	0	0	0	2	0	4	14	17	61	52
Celery	1	0	7	12	22	21	33	44	12	0
Corn	2	0	12	17	33	30	23	28	5	0
Cucumbers and pickles	4	5	15	23	23	21	28	26	5	0
Onions	4	1	13	3	28	12	27	54	3	5
Parsnips	0	0	0	0	3	0	12	9	60	66
Potatoes	29	29	38	31	8	11	0	4	0	0
Radishes	0	0	0	0	18	12	36	56	21	7
Sauerkraut	0	0	3	1	11	11	39	45	22	18
Apples	4	2	21	12	30	33	28	28	2	0
Apricots	0	0	5	0	14	6	36	55	20	14
Avacados	0	0	0	0	0	0	7	7	68	68
Bananas	0	0	11	4	24	25	38	46	2	0
Berries	0	1	5	5	11	17	44	36	15	16
Cherries	0	0	3	1	13	6	45	48	14	20
Cranberries	0	0	0	0	5	1	50	42	20	22
Dates	0	0	0	0	1	0	34	19	40	56
Figs	0	0	0	0	1	1	27	21	47	53
Grapes	0	1	4	4	16	24	49	46	6	0
Peaches	1	0	15	27	21	21	37	26	1	1
Pears	0	0	5	3	11	17	43	55	6	0
Pineapple	0	0	2	1	12	12	56	62	5	0
Plums	0	0	1	3	6	19	57	42	11	11
Prunes	0	0	2	2	5	7	44	33	24	33
Raisins	0	2	2	2	8	9	25	26	40	36
Rhubarb	0	0	0	0	0	0	13	14	62	61
<u>Total</u>	<u>46</u>	<u>41</u>	<u>170</u>	<u>158</u>	<u>346</u>	<u>348</u>	<u>925</u>	<u>972</u>	<u>613</u>	<u>573</u>

Basic Food Groups	Every Day		Three Times a Week or More Often		Once a Week		Occasionally		Never	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
<u>Group IV</u>										
Milk	66	62	0	0	0	0	0	0	9	13
Ice Cream	6	0	16	10	29	27	24	38	0	0
Cheese	0	0	8	4	27	19	28	49	12	13
Cottage cheese	2	0	5	0	24	14	31	38	13	23
<u>Total</u>	<u>74</u>	<u>62</u>	<u>29</u>	<u>14</u>	<u>80</u>	<u>60</u>	<u>83</u>	<u>125</u>	<u>34</u>	<u>49</u>
<u>Group V</u>										
Beef	6	1	32	15	16	27	20	28	1	4
Veal	0	0	5	0	8	2	18	13	44	60
Lamb and Mutton	0	0	0	0	1	0	14	6	60	69
Pork (not bacon)	6	1	19	7	26	26	22	38	2	3
Lunch meat	0	0	4	5	25	22	46	43	0	5
Wieners	0	0	5	3	14	25	55	44	1	13
Liver	0	0	4	0	21	31	34	27	16	17
Heart, Kidney, Tongue	0	0	0	0	0	0	7	11	68	64
Poultry	1	0	6	11	32	29	35	35	1	0
Fish	0	0	0	6	15	12	56	5	4	6
Game	0	0	4	0	11	0	47	34	13	41
Sausage	7	0	7	4	25	25	33	42	3	4
Peanut butter	3	1	16	16	19	11	31	37	6	10
Nuts	2	1	4	9	21	5	48	43	0	7
Dried beans	4	0	12	11	24	29	30	24	5	11
Dried peas	1	0	4	6	13	16	34	45	23	8
Eggs	39	16	16	24	14	19	1	3	5	13
<u>Total</u>	<u>69</u>	<u>20</u>	<u>138</u>	<u>117</u>	<u>285</u>	<u>279</u>	<u>531</u>	<u>524</u>	<u>252</u>	<u>335</u>

Basic Food Groups	Every Day		Three Times a Week or More Often		Once a Week		Occasionally		Never	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
<u>Group VI</u>										
Bread (whole wheat)	11	10	7	12	18	10	27	37	12	6
Bread (rye)	0	0	0	2	2	2	31	33	42	38
Bread (white)	48	40	6	9	4	1	7	15	0	0
Rolls	1	2	17	7	26	29	30	37	1	0
Biscuits	24	13	20	18	22	26	9	18	0	0
Crackers	13	3	15	21	23	17	24	34	0	0
Corn bread	14	1	8	9	17	21	32	36	4	8
Grits or Mush	0	0	0	2	6	7	34	16	35	50
Cooked cereal	0	4	6	1	14	14	21	43	33	13
Prepared cereal	13	20	8	13	26	16	25	24	3	2
Total	124	93	87	94	158	143	240	293	130	117
<u>Group VII</u>										
Butter, fortified margarine	64	67	0	0	0	0	0	0	11	8
<u>Energy Group</u>										
Honey	10	1	2	1	16	8	37	55	10	10
Jam, jelly, preserves	23	28	26	15	12	10	13	19	1	3
Molasses and syrup	7	2	23	6	10	17	27	33	8	17
Cake	2	2	25	18	40	24	8	21	0	0
Candy	17	17	18	15	26	27	13	16	1	0
Cookies	7	2	20	16	32	35	15	20	1	2
Pie	2	3	20	19	30	32	22	21	1	0
Pudding	0	2	6	5	29	18	39	45	1	5
Bacon	73	66	71	72	50	66	14	18	3	3
Total	141	123	211	167	245	237	188	248	26	40

## APPENDIX D

## FOOD LIST CHECKED FOR TWO DAYS BY HIGH SCHOOL STUDENTS

FOODS	Boy		Girl	
	Every Day	Three times a week or More Often	Once or Twice a week	Occasion- Never ally
Asparagus				
Beans (green)				
Beans (dried)				
Beans (lima)				
Beets				
Broccoli				
Brussels sprouts				
Cabbage (cooked)				
Collards				
Carrots				
Cauliflower				
Celery				
Corn				
Cucumbers (& pickles)				
Endive				
Mustard greens				
Okra				
Onions				
Peas (green)				
Peas (dried)				
Parsnips				
Peppers				
Pumpkin				
Potatoes				
Spinach				
Turnip greens				
Other greens				
Radishes				
Sauerkraut				
Squash (yellow)				
Sweet potatoes				
Cabbage salad or slaw				
Green salad (with dressing)				
Green salad (without dressing)				
Tomatoes				
Tomato juice				
Orange juice				
Oranges				
Grapefruit (or juice)				

Boy \_\_\_\_\_ Girl \_\_\_\_\_

FOOD	Every Day	Three times a week or More often	Once or Twice a Week	Occasion- ally	Never
Beef					
Veal					
Lamb					
Mutton					
Pork (not bacon)					
Lunch meat					
Weiners					
Liver					
Heart					
Kidney					
Tongue					
Poultry (chicken, turkey, goose)					
Fish					
Game					
Bacon					
Sausage					
Peanut Butter					
Nuts of all kinds					
Bread, whole wheat					
Bread, rye					
Bread, white					
Rolls					
Biscuits					
Crackers					
Corn bread					
Grits					
Mush					
Oatmeal or other cooked cereal					
Rice					
Prepared cereals (as wheaties, corn flakes, etc.)					
Honey					
Jam					
Jelly					
Molasses					
Preserves					
Syrup					
Cake					
Candy					
Cookies					
Pies					
Puddings					

Boy \_\_\_\_\_ Girl \_\_\_\_\_

FOOD	Three times		Once or Twice a Week	Occasion- ally	Never
	Every Day	a week or More often			
Apples					
Apricots					
Avocados					
Bananas					
Berries					
Cherries					
Cranberries					
Dates					
Figs					
Grapes					
Peaches					
Pears					
Pineapples					
Plums					
Prunes					
Raisins					
Rhubarb					
Fruit Jello					
Jello					
Butter or Fortified Margarine					
Ice Cream					
Cheese					
Cottage Cheese					
Milk (sweet)					
Milk (buttermilk)					
Milk (chocolate)					
Coke					
Coffee					
Tea					
Other drinks					

## APPENDIX E

## FOOD PREFERENCE LIST FOR HIGH SCHOOL STUDENTS

Boy \_\_\_\_\_ Girl \_\_\_\_\_

FOODS	Breakfast	Dinner	Supper
Asparagus			
Beans (green)			
Beans (dried)			
Beans (lima)			
Beets			
Broccoli			
Brussels sprouts			
Cabbage (cooked)			
Collards			
Carrots			
Cauliflower			
Celery			
Corn			
Cucumbers (and pickles)			
Endive			
Mustard greens			
Okra			
Onions			
Peas (green)			
Peas (dried)			
Parsnips			
Peppers			
Pumpkin			
Potatoes			
Spinach			
Turnip greens			
Other greens			
Radishes			
Sauerkraut			
Squash (yellow)			
Sweet potatoes			
Cabbage salad or slaw			
Green salad (with dressing)			
Green salad (without dressing) (combination, etc.)			
Tomatoes			
Tomato juice			
Orange juice			
Oranges			
Lemons			
Grapefruit (or juice)			

FOODS	Breakfast	Dinner	Supper
Beef			
Veal			
Lamb			
Mutton			
Pork (not bacon)			
Lunch meat			
Weiners			
Liver			
Heart			
Kidney			
Tongue			
Poultry (chicken, turkey or goose)			
Fish			
Game			
Bacon			
Sausage			
Peanut butter			
Nuts of all kinds			
Bread--whole wheat			
Bread--rye			
Bread--white			
Rolls			
Biscuits			
Crackers			
Corn bread			
Grits			
Mush			
Oatmeal or other cooked cereal Name			
Rice			
Prepared cereals (such as wheaties bran flakes, etc.)			
Honey			
Jam			
Jelly			
Molasses			
Preserves			
Syrup			
Cake			
Candy			
Cookies			
Pies			
Pudding			





## VITA

Mary Eunice Abbott

Candidate for the Degree of  
Master of Science

Thesis: A STUDY OF EATING HABITS OF SELECTED OKLAHOMA TEEN-AGERS

Major Field: Home Economics Education

## Biographical:

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Professional experience: Taught grade school and junior high school Home Economics in the public school system at Broken Bow, Oklahoma, 1932-1942. Held the position of Hostess for Girls at Oklahoma Baptist University in the summers of 1934 and 1935. Taught high school home economics in the public school system at Vinita, Oklahoma, 1942-1946. Held the position of County Home Demonstration Agent with the Oklahoma Extension Service of Oklahoma A. & M. College in Ottawa County, Miami, Oklahoma, 1946-1949. Held the position of Assistant State 4-H Club Leader with the Oklahoma Extension Service, Oklahoma A. & M. College, Stillwater, Oklahoma, 1949-1956. Now serving as Associate State 4-H Club Leader with the Extension Service, Oklahoma A. & M. College, Stillwater, Oklahoma, 1956-1957.