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A SURVEY OF THE DIETS OF THE CHILDREN IN THE
FOURTH, FIFTH, AND SIXTH GRADES
OF CURRY SCHOOL

by

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3944

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E. T. S.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
II. REVIEW OF LITERATURE	3
III. METHODS AND RESULTS	15
The Subjects	15
Dietary Records	16
School Lunches	22
Growth Records	23
Absence Records	24
Posture Ratings	26
IV. DISCUSSION OF RESULTS.	28
Dietary Records	28
Relation of Diet to Type of Lunch, Growth, Posture, and Days Absent	29
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	33
BIBLIOGRAPHY	36
APPENDIXES	39
I. FORM FOR DIETARY RECORD.	39
II. RECORDS OF GROWTH, DIET RATING, DAYS LOST FOR ILLNESS, AND POSTURE RATING FOR EACH CHILD	40
III. RATING OF DIET BY FOOD GROUPS.	44

LIST OF TABLES

TABLE	PAGE
I. Age and Sex Distribution of Children in October, 1946	15
II. Occupations of Wage Earner of Family of Children in Study	16
III. Summary of Dietary Record Scores	19
IV. Per Cent of Children in Each Grade Reporting the Designated Amounts of Foods For the 3-Day Period	21
V. Days Lost and Causes of Absence	25
VI. Summary of Posture Ratings	26
VII. Type of Lunch, Growth, and Posture Ratings and Number of Days Absent in Relation to Diet Rating	30

CHAPTER I

INTRODUCTION

Recent dietary surveys of nine to eleven year old North Carolina school children by the Nutrition Division of the State Board of Health show that a large percentage of them have poor diets. The present study was undertaken because this county had not been included in these surveys and because the writer became interested in the children during observation in the school lunchroom.

Seventy-two boys and girls in the fourth, fifth, and sixth grades of Curry School in Greensboro, North Carolina were studied. The ages of the children ranged from eight to fourteen years, but most of them were between nine and twelve. Greensboro is an industrial city with a population of about 83,000, located in the Piedmont section of North Carolina. Curry School is the demonstration school on the campus of Woman's College of the University of North Carolina.

These grades were selected because of differences in the type of lunch they had at school. The children in the fourth grade were served a plate lunch with no choice. The same plate lunch was offered to the fifth and sixth grades, but these children were allowed to substitute other dishes served in the cafeteria that day. Some of the fifth and sixth grade children brought their lunch from home. The writer was interested in finding out whether the different types of lunch eaten at school influenced the adequacy of the diet for the entire day.

A dietary record was kept for three consecutive days by each

child at some time between December 10, 1946 and January 16, 1947. The dietary records were under the close supervision of the writer and the teacher of the grade. Since the teachers involved were very cooperative, it is believed that they complied with the request, made in advance of the study, that they refrain from any comments expressed or implied which might influence the record. An interview with each child was held by the writer at the close of each day's record to check on the completeness and accuracy of information.

A record of absence from school and the reasons as given in a written note from the parent for each absence were secured weekly from the teacher of each grade from October 14, 1946 to March 28, 1947.

The height and weight of each child was recorded at the beginning and at the close of the study. A posture rating based on observation of each child was given by the classroom teacher, a student teacher, and the physical education supervisor of Curry School.

The present study surveyed the diets of a group of elementary children and attempted to find a possible relationship between diet, health, and growth of these children.

CHAPTER II

REVIEW OF LITERATURE

A growing interest in what children eat and how to evaluate diets has been demonstrated in recent years through the various surveys which have been made all over the United States.

Rose, Gray, and Foster¹ reported in 1930 surveys of dietaries in relation to growth of children in four institutions in and near New York City. The children ranged in age from five to sixteen years. The diet was evaluated by determining the proportion of the calories furnished by selected food groups. Height and weight figures were obtained over periods of one or more years and the children were graded "excellent", "good", or "poor" by comparing their growth with expectations based on the Wood-Baldwin tables. There were fewest children graded "poor" in the institution "where the diet was on the whole liberal in quantity and also excellent in quality."²

An investigation of the food intake and nutritional status of 129 children of school age in an orphanage in Pennsylvania was made in 1939 by Milson.³ A record of food consumption was kept on the as-purchased basis for three weeks. When analyzed as to nutritional needs, it was found

1. Mary S. Rose and others, The Relation of Diet to Health and Growth of Children in Institutions, Child Development Monographs, No. 2. New York City: Teachers College, Columbia University, 1930. 128 pp.

2. Ibid., p. 86.

3. Alice Knapper Milson, A Study of the Dietary Intake and Nutritional Status of a Group of Orphanage Children, Study Number 1, Master's Thesis, Pennsylvania State College, 1939. 99 pp.

that the diet was low in everything except meat and vegetables and fruits other than citrus. The nutritional tests included a physical examination, weight-height records, blood ascorbic acid tests, and medical and dental examinations. The weight status of the children was below average according to the Baldwin-Wood chart.

The Elizabeth McCormick Memorial Fund has sponsored several surveys on the diet and health of children in Chicago. One of these, reported by Peterson⁴ in 1938, was the investigation of food habits of 1,624 boys and girls of the sixth and seventh grades in ten elementary schools of Chicago. A week's record of food intake was kept by the children. Because of the generally low economic level of these families, the diets were rated by a minimum standard of one pint of milk, three servings of fruits and vegetables including potato, and one serving of meat, fish, eggs, dried beans or peas. Seventy-three per cent of the children had one pint or more of milk daily; 43 per cent had three or more vegetables and fruits; and 90 per cent had one or more meat or substitutes. Only 31 per cent of the entire group were having regularly even the minimum amounts of foods.

Hardy and associates⁵ reported in 1943 another extensive health survey in Chicago in cooperation with the Elizabeth McCormick Memorial Fund. The survey, which covered a period of 2½ years, included 7,363 white, negro, and Mexican children two to eighteen years old from relief and non-relief families scattered over the city. Medical histories, physical

4. Agnes B. Peterson, "Food Habits of Sixth and Seventh Grade Pupils in Ten Elementary Schools of Chicago", Research Quarterly of the American Association of Health and Physical Education, IX (December, 1938), 75-80.

5. Martha C. Hardy and others, "Nutritional and Dietary Inadequacies Among City Children From Different Socio-Economic Groups", Journal of the American Dietetic Association, XIX (March, 1943), 173-181.

examinations, and individual diet records served as the sources of data. Many physical signs of nutritional defects including poor posture were found. Only 14 per cent of the entire group were free from physical signs of poor nutrition. The weekly food consumption records of the children were obtained by a conference with the mother. The diets were rated on five levels of adequacy: liberal, moderate adequate, minimum adequate, restricted for emergency use, below restricted. The minimum adequate diet for the week included $5\frac{1}{4}$ to 7 quarts of milk, twenty-four to thirty servings of fruits and vegetables including potatoes, and seven to eight servings of meat, fish, poultry, or eggs. Of all the children studied, the diets of only 28 per cent came up to the minimum adequate standard. Even in families which were financially able to provide adequate food, the diets of at least one-third of the children were inadequate. Sixty-five per cent of the diets were inadequate in fruits and vegetables and 35 per cent were inadequate in milk.

A long-time series of mass studies in human nutrition was begun at the Pennsylvania State College in 1935⁶. The food habits and nutritional status of representative groups of the population of Pennsylvania were investigated. The extent and degree of malnutrition was estimated from the intake of certain nutrients and the response to a series of nutritional status tests.

In one of these studies made by Zayaz⁷ in 1936-37, the nutritional

6. Pauline Beery Mack and others, "Mass Studies in Human Nutrition; Status of Children in College Community", Journal of American Dietetic Association, XVIII (February, 1942), 69-78.

7. Stella Louise Zayaz, A Study of the Nutritional Status of School Children in an Industrial City, Master's Thesis, Pennsylvania State College, 1938. 163 pp.

status of 428 school children in Altoona was judged by a physical examination. When the results were judged on a one hundred point scale, 81.5 per cent rated below seventy.

In a college community sampled in 1937-38 in which the income and educational status of the parents was higher than in the above study, Mack⁸ reports that the 147 children in this study were also found to be in generally better nutritional status. "Even in this community, however, all children were not in optimum nutritional well-being, showing that even among more privileged families there is still room for improvement in the feeding of growing children."⁹

A dietary study of the fifth, sixth, and seventh grade children of University High School of Louisiana State University was made by Howard¹⁰ in 1940. The data were based on daily dietary records for from three to five days for fifty-two children and from observation of one hundred lunches. Twelve children drank less than one pint of milk daily, twenty-three had no whole grain cereal or bread, twenty-seven had less than three servings daily of fruits and vegetables, and twelve had no egg during the period. Of the one hundred lunches observed, 84 per cent were inadequate according to the "Modest standard" of a Nutrition Committee of the White House Conference on Child Health and Protection.¹¹

8. Mack and others, Op. Cit. p. 69-78.

9. Ibid, p. 78.

10. Maibel Gregg Howard, A Dietary Study Among the Children of the Fifth, Sixth, and Seventh Grades of University High School, Master's Thesis, Louisiana State University, August, 1940. 66 pp.

11. Lydia J. Roberts, Nutrition Work With Children. Chicago, Illinois: University of Chicago Press, 1936. pp. 456-457.

More than 6,000 records of food consumption of children of the schools of New Orleans and other areas of Louisiana were obtained by Coco and others.¹² To evaluate the dietary records, a score card was used which was patterned after the recommendations made by the Food and Nutrition Committee of the National Research Council in 1941. A diet which met these recommendations was scored good; if a food was served only half as many times during the week as recommended, it was classed as poor; and foods served more than one-half, but less than the recommended number of times per week were classed as fair. When these diets were scored, the number meeting the standard of good was quite small. The number of children who ate meat or meat substitutes was highest in all groups, while the number who ate whole grain cereals was lower in all groups than was any other food. In the diets of all the white students as a group, the amount of milk drunk by the children ranked second highest. Next in order came green, leafy or yellow vegetables, then eggs, other fruits (not citrus), other vegetables, citrus fruit, tomatoes and raw vegetables, butter, and potatoes last.

The nutritional status of 2,125 children of Hickman County, Tennessee, was reported in a study by Lovell¹³ in 1942, and many physical defects were found. The children were questioned about eating habits, and a large number of children then reported that they did not drink milk, nor did they eat eggs or fresh vegetables and fruits.

12. Lucille D. Coco and others, A Study of the Adequacy of Diets Consumed by Grade School and High School Students in Louisiana, Louisiana Bulletin 360. Louisiana State University and Agricultural and Mechanical College, Agricultural Experiment Stations. January, 1943. 10 pp.

13. Louise S. Lovell, The Nutritional Status of Hickman County School Children, Master's Thesis, George Peabody College For Teachers, 1942. 46 pp.

Evans and Lubschez¹⁴ in a comparison of diets of school children of New York City in 1917 and 1942 showed a definite improvement in the food habits of the present generation although they do not reflect an optimum daily diet. An increased consumption of milk, citrus fruits, and vegetables was noted in 1942. The majority in both years had inadequate breakfasts and frequently inadequate lunches. The consumption of protective foods, especially those containing Vitamin C, was not adequate.

A study was reported by Johnston¹⁵ in 1943 on the adequacy of diets eaten by twenty-one children eight to eleven years of age at Mooseheart, an institution in Illinois. The children were offered meals containing the protective foods in amounts usually advised for children. The purpose of the study was to find if the child actually eats enough, on his own accord, to supply him with adequate quantities of each dietary essential. The diets of every child were excellent except that some of the children did not seem to get as many calories as desirable. Four of the twenty-one children were in excellent nutritive condition as judged by general appearance. Although the diet was an inexpensive one, it supplied foods from each of the seven food groups recommended by the Bureau of Human Nutrition and Home Economics of the United States Department of Agriculture. It was concluded from this study that if foods from these seven food groups are made available to children in amounts suited to the size and appetite of each child, in almost every case enough will be eaten to furnish an adequate diet.

14. C. J. Evans and Rose Lubschez, "A Comparison of Diets of School Children in New York City in 1917 and 1942", Journal of Pediatrics, XXIV (May, 1944), 518-523.

15. F. A. Johnston, "Adequacy of Diet Eaten by Children Eight to Eleven Years of Age", Journal of the American Dietetic Association, XIX (June, 1943), 416-419.

In two South Carolina rural communities, the growth and nutritional condition of the children in elementary schools was observed for about 1 1/3 years and reported by Moser¹⁶ in 1945. In one school, a complete hot lunch was served which furnished at least one-third of the average daily requirement for calories and protein and one-half or more of the minerals and vitamins needed. The other school served a partial lunch consisting of uncooked foods such as apples, prunes, raisins, grapefruit, canned pork and beans, and canned tomatoes. The data included a health history and a two-day food record for each child, weight and height records at the beginning and close of the study, medical and dental examinations, blood determinations of Vitamins A and C, and information on the home food supply, living conditions, and economic status. A larger proportion of the group having a complete lunch made unusually good gains in height and had physical signs of good nutrition. There was no significant difference in the attendance records of the two schools. In the school group having the partial lunch, half of the children had faulty posture, while in the complete lunch group 37.8 per cent of the children had faulty posture. There were no marked differences in weight gains in the two groups, but there was a higher proportion of unusually good gains in weight in the group having the complete lunch. More milk and whole grain cereals were consumed by the complete lunch group than by the partial lunch group.

In a survey¹⁷ conducted in seven counties in Florida by the State Board of Health in May, 1945, over 2,000 rural and urban children in grades

16. Ada M. Moser, Nutritional Condition of Children in Relation to School Lunches in Two South Carolina Rural Communities, Bulletin 359. Clemson, South Carolina, South Carolina Agricultural Experiment Station of Clemson Agricultural College. June, 1945. 54 pp.

17. "Nutrition of School Children", Journal of the American Medical Association, CXXVIII (August 25, 1945), 1233.

one to twelve were examined for nutritional deficiencies. In some sections over 50 per cent of the children showed signs of rickets, and in one area over 50 per cent had gums considered indicative of Vitamin C deficiency. Roughened skin and granulated eyelids, considered a sign of Vitamin A deficiency, was found to be as high as 64 per cent in some areas. A concurrent dietary survey in which the children were questioned as to types of food eaten, revealed that a large number of the children's diets were lacking in vegetables, citrus fruits, and milk. It was also learned that many children go without one meal of the day, usually breakfast, or have a totally inadequate breakfast.

A low intake of fruits and vegetables was likewise reported in a survey in which food intake records for one day were kept by 186 Vermont school children. This was a part of a larger study of nutrition defects among children in Vermont as reported in 1945 by Pierce and others.¹⁸

Roberts, Blair, and Greider¹⁹ reported in 1945 the results of providing for a one-year period a generously adequate diet to 152 children, ages two to fourteen years, in an institution. Preliminary observations showed an average diet but not in recommended amounts. It provided in a day one pint of milk; a small serving of vegetables, fruit, and meat; one pat of butter; one egg per week; and plenty of cereals and white bread. The supplements for improvement consisted of one pint or more of homogenized Vitamin D milk; five eggs per week; one ounce of cheese three times per week; one ounce of butter; whole grain cereal; pineapple juice ad libitum; and a five-ounce serving of ice cream twice a week. In almost

18. H. B. Pierce and others, "Nutrition Defects Among Children in Vermont". New England Journal of Medicine, CCXXXVIII, (November 22, 1945), 612-617.

19. Lydia J. Roberts and others, "Results of Providing a Liberally Adequate Diet to Children in an Institution", Journal of Pediatrics, XXVII (November, 1945), 393-417.

all instances, all the foods were accepted by the children and eaten in amounts usually equal to or in excess of the recommended dietary pattern. A comparison was made of the rate of gain before, during, and after supplementation. In the period before the supplements were added, the group as a whole averaged 61 per cent of its expected gain; in the supplemental period the percentage rose to 140 per cent, and gains continued at a high level following this. Gains in height followed a similar pattern. The percentage of children under average weight for height decreased, and there was a definite shift of the group toward a more favorable weight-height status. By all bases of comparison, the group present throughout the study fared significantly better than those present only a part of the time.

In West Virginia, Best²⁰ in 1946 reported the study of a day's diet and the physical status of 1200 children of the fifth through tenth grades. Each child was interviewed as to the kind and quantity of food eaten the previous day. A large percentage of the group had a low daily intake of milk, green and yellow vegetables, Vitamin C foods, and whole grain cereals.

Leeson and others²¹ reported in 1946 a study of a group of urban children in Canada. The diets showed a good consumption of milk, meat, and eggs by most of the children, and poor consumption of fruits, vegetables, and whole grain cereals. There was also a large number of children who were receiving inadequate breakfasts and noon meals. A high

20. Mabel F. Best, "West Virginia Food Study", Journal of Home Economics, XXXVIII (January, 1946), 31-32.

21. H. J. Leeson and others, "Nutritional Conditions in a Group of Urban Children", Canadian Journal of Public Health XXXVII (March, 1946), 97. Cited in Journal of American Dietetic Association, XXII (June, 1946), p 548.

consumption of soft drinks, pastry, and candy was noted.

Surveys made in twenty-one counties in Illinois of 14,685 children six to eighteen years of age was reported by Feldman and Kaiser²² in 1946. Two types of survey forms were used to investigate the eating habits: a one-to-seven day check list of the seven recommended food groups, and a twenty-four hour record of food consumption checked by the seven food groups. The consumption of meat and meat products ranked highest with 83 per cent having one to two servings daily; 75 per cent ate two or three servings of cereal or bread and butter or margarine; 50 per cent had the recommended number of at least two vegetables and two or more fruits, one citrus or tomato; and 43 per cent had an egg a day. Only 7 per cent of the entire group met the requirements for the whole day.

Various methods of assessing the nutritional status of children have been used.

Roberts²³, in 1941, suggested as a practical method for assessing nutritional status, growth as the simplest method in spite of its previous abuses and misinterpretations. She says the emphasis should be on the child's own growth over a period of time rather than its relation to an arbitrary standard. A prolonged stationery weight or failure to make satisfactory gains over a year's time should be regarded as an indication for need of attention.

22. Annette Y. Feldman and Gertrude Kaiser, "Diet Surveys to Revive Nutrition Programs", Journal of Home Economics, XXXVIII (October, 1946), 517-19.

23. Lydia J. Roberts, "Practical Methods for Assessing Nutritional Status", Journal of Health and Physical Education, XII (April, 1941), 226-229.

Stuart²⁴ urges that growth measurements, even with their limitation, be used in connection with nutrition research and especially in surveys of nutrition.

"Malnutrition among school age children is essentially a problem of failing growth and development", says Wetzel²⁵. Other than improper diet or inadequate food as causes of malnutrition, he says there are environmental influences such as poor management, poor physical and mental hygiene, irregular habits, and repeated infections.

At a conference requested by the Rockefeller Foundation on methods and procedure to use in conducting nutrition surveys of population groups held in 1941²⁶, the group decided that dietary studies, including diet and food consumption records, were an essential part of every survey. They recommended using as a standard for nutritive requirements the table of recommended daily allowances by the Committee on Food and Nutrition of the National Research Council.

A study of school absence due to sickness in the war years was reported by Altman and Ciacco²⁷ in 1945. Data for five school years, 1940-1945, in Hagerstown, Maryland, showed that the highest number of absences were caused by colds and respiratory diseases, especially during

24. H. C. Stuart, "Need for Observations of Growth in Appraising Adequacy of Nutrition in Childhood", American Journal of Diseases of Children, LXV (February, 1943), 320-325.

25. N. C. Wetzel, "Assessing Physical Condition of Children; Simple Malnutrition; Problem of Failing Growth and Development", Journal of Pediatrics, XXII (February, 1943), 208-225.

26. "Nutrition Survey of Population Groups; Report of a Conference on Methods and Procedures held in 1941", Public Health Reports, LVII (February, 1942), 189-194.

27. I. Altman and A. Ciacco, "School Absence Due to Sickness in the War Years", Child Development, XVI (December, 1945), 189-199.

December, January, and February. Other causes in order of frequency were digestive and gastro-intestinal disturbances, headaches, and others, including communicable diseases. There was higher absenteeism among the girls than the boys. The usual rate of absence was 0.5 to 0.6 days per 100 children-school days.

CHAPTER III

METHODS AND RESULTS

The Subjects

This study was made with a group of boys and girls in the fourth, fifth, and sixth grades of Curry School, the demonstration school on the campus of Woman's College of the University of North Carolina. The total number of children in the three grades was eighty-seven including thirty-six boys and fifty-one girls. Complete records were obtained from seventy-two of the children, twenty-eight boys and forty-four girls. The ages as of October, 1946 ranged from eight to fourteen years, but sixty-five of the seventy-two were between nine and twelve years old. Table I shows the age and sex distribution of the children in each grade.

TABLE I

AGE AND SEX DISTRIBUTION OF CHILDREN IN OCTOBER, 1946

Age		4th Grade		5th Grade		6th Grade		Total	
Yrs.	Mos.	Yrs.	Boys	Girls	Boys	Girls	Boys		Girls
7	- 11		1	0	0	0	0	1	
9	- 1 to 10		3	15	3	2	0	1	24
10	- 1 to 11		2	1	7	10	0	0	20
11	- 1 to 12		0	0	2	1	8	10	21
12	- 1 to 13		0	1	0	0	1	1	3
13	- 1 to 14		0	0	0	0	1	1	2
14	- 4		0	0	0	0	0	1	1
Total cooperating:		6	17		12	13	10	14	72
Total enrollment:		6	20		17	14	13	17	87

A classification of the occupations of the wage earner of each of the seventy-two families (Table II) shows that twenty-three or 32 per cent belonged to a profession or were owners or managers of a business. This indicates that a larger percent of these children were from the privileged class than in the average group.

TABLE II
OCCUPATIONS OF WAGE EARNER OF FAMILY OF CHILDREN IN STUDY

	4th Grade		5th Grade		6th Grade		Total	
	No.	Per Cent						
Profession	6	26	2	8	9	37	17	24
Owner or Manager of business	1	4	4	16	1	4	6	8
Salesman	7	30	5	20	4	17	16	22
Clerical Work	6	26	4	16	3	12	13	18
Laborer	3	13	10	40	7	29	20	28
Total	23		25		24		72	

Dietary Records

A dietary record of all food eaten during the day was kept by each child for three consecutive school days. In the fifth grade, the records were taken in December of 1946, while those of the fourth and sixth grades were taken in January of 1947. A copy of the form used for these daily dietary records may be found in the Appendix (Table I). This form was based on that in use by the Nutrition Division of the North Carolina State Board of Health. The day before the records were to be started, the writer gave the record sheets to the pupils and explained how they were to be kept. A serving of food such as was given in the school cafeteria for that particular

grade was shown as a standard. The children estimated the amount of food eaten at home by comparison with this sample. A space was provided for entering food eaten between meals. They were asked to record as exactly as possible the kind and amount of all food eaten during the day.

The fourth grade teacher gave the children two short periods during the school day to fill in their dietary records, one in the morning and one in the afternoon. They took the sheet home to complete the day's food record. The fifth and sixth grade teachers gave time for filling in the records during a short period after lunch, and they were taken home for completion by the child. The teachers were asked not to influence the children in what foods they were to record, and since they were very cooperative it is believed they complied. On the following day, the writer checked the records and held short personal interviews to insure accurate and complete records. With this supervision, it is believed that fairly accurate dietary records were obtained.

The three day dietary records were rated as excellent or barely adequate by a score card based on the seven food groups recommended by the Bureau of Human Nutrition and Home Economics. Neither whole wheat nor enriched cereals were tabulated since these city families were limited to commercially prepared bread and flour which was enriched under a state law. In averaging the requirements for the three-day period, the diet was not considered up to standard unless one citrus fruit was included each day since Vitamin C is not stored in the body. This requirement is in line with the procedure followed by the nutritionists in the North Carolina Department of Health.

Score Card For Judging Diets

Servings for the 3-day Period

	Excellent	Minimum
Milk	12 cups	9 cups
Green or Yellow Vegetable	3 or more	3
Citrus Fruit or Tomato	1 or more each day	1 each day
Other Vegetable or Fruit	9	3
Egg	3	1 - 2
Meat or Substitute	3 or more	3
Butter	6 tablespoons	3 tablespoons

Table III gives a summary of the dietary scores. None of the children met the requirements for the excellent diet although one girl in the fifth grade would have had an excellent diet if she had had one more vegetable and one additional tablespoon of butter. A total of five children met the minimum standard, and four more, two in the fourth grade, and two in the fifth grade, almost met it. In other words, the diets of nine children out of the seventy-two met or approximated the minimum requirements. The other sixty-three children had definitely inadequate diets. The diets of the fourth grade children seemed slightly better than those of the other grades. The girls' diets were somewhat better than the boys'.

TABLE III

SUMMARY OF DIETARY RECORD SCORES

	4th Grade		5th Grade		6th Grade		Total	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Number of Records:	6	17	12	13	10	14	28	44
Number Children With Excellent Diet	0	0	0	0	0	0	0	0
Minimum Diet	1	1	0	¹ 2	0	1	1	4
Inadequate Diet	5	² 16	12	11	³ 10	³ 13	27	40

1. One girl did not meet the standard of an excellent diet because she lacked one vegetable and one tablespoon of butter.
2. One girl did not meet the standard of the minimum diet by one serving of citrus fruit or tomato, and another by an additional serving of vegetable or fruit.
3. One boy and one girl failed the minimum standard by one serving of a green or yellow vegetable.

Table IV summarizes the consumption of each food group. The fifth grade children consumed the most milk with 32 per cent having a quart or more daily. Sixty per cent of both the fourth and fifth grades had $1\frac{1}{2}$ pints a day as compared with 41 per cent in the sixth grade. In the fourth grade about twice as many children as in the other grades reported three or more servings of green or yellow vegetables. Six children in the fifth grade and five children in the sixth grade ate none. The largest number of children eating the required amount of citrus fruits or tomatoes was in the sixth grade. However, the same number of sixth grade children ate none.

Most of the children had one or more vegetables each day. The consumption of meat and cheese (mostly meat) was high in each grade with about 90 per cent having one or more servings daily. About one-third of the children averaged one or more eggs a day, and one-fourth had one or more servings of dried legumes each day. The fifth grade had an unusually high percentage of egg consumption with 56 per cent having one or more eggs daily. Among these children there seems to be no lack of protein in the diet. The use of butter or margarine also seems generous, although in the fifth grade 20 per cent of the children had none.

TABLE IV
 PER CENT OF CHILDREN IN EACH GRADE REPORTING THE DESIGNATED AMOUNTS
 OF FOODS FOR THE 3-DAY PERIOD

No. Completed Records	4th Grade	5th Grade	6th Grade
	23	25	24
	%	%	%
Milk:			
12 or more cups	9	32	8.3
9-12 cups	52.2	28	33.3
Less than 9 cups	34.8	40	58.3
None	4	0	0
Green and Yellow Vegetables:			
3 or more servings	60.9	32	25
Less than 3 servings	39.1	44	54.2
None	0	24	20.8
Citrus Fruit or Tomatoes:			
1 or more servings each day	21.7	12	37.5
2 or more servings for period	39.1	36	12.5
1 or more servings for period	21.7	12	12.5
None	17.4	40	37.5
Other Vegetables and Fruits:			
9 or more	17.4	16	12.5
3 - 9	65.2	72	75
Less than 3	17.4	12	8.3
None	0	0	4.2
Dried Legumes & Peanuts			
3 or more servings	26.1	20	25
2 or less servings	39.1	36	45.8
None	34.8	44	29.2
Eggs:			
3 or more	21.7	56	33.3
1 - 2	56.5	24	58.3
None	21.7	20	8.3
Meat and Cheese:			
3 or more servings	87	88	95.8
1 - 3 servings	13	8	4.2
None	0	4	0
Butter or Margarine:			
6 or more tablespoons	30.4	12	33.3
3 - 6 tablespoons	60.9	52	20.8
Less than 3	9	16	37.5
None	0	20	8.3

School Lunches

The type of lunch eaten by the children varied in each grade. In the fourth grade, all the children in the survey, with the exception of five who went home, had no selection in the choice of the lunch in the school cafeteria. All were served a well-planned plate lunch and milk. The fifth and sixth grade children had a choice of the same plate lunch, or of any other foods available in the cafeteria. In the fifth grade, fifteen of the twenty-five children usually brought a lunch from home, often supplemented with milk or vegetable soup from the school cafeteria. Eight children in this grade went home for lunch and two selected their lunch in the cafeteria. Fifteen of the boys and girls in the sixth grade selected lunch in the school cafeteria, eight brought a lunch from home, and one child went home for lunch. The higher consumption of green and yellow vegetables by the children in the fourth grade might be attributed to the school lunch, since the plate usually included one of these each day. The high percentage of egg consumption in the fifth grade is partly a result of egg sandwiches and hard-cooked eggs in the lunches brought from home. Few of these lunches contained butter or margarine which may be the reason for the low consumption of this food by the fifth grade children.

Growth Records

Each child was weighed and measured near the beginning and at the close of the study. The first weighing and measuring was done between November 16 and 29, and the final figures were obtained between March 31 and April 14. All weighing and measuring was done by the writer with the help of a student teacher between the hours of ten and eleven in the morning. Shoes, coats, and sweaters, not a part of the child's regular clothing, were removed before he was weighed and measured.

The height and weight records for the children in the study may be found in Table II of the Appendix. In order to compare growth, the increase in height and weight during the period of study was expressed as a per cent of the expected gain for the year. No child failed to increase his height during the study. Twenty-two children grew as much or more than would be expected in a year; but two children grew less than 10 per cent of their expectation for the year. Both made poor gains in weight also. Nine children weighed less at the end of the study than at the beginning. Three made no gain. Three gained less than 10 per cent of the expected gain for the year. Only three equalled or exceeded the expected weight gain for the year.

Absence Records

Records of absences with the cause of each absence were obtained from the grade teachers at the end of each week. These records covered the period from October 14, 1946 to March 28, 1947, a total of 110 school days. The causes of the absences were taken from the note written by the parent and brought by the child on his return to school.

Table V summarizes the number of days missed and the causes of absences for the children in each grade. Colds and influenza caused by far the most absences in each grade. Both incidence and severity as judged by the number of days lost were highest in the fifth grade. Fifty-three of the seventy-two children in the study lost 218 days, or an average of 4.1 days, because of colds and influenza. Absences ranged in length from one to thirteen days. This is in line with the study of school absences due to sickness by Altman and Ciacco¹ in which they found that colds were by far the greatest single cause of school absence due to illness. Next to colds and influenza as cause of greatest number of days absent in this study came another infection, chicken pox, which was the cause of five children's absences for a total of thirty-one days. Infections, including tonsillitis, sinus, and ear, along with colds, influenza, and chicken pox, caused 275 or over half of the absences. Non-infectious and miscellaneous illnesses were the cause of fifty-five days of absence. Absences due to injury were low, there being only fifteen days lost because of this. An average of 5.7 days were lost per child from all causes for the 110-day period.

1. I. Altman and A. Ciacco, "School Absences Due to Sickness in the War Years", Child Development, No. 4. XVI (December, 1945), 189-199.

TABLE V

DAYS LOST AND CAUSES OF ABSENCE

Cause:	4th Grade		5th Grade		6th Grade		Total	
	Days Absent	No. Children	Days Absent	No. Children	Days Absent	No. Children	Days Absent	No. Children
1. Colds, Influenza	49	15	93	20	76	18	218	53
2. Upset Stomach	7	3	11	5	8	7	26	15
3. Tonsili- tis, Adenoid, Sore Throat	2	1	11	5	1	1	14	7
4. Headache	4	3	0	0	4	3	8	6
5. Chicken Pox	18	3	8	1	5	1	31	5
6. Sinus Trouble	9	2	0	0	0	0	9	2
7. Tooth- ache	7	1	1	1	0	0	8	2
8. Ear Infection	2	1	1	1	0	0	3	2
9. Misc. (Illness)	10	3	3	2	0	0	13	5
10. Injury	2	1	3	2	10	2	15	5
11. Misc. (Other than Illness)	2	2	6	4	14	5	22	11
12. Unknown	10	5	19	10	11	3	40	18
Total	122		156		129		407	

Posture Ratings

A posture rating for each child was obtained in December, 1946. In grading, the letters A, B, C, D, were used to represent "excellent" to "poor" posture. The scheme was set up by the physical education supervisor of Curry School. The classroom teacher, physical education supervisor, and the student teacher of physical education rated the pupils independently at different times when the children were not aware of what was being done. For the final rating, the grades given by the classroom teacher and by the physical education supervisor were each given a value of two-fifths while that of the student teacher was given a value of one-fifth.

Table VI gives a summary of the posture ratings.

TABLE VI
SUMMARY OF POSTURE RATINGS

	4th Grade		5th Grade		6th Grade		Total	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Number Rated:	6	17	12	13	10	14	28	44
Excellent	No. 0	2	0	0	0	2	0	2
	% 0	12	0	0	0	14	0	11
Good	No. 1	4	0	4	3	7	4	15
	% 17	24	0	31	30	50	14	29
Fair	No. 4	9	11	8	7	4	22	21
	% 67	53	92	62	70	29	79	21
Poor	No. 1	2	1	1	0	1	2	4
	% 17	12	8	8	0	7	7	11

It is evident that on the whole the girls had better posture than the boys. Forty per cent of the girls were rated good or better as compared with only 14 per cent of the boys. A larger proportion of the sixth grade was rated good or better than of either of the others. The largest proportion of children rated poor were in the fourth grade. With the exception of the sixth grade girls where 50 per cent were rated good, the largest proportion of the children were rated fair.

CHAPTER IV

DISCUSSION OF RESULTS

Dietary Records

The diets of the children in this study were found to be generally poor. There was no child whose diet met the excellent standard and only nine of the seventy-two subjects whose diets met or approximated the minimum standard set up for the study. Results similar to this have been found in surveys by the Nutrition Division of the North Carolina State Department of Health¹. In this study there was a larger per cent of children from privileged families than in average groups. It is believed, therefore, that the families of the majority of these children were financially able to provide adequate diets but that they lacked the knowledge of how to plan them.

Table IV, Page 21, which gives the percentage of children who ate the designated foods for the three-day period, shows a conspicuous lack of citrus fruits in the diets and almost as great a lack of green and yellow vegetables. The food eaten most by all the children was meat and meat substitutes. These results seem to be in agreement with most other studies. The fourth and fifth grade consumption of milk was higher than that of the sixth grade. However, the total amount of milk was generally low since 45 per cent of the children had less than $1\frac{1}{2}$ pints daily. The lunch pattern seems to have some relationship to the adequacy of the total day's diet. The higher consumption of green and yellow vegetables

1. Unpublished Data, Nutrition Division, North Carolina State Department of Health.

and of butter or margarine by the fourth grade can be credited to their lunch since the plate lunch contained a green or yellow vegetable and a buttered roll each day. This may explain why this grade also had a slightly better all-round diet than the other two grades. The low consumption of citrus fruits and green and yellow vegetables by the fifth grade and of the latter by the sixth grade may be the result of the lack of these foods in most of their lunches. The lunches brought from home by the fifth grade children often contained egg sandwiches or hard-cooked eggs which resulted in the high egg consumption by this grade. Few of the lunches contained butter or margarine.

Relation of Diet to Type of Lunch, Growth,
Posture, and Days Absent

In order to study the relation of the adequacy of the diet to other factors, an arbitrary score card was worked out for the diet. A credit of one point was given for each of the seven food groups eaten in the quantity set up in the minimum standard. Thus, if a child ate the designated amount of each food group, his diet would be scored 7. It should be remembered that a score of 7 represents not an excellent diet but only a barely adequate one. All diets with a score of less than 7 are inadequate, but one with a score of 2 or 3 is obviously much worse than one scoring 6. While there are too many diets scoring 2 or 3, (see Table VII), it is gratifying that there is an increase in the number at each score up to 6, although that does not compensate for the small number which scored 7.

There is some evidence that the plate lunch served in the school cafeteria at noon improved the diet since nineteen of the twenty-two children who had that type of lunch were rated 5 or better on their diets. Of

TABLE VII

TYPE OF LUNCH, GROWTH, AND POSTURE RATINGS AND NUMBER
OF DAYS ABSENT IN RELATION TO DIET RATING

	Total	Diet Rating				
		2-3	4	5	6	7
No. Diets Scored	72	11	15	18	23	5
Type of Lunch:						
Cafeteria Lunch						
Plate	22	1	2	8	10	1
Other	10	3	1	2	3	1
Brought from Home	21	4	8	3	6	0
Went Home	19	3	4	5	4	3
Growth Rating:						
%						
176 $\frac{1}{2}$	9	1	4	3	1	0
126 - 175	17	7	2	3	4	1
75 - 125	29	2	6	9	8	4
Less than 75	17	1	3	3	10	0
Posture Rating:						
A	4	1	0	0	2	1
B	19	1	1	8	8	1
C	43	7	11	10	12	3
D	6	2	3	0	1	0
Number Days Lost Due to Illness:						
0 - 2	32	7	6	5	10	4
3 - 4	15	1	4	4	5	1
5 - 10	14	2	2	5	5	0
11 - 15	8	1	2	3	2	0
16 $\frac{1}{2}$	3	0	1	1	1	0

the nineteen who went home, only twelve reached that rating. A well selected plate lunch can be a real factor in securing a good diet. Going home for lunch should be as good as the regular school lunch, but with this group it evidently was not. It is interesting that six out of the ten children who selected foods in the cafeteria other than the plate lunch were scored 5 or better on their diets. Six of the twenty-one who brought lunch from home were scored 6. It is obvious that it is possible to secure a good diet with any type of lunch, but that the chances are better for children who eat the lunch planned for them at school.

To study the possible relation of food and growth, a numerical expression for growth was needed. A figure had already been obtained for growth by expressing the increase in pounds and inches as a percent of what that child might be expected to make for the year. Since children often do not gain in height and weight at the same time, these two figures were added together to represent total progress. No attempt was made to indicate what progress should have been made during this period. Forty-six of the children made between three-fourths of the gain expected in twelve months and $1\frac{3}{4}$ times that amount. There seems to be no relation for the period of this study between the quality of the diet and growth. Eighteen children with a diet rating of 6 made up to 125 per cent of their expected growth while eight having the poorest diet made greater gains. Some reasons for lack of relationship may be the one short period of diet observation which may not have been typical of the regular diet; the $5\frac{1}{2}$ months which is not a long enough period to judge growth; and the epidemics of influenza and chicken pox which increased the number of absences due to illness and probably reduced weight gains if not gains in height.

There seems to be some relation between posture and the quality of the diet although one child in the poorest diet group was among the four rated best in posture. However, on the whole, those with the better posture also had the better diets.

There seems to be no relation between the quality of the diet and the number of days lost because of illness. In each group into which absences were divided, about the same number of days of absence occurred among those in the two poorest diet groups as are found in the two best.

In general, better diets were found in those children who ate the plate lunch served in the school cafeteria. For this brief study no relation was found between the quality of the diet and growth or the amount of absence. On the whole, posture seems to improve with a better diet.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A survey was made of the diets of seventy-two children in the fourth, fifth, and sixth grades of Curry School, the demonstration school on the campus of Woman's College of the University of North Carolina. The possibility of a relation between diet, growth, absences from school due to illness, and posture was investigated.

The data for the survey included a three-day dietary record, growth records for 5½ months, records of absences with causes for 110 school days, and a posture rating made at the beginning of the study.

No excellent diets were found among these children. One girl almost met the requirements for an excellent diet. Five children met the minimum requirements for the three-day period. Four children almost met the minimum requirements, but the other sixty-three had definitely inadequate diets.

More children met the standard for meat or meat substitute every day than that for any other food group. The most conspicuous lack was in citrus fruits or tomatoes, with green and yellow vegetables and milk next in order of inadequacy. The fourth grade children had slightly better diets than the fifth or sixth grade children. The girls' diets were somewhat better than those of the boys. Fewer children who had the plate lunch at school had very poor diets than those having other types of lunches.

No relationship was found between diet and growth, nor between diet and number of days absent from school. Some relationship was noted between diet and posture. Possible reasons for this lack of relationship may be the short period of the diet study, the epidemics of influenza and chicken pox during the time the records were obtained, and the generally low level of the diets.

As a result of this investigation, the data indicate that there is need for:

1. Inducing more children to select the plate lunch offered in the school cafeteria.
2. Including more citrus fruits or tomatoes in the school lunch to offset the most common dietary deficiency.
3. Teaching of better food selection especially to the families of those children who bring their lunch or who go home at noon.

For continued study, the writer offers the following suggestions:

1. A follow-up of the diets of these same children for a longer period.
2. A longer study of growth and illness correlated with the longer diet study.

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TABLE I

FORM FOR DIETARY RECORD

Name _____ School _____ Date _____

Grade _____ Boy _____ Girl _____ Age _____

I ate for breakfast.

I ate at recess.

I ate for lunch.

I ate after school.

I ate for supper.

I ate after supper.

TABLE II

RECORDS OF GROWTH, DIET RATING, DAYS LOST FOR ILLNESS,
AND POSTURE RATING FOR EACH CHILD

Date	Age		Height		Weight		Growth		Diet Rating	Days Lost for Illness	Posture Rating
	10/16/46		10/16/46	3/31/47	10/16/46	3/31/47	% of Expected Year's Gain ¹	% Ht. % Wt.			
	Yr.	Mo.	In.	In.	Lbs.	Lbs.					
Fourth Grade											
Boys: M. H.	7	- 11	52 $\frac{1}{4}$	53	68	70 $\frac{1}{2}$	37	42	5.3	4	C
S. Y.	9	- 3	53 $\frac{1}{2}$	55	63 $\frac{1}{2}$	64 $\frac{1}{2}$	75	17	6.4	7	D \neq
S. M.	9	- 8	54 5/8	55 3/4	73	78	56	83	7.0	0	B \neq
B. R.	10		56	57 3/4	83 $\frac{1}{2}$	85	87	21	4.2	9	C \neq
A. B.	10	- 8	53 $\frac{1}{4}$	54 $\frac{1}{4}$	79	81	100	50	3.0	0	C \neq
G. B.	10	- 11	56	56 3/4	77	77 $\frac{1}{2}$	37	7	6.2	4	C
Girls:											
D. W.	9	- 1	52 $\frac{1}{2}$	53 3/4	62	65	62	43	6.7	0	C \neq
E. O.	9	- 2	52 5/8	53 3/4	61 $\frac{1}{2}$	62 $\frac{1}{2}$	56	14	6.6	0	B -
N. D.	9	- 2	51 $\frac{1}{2}$	52 $\frac{1}{4}$	59	59	37	0	4.3	5	C -
K. C.	9	- 2	55 $\frac{1}{4}$	57 $\frac{1}{4}$	96 ²	103	100	78	5.3	0	C \neq
J. B.	9	- 5	53 $\frac{1}{4}$	54	68 $\frac{1}{2}$	71	37	36	6.7	2	C \neq
M. P.	9	- 5	53 1/8	53 3/4	67 $\frac{1}{2}$	70	32	36	6.1	3	A
A. G.	9	- 5	54 1/8	55	75	78 $\frac{1}{2}$	44	50	7.0	2	A
A. F.	9	- 7	47 $\frac{1}{2}$	49 $\frac{1}{4}$	49	51	87	33	6.4	4	B
M. L.	9	- 7	58	60	110 ²	116	100	55	6.3	0	C
A. M.	9	- 8	54 1/8	54 3/4	70	71 $\frac{1}{2}$	32	-19	5.6	12	C
J. L.	9	- 8	53 5/8	54 3/4	63 ₂	66	56	37	5.4	3	B -
M. B.	9	- 8	56 3/4	57 $\frac{1}{4}$	111	108	25	-27	6.0	0	C \neq

Date	Age		Height		Weight		Growth		Diet Rating	Days Lost for Illness	Posture Rating
	Yr.	Mo.	In.	In.	Lbs.	Lbs.	% of Expected Year's Gain ¹	% Ht. % Wt.			
Fourth Grade											
(Continued)											
Girls: N. B.	9	- 8	52 7/8	53	73	71	6	-25	3.8	5	C -
N. C.	9	- 9	52 1/4	53 1/4	72 1/2	76	50	58	4.7	3	C -
M. H.	9	- 10	55 5/8	57 3/4	65	66 1/2	106	19	5.7	12	B -
A. W.	10	- 8	51 3/4	53 3/4	70 1/2	76	100	92	4.3	13	D /
B. W.	12	- 5	54	55	71 1/2	73	33	15	4.5	18	D
Date	10/22/46	10/22/46	4/14/47	10/22/46	4/14/47						
Fifth Grade											
Boys: G. E.	10		57	58 1/4	76	81	62	71	2.0	3	C -
V. W.	10		55 1/2	56 1/2	73	75	50	33	4.4	2	C -
S. H.	10		51 1/2	53 1/4	64	69	87	100	4.0	4	D /
R.Gr.	10	- 3	53 3/4	55 1/2	68	73	87	83	3.8	2	C -
J. M.	10	- 6	55 3/4	57 1/4	66	68 1/2	75	36	6.0	15	C /
R.Cu.	10	- 6	57 1/2	59	90	94 1/2	75	64	4.4	3	C -
M. B.	10	- 7	56 3/4	58 1/2	78	79	87	14	6.2	5	C /
P. P.	11		55 3/4	57 1/4	72 1/2	74	75	21	5.4	0	C
B. J.	11		58 1/4	60 1/2	106 2	114	112	100	4.9	0	C
A. B.	11		53 3/4	55 1/4	72 1/2	75	150	62	5.5	4	C
A. S.	11	- 1	55 1/2	56 3/4	69	73	62	57	4.3	12	C
D. M.	11	- 8	58 3/4	61 1/2	74 3	81	137	78	5.7	10	C
Girls: G. P.	9	- 6	53	54 1/4	60	63 1/2	62	44	7.0	4	C -
R. W.	9	- 10	53 1/4	55 1/2	63	68 1/2	112	69	6.0	7	C
A. A.	10	- 2	55 3/4	57 1/2	77	73 1/2	87	-32	5.4	6	C
S. R.	10	- 2	58 1/2	61	83	88 1/2	125	50	5.8	5	C
P. J.	10	- 3	57 3/4	59 1/2	91	91	87	0	7.0	2	C /
J. E.	10	- 4	57	58 1/4	83	80 1/2	62	-23	6.0	16	C /

Date	Age		Height		Weight		Growth		Diet Rating	Days Lost for Illness	Posture Rating
	10/22/46	10/22/46	4/14/47	10/22/46	4/14/47	% of Expected Year's Gain ¹	% Ht.	% Wt.			
	Yr.	Mo.	In.	In.	Lbs.	Lbs.					

Fifth Grade
(Continued)

Girls: P. N.	10	- 5	55 3/4	57 3/4	84	80	100	-36	4.7	1	C
B. S.	10	- 6	52 1/4	54 1/4	67 1/2	69 1/2	100	33	2.7	2	D /
J. M.	10	- 8	56 3/4	58 1/2	86	87 1/2	87	15	5.0	17	B -
C. O.	10	- 9	58	59 3/4	78	82 1/2	58	35	4.2	3	B
J. K.	11		55 1/2	57 1/2	72	77 1/2	87	55	3.1	0	B /
F. G.	11		54 1/2	57 1/2	66	71	137	50	4.6	1	C /
N. B.	11	- 2	56 1/4	58 1/4	84	83 1/2	100	-5	5.7	5	B

Date 10/29/46 10/29/46 4/14/47 10/29/46 4/14/47

Sixth Grade

Boys:

Al. S.	11	- 1	60 3/4	62 1/4	87 1/2	89 1/2	75	25	5.1	8	C /
R. I.	11	- 3	59 1/4	61	70 1/2 ³	73	87	31	6.2	12	B -
S. F.	11	- 5	57 1/4	59 3/4	110 ²	110	125	0	6.3	6	C
L. W.	11	- 6	56	56 3/4	71 1/2	73	37	19	6.0	3	C /
R. W.	11	- 6	54	55 3/4	68	71 1/2	87	44	3.9	0	C /
S. G.	11	- 8	56 3/4	58 1/4	71	73 1/2	75	28	3.7	0	C /
J. P.	11	- 9	56 3/4	58	76	82 1/2	62	61	6.7	1	B -
B. M.	12		58	59 1/4	81	87	62	67	5.7	4	C /
C. M.	12	- 11	57	59	80 1/2	84 1/2	100	44	4.3	4	C /
A. S.	13	- 5	59 1/2	61	82	84 1/2	50	23	5.4	0	B -

Girls:

E. H.	9	- 11	54 1/2	57	84	84 1/2	125	6	3.1	3	A -
M. Y.	11	- 1	64 1/4	65 1/2	121 1/2	123 1/2	42	15	6.6	2	B /
S. M.	11	- 5	51 1/2	53 1/2	59	60 1/2	100	25	2.7	8	C /
P. G.	11	- 5	56 3/4	58 1/4	91	89	75	-20	6.4	4	A -

Date	Age		Height		Weight		% of Expected Year's Gain ¹		Diet Rating	Days Lost for Illness	Posture Rating
	10/29/46	4/14/47	10/29/46	4/14/47	% Ht.	% Wt.					
	Yr.	Mo.	In.	In.	Lbs.	Lbs.					
Sixth Grade (Continued)											
Girls: F. C.	11	- 7	54 $\frac{1}{4}$	55 $\frac{1}{2}$	66	69 $\frac{1}{2}$	42	35	6.9	1	C
A. F.	11	- 7	62	63 $\frac{3}{4}$	85 ³	91 $\frac{1}{2}$	87	72	6.0	1	B -
Sy. P.	11	- 8	58 $\frac{1}{2}$	60 $\frac{1}{2}$	93	96 $\frac{1}{2}$	100	27	5.0	0	B -
P. B.	11	- 9	56	58	77	79	67	20	5.8	13	B
M. H.	11	- 10	63 $\frac{1}{2}$	65 $\frac{1}{2}$	87 $\frac{1}{2}$ ³	92	100	50	6.1	1	B -
S. P.	11	- 11	59 $\frac{1}{4}$	61	86	91 $\frac{1}{2}$	87	42	6.7	1	B $\frac{1}{2}$
A. H.	12		60 $\frac{1}{2}$	62 $\frac{1}{2}$	99	98	100	-11	5.1	1	B $\frac{1}{2}$
B. V.	12	- 6	61	62	92 $\frac{1}{2}$	98	50	55	4.5	1	C
R. S.	13	- 5	63	64	101 $\frac{1}{2}$	102	50	6	6.2	6	C $\frac{1}{2}$
P. A.	14	- 4	63 $\frac{1}{2}$	65 $\frac{1}{2}$	104	110 $\frac{1}{2}$	200	108	2.9	11	D $\frac{1}{2}$

- 62-64.
1. Mary S. Rose, A Laboratory Handbook For Dietetics, Fourth Edition. New York: MacMillan, 1939.
 2. 20% or more overweight at beginning.
 3. 15% or more underweight at beginning.

TABLE III

RATING OF DIET BY FOOD GROUPS

	Milk	Green & Citrus Yellow Veg.	Citrus Fruit or Tom.	Other Veg. & Fruits	Egg	Meat	Butter	Total
Fourth Grade								
Boys:								
M. H.	1	1	.3	1	0	1	1	5.3
S. Y.	1	.7	1	.7	1	1	1	6.4
S. M.	1	1	1	1	1	1	1	7.0
B. R.	.2	1	0	1	0	1	1	4.2
A. B.	.4	.3	0	.3	0	1	1	3.0
G. B.	.8	1	.7	1	1	1	.7	6.2
Girls:								
D. W.	1	1	1	.7	1	1	1	6.7
E. O.	.9	1	.7	1	1	1	1	6.6
N. D.	1	.3	0	0	1	1	1	4.3
K. C.	1	1	.3	1	0	1	1	5.3
J. B.	1	1	.7	1	1	1	1	6.7
M. P.	.8	1	1	1	1	1	.3	6.1
A. G.	1	1	1	1	1	1	1	7.0
A. F.	1	1	.7	.7	1	1	1	6.4
M. L.	.9	.7	.7	1	1	1	1	6.3
A. M.	1	1	.3	.3	1	1	1	5.6
J. L.	1	.7	.3	.7	1	1	.7	5.4
M. B.	1	.3	.7	1	1	1	1	6.0
N. B.	.6	.3	.3	.3	1	1	.3	3.8
N. C.	1	1	0	.7	0	1	1	4.7
M. H.	1	1	0	.7	1	1	1	5.7
A. W.	0	.3	.7	.3	1	1	1	4.3
B. W.	.2	.3	.7	.3	1	1	1	4.5
Fifth Grade								
Boys:								
G. E.	1	0	0	0	0	0	1	2.0
V. W.	.8	0	.3	.3	1	1	1	4.4
S. H.	.7	.3	0	.3	1	1	.7	4.0
R. Cr.	.8	0	.3	.7	0	1	1	3.8
J. M.	1	1	0	1	1	1	1	6.0
R. Cu.	1	0	0	.7	1	1	.7	4.4

	Milk	Green & Citrus Yellow Veg.	Citrus Fruit or Tom.	Other Veg. & Fruits	Egg	Meat	Butter	Total
Fifth Grade								
(Continued)								
Boys:								
M. B.	.9	.7	.6	1	1	1	1	6.2
P. P.	1	.7	0	.7	1	1	1	5.4
B. J.	.9	.3	0	.7	1	1	1	4.9
A. B.	1	.7	.3	1	.5	1	1	5.5
A. S.	1	1	0	.3	1	1	0	4.3
D. M.	1	1	.7	1	1	1	0	5.7
Girls:								
G. P.	1	1	1	1	1	1	1	7.0
R. U.	1	.7	.3	1	1	1	1	6.0
A. A.	1	.7	.7	1	1	1	0	5.4
S. R.	.8	.7	1	1	1	1	.3	5.8
P. J.	1	1	1	1	1	1	1	7.0
J. E.	1	.3	.7	1	1	1	1	6.0
P. N.	1	.7	0	0	1	1	1	4.7
B. S.	.6	0	0	.3	.8	1	0	2.7
J. M.	1	1	0	1	0	1	1	5.0
C. O.	.9	.3	.7	.3	0	1	1	4.2
J. K.	.8	.7	.3	.7	0	.6	0	3.1
F. G.	1	0	.3	.3	1	1	1	4.6
N. B.	.9	.7	.7	.7	1	1	.7	5.7
Sixth Grade								
Boys:								
Al. S.	.9	1	0	1	.5	1	.7	5.1
R. I.	.8	.7	1	.7	1	1	1	6.2
S. F.	.9	1	.7	.7	1	1	1	6.3
L. W.	1	.7	.3	1	1	1	1	6.0
R. W.	.6	0	.3	.3	1	1	.7	3.9
S. G.	.4	0	.3	0	1	1	1	3.7
J. P.	1	.7	1	1	1	1	1	6.7
B. M.	1	.7	0	1	1	1	1	5.7
C. M.	.9	0	0	.7	1	1	.7	4.3
A. S.	1	.7	0	.7	1	1	1	5.4

	Milk	Green & Yellow Veg.	Citrus Fruit or Tom.	Other Veg. & Fruits	Egg	Meat	Butter	Total
Sixth Grade								
Girls:								
E. H.	.4	.7	0	.7	0	1	.3	3.1
M. Y.	.9	1	1	1	1	1	.7	6.6
S. M.	.7	0	0	0	1	1	0	2.7
P. G.	1	1	.7	.7	1	1	1	6.4
F. C.	.9	1	1	1	1	1	1	6.9
A. F.	1	.3	.7	1	1	1	1	6.0
Sy. P.	1	.3	1	.7	0	1	1	5.0
P. B.	.8	.3	1	.7	1	1	1	5.8
M. H.	1	.7	1	.7	1	1	.7	6.1
S. P.	1	.7	1	1	1	1	1	6.7
A. H.	1	.7	0	.7	1	1	.7	5.1
B. V.	.2	1	0	1	1	1	.3	4.5
R. S.	.8	.7	1	1	1	1	.7	6.2
P. A.	.2	0	0	.7	1	1	0	2.9