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THE NUTRITIONAL IMPACT OF NUTRIBUN FEEDING

An evaluation
in forty-five selected Philippine
elementary schools

AN EVALUATION OF THE NUTRITIONAL IMPACT
OF NUTRITION FEEDING AMONG GRADE 7 PUPILS
IN ELEVEN PUBLIC ELEMENTARY SCHOOLS IN

METRO MANILA

1978

An Evaluation of the Nutritional Impact of Nutrition Feeding
Among Grade I Pupils in Eleven Public Elementary Schools
in Metro Manila

BACKGROUND

The Catholic Relief Services (CRS) has for the past eight years assisted the Department of Education and Culture in implementing a Targeted School Feeding Program (TSFP) in the Metro Manila area. The nutrient formulation currently being used supplies 250 calories and 8.4 grams protein, the bulk of which comes from US-donated soy fortified flour (SFF 12%). The schools put in an additional 50 calories per bun boosting the total supplementation to 300 calories and 8.4 grams protein, which roughly approximates the caloric and protein deficit commonly found in diets of school children.

The current study is an attempt to gauge the TSFP's nutritional impact and provide the base for a built-in continuing scheme for its evaluation.

METHODOLOGY

Eleven schools were randomly selected from among schools in the four Metro Manila cities (Manila, Quezon, Pasay and Calocan) for the study. A list of schools included in the study is shown in appendix A. An orientation for H.E. supervisors/nutrition coordinators and school teachers concerned on the purpose of the study and data gathering procedures was conducted by CRS and DEC Medical personnel.

Height and weight records of children at the start and end of the schoolyear were submitted by school teachers to the CRS TSFP In-charge through the H.E. Supervisors/Nutrition Coordinators. Birthdates and dates of weighing were also recorded to cross check recorded ages.

From the raw data submitted, ages and nutritional levels were determined for the start and end of the schoolyear. Ages were computed to the nearest quarter of a year by subtracting the

birthdate from the date of weighing. Nutritional levels were then determined using the height and weight charts based on Philippine Standards recommended for use in the Philippine Nutrition Program. This chart classifies the child under any of five categories for weight and two categories for height. He may fall under any of the following: 110% or above of standard - overweight; 90-109% of standard normal; 75-89% of standard - mildly malnourished; 60-74% of standard - moderately malnourished or 59% and below standard - severely malnourished. For height a child is classified as normal if he falls 90% or above standard or underheight if he is 89% or below standard.

The nutritional levels were then classified according to age and sex and nutritional level changes sorted using a NL cross-overs transition matrix.

RESULTS AND DISCUSSION

Height and weight records of 1,836 Grade I pupils participating in the TSNP in eleven public elementary schools in Metro Manila were submitted for the study. Excluded in the final analysis were sixteen children who either transferred from or dropped out of the participating schools and thus had incomplete height and weight records.

Table I shows the distribution of 1,820 children according to nutritional status by age upon enrollment. It is interesting to mention that some schools screened their participants, limiting the supplementation to children found to be mildly to severely malnourished. Some schools, on the other hand, apparently extended the program to all children in the grade level irrespective of weight for age or nutritional level classification.

At the start of the program, 366 children or 20.1% were either overweight or normal while the rest ranged from mildly to severely malnourished. Conversely, 1,286 children or 70.7% were normal in height and about 29.3% were underheight. It seems then that the majority of the children under study were more likely victims of sporadic and recent deficiencies and only less than a third have had prolonged deprivation earlier in their childhood which affected their heights. The normal and overweight children were

Table 1. Distribution of Children By Nutritional Status
By Age Upon Enrollment

<u>AGE</u>		<u>BY WEIGHT</u>		<u>BY HEIGHT</u>	
		<u>NORMAL</u>	<u>UNDERWEIGHT</u>	<u>NORMAL</u>	<u>UNDERHEIGHT</u>
6	Number	165	350	415	100
	Percent %	9.1	19.2	22.8	5.5
7	Number	163	846	713	296
	Percent %	8.9	46.5	39.2	16.3
8	Number	31	171	114	88
	Percent %	1.7	9.4	6.3	4.8
9	Number	5	49	27	27
	Percent %	0.3	2.7	1.5	1.5
10	Number	2	20	9	13
	Percent %	0.1	1.1	0.5	0.7
11	Number	0	11	4	7
	Percent %	-	0.6	0.2	0.4
12	Number	0	7	4	3
	Percent %	-	0.4	0.2	0.1
Total	Number	366	1,454	1,286	534
	Percent %	20.1	79.9	70.7	29.3

mostly between 6-8 years of age. Similarly, the normal by height childhood were also younger ones. The older children, aged 11-12 who after all should not have been in Grade I at all, were all underweight. Two out of three were moderately to severely malnourished.

Among the 6-8 year olds, only roughly one in four were under-height while among the older children, the underheights were either equal to or more than the normals.

Table 2 shows the comparative prevalence rates of malnutrition by weight and height before and after an average of 100 feeding days. There was a general decrease in number and percent of malnourished male and female children of all ages covered in the study. Changes in height were however minimal compared to changes in weight.

Relative improvements of children beneficiaries after varying lengths of feeding are shown in Table 3.

Table 3. Nutrition Level Transition Matrix, All Ages

	<u>By Weight</u>					<u>By Height</u>			
	<u>CW</u>	<u>NOR</u>	<u>MIL</u>	<u>MCD</u>	<u>SEV</u>	<u>TOTAL</u>	<u>NOR</u>	<u>UH</u>	<u>TOTAL</u>
CW	16	5	-	-		21			
NOR/NOR	12	252	76	2		344	1197	89	1286
MIL/UH	4	199	706	77		984	135	399	534
MCD	-	8	159	276	1	444			
SEV	-	-	1	18	8	27			
TOTAL	32	466	942	371	9	1820			

It appears that the severely malnourished showed the best response in terms of nutritional level improvement by weight. Of the 27 severely malnourished children who started the schoolyear, only 8 - a three-fold decrease - remained the same, eighteen improved to become moderate and one became mild. Six of those who remained severe were 10-12 years of age.

Four hundred forty four (444) children started moderately malnourished. Of these, 62.0% were maintained in the same nutritional level, 159 or 35.8% improved by one nutritional level to become mild.

Table 2. Distribution of Children By Nutritional Status
Before and After Feeding

Nutritional Level	Sex	Before Feeding		After Feeding		Percent Change %
		Number	Percent	Number	Percent	
WEIGHT						
Overweight	M	9	1.0	18	1.9	100.0
	F	12	1.3	14	1.6	16.7
	Total	21	1.2	32	1.8	52.4
Normal	M	172	18.6	241	26.1	40.1
	F	173	19.3	221	24.7	27.7
	Total	345	19.0	462	25.4	33.9
Mild	M	517	56.0	490	53.0	(5.2)
	F	462	51.6	451	50.3	(2.4)
	Total	979	53.8	941	51.7	(3.9)
Moderate	M	207	22.4	170	18.4	(17.9)
	F	239	26.7	205	22.9	(14.2)
	Total	446	24.5	375	20.6	(15.9)
Severe	M	19	2.1	5	0.5	(73.7)
	F	10	1.1	5	0.6	(50.0)
	Total	29	1.6	10	0.5	(65.5)
HEIGHT						
Normal	M	647	70.0	663	71.8	2.5
	F	639	71.3	669	74.7	4.7
	Total	1286	70.7	1332	73.2	3.6
Underheight	M	277	30.0	261	28.2	(5.8)
	F	257	28.7	227	25.3	(11.7)
	Total	534	29.3	488	26.8	(8.6)
TOTAL	M	924	50.3	924	50.8	
	F	896	49.2	896	49.2	
	Total	1820	100.0	1820	100.0	

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Only one child regressed to become severe. Again the improvements were evident only among 6-8 year olds.

While 909 or 92.3% of the children who started the school year suffering from mild undernutrition were either maintained or improved by one nutritional level or more, some 75 children or 7.7% regressed to become moderate at school year's end.

For both height and weight, improvements for both sexes follow expected trends from ages 6 to 9 as shown in Figures 1 and 2. Between ages 10-12, though the same charts show a definite upward trend approaching the standard at age 12, no safe comparisons can be made because of the limited number of children involved in the study.

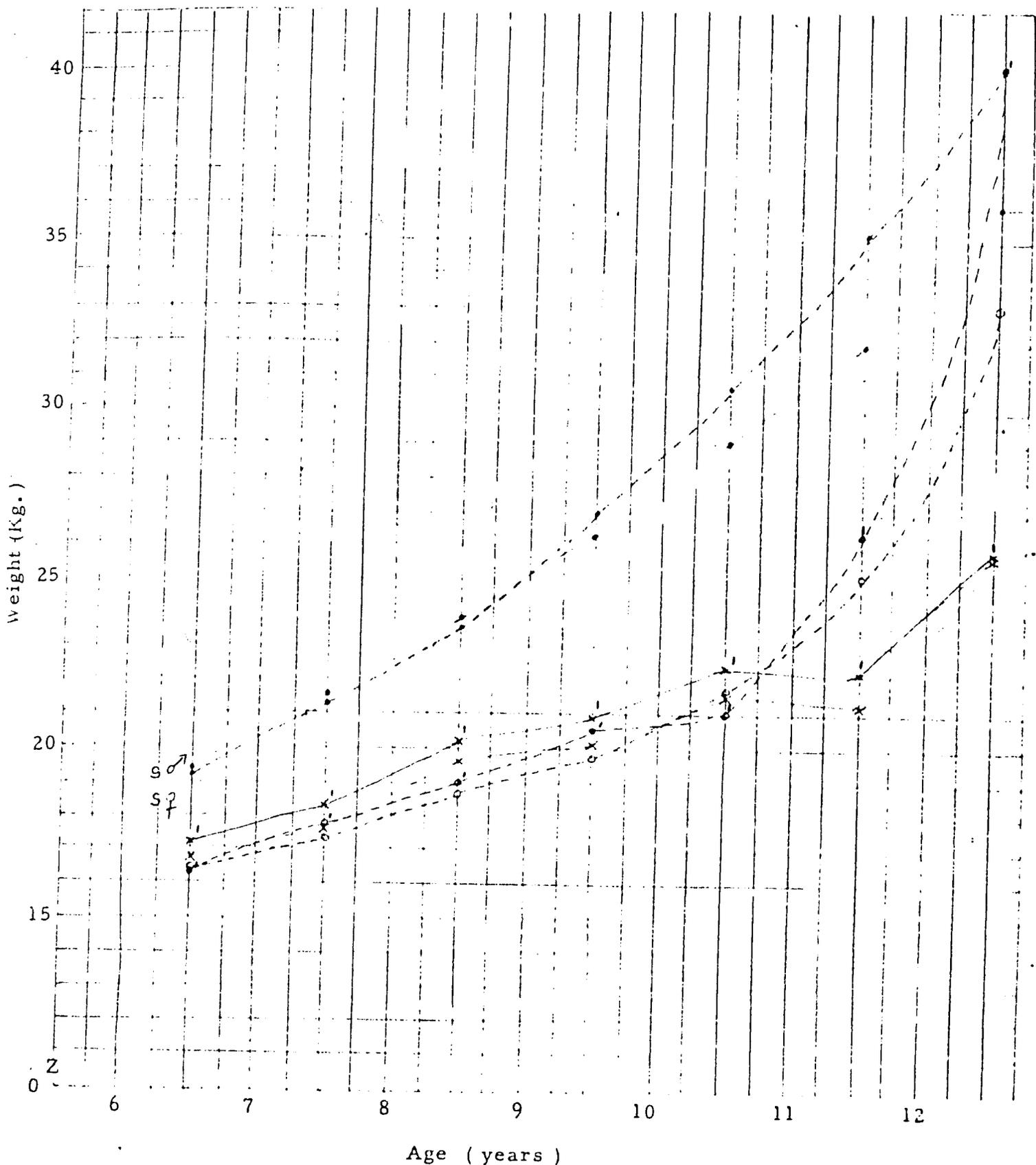
While mean actual weight gains were the same for both sexes, mean actual height gain for males was double that for females. Comparing these to standards, it seems that males showed better responses than females.

Table 4. Average Height and Weight Gain By Sex Compared to Standard

	<u>Male</u>	<u>Female</u>
Number of children	924	896
Mean Height Gain (cm)		
Actual	1.2	0.6
Standard	5.3	5.9
Percent %	22.6	10.2
Mean Weight Gain (Kg)		
Actual	0.7	0.7
Standard	2.8	3.4
Percent %	25.0	20.6

The differences in height and weight changes among the children involved in the study may have been affected by differences in lengths of feeding. Actual number of feeding days ranged from 60 to 125. Though time constrained limited the analysis of the actual effects of this variable, their possible consequences cannot be ignored.

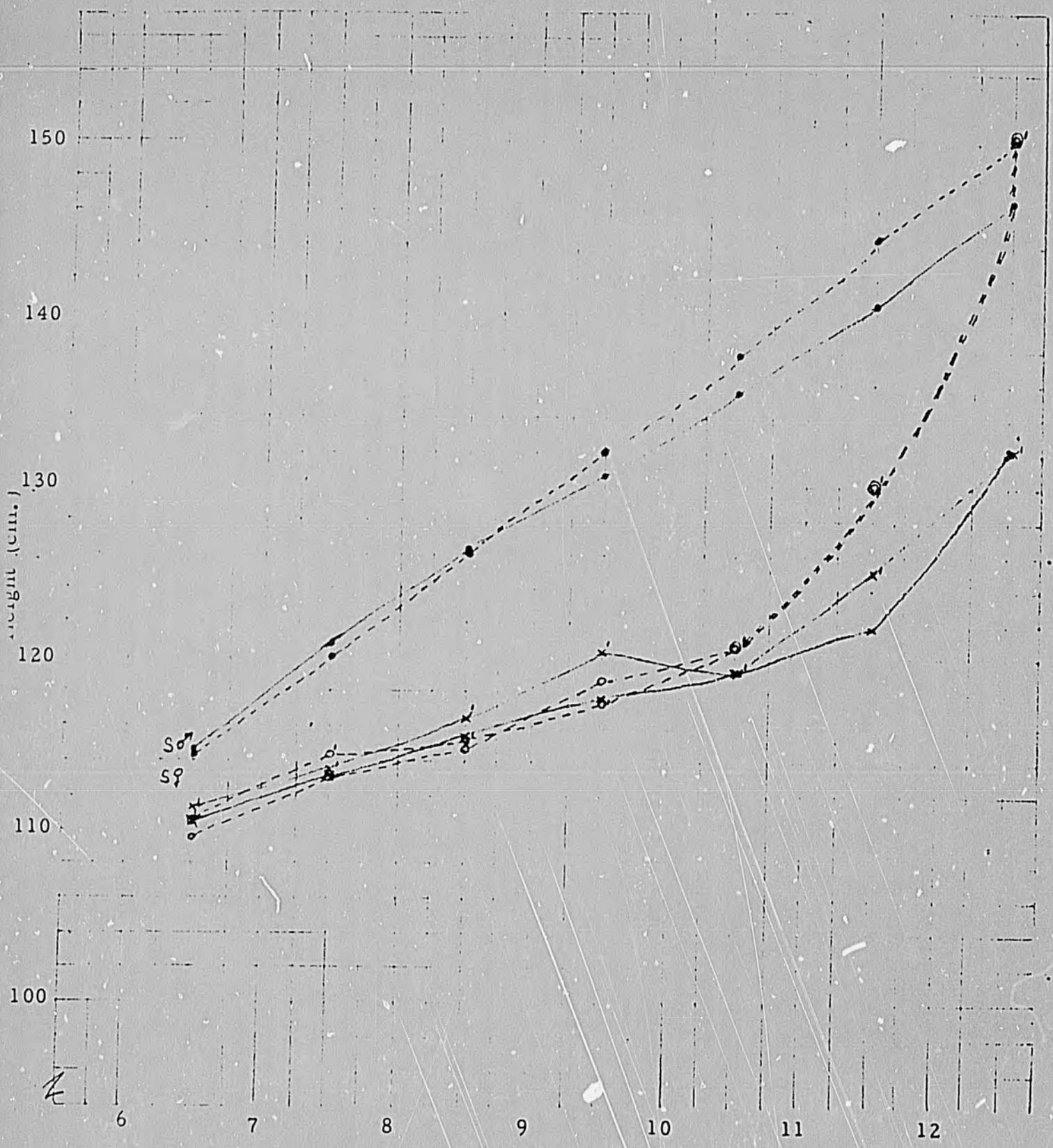
Figure I. Mean Weights of 1,820 Grade I Pupils in Eleven Public Schools in Metro Manila



Legend: x' — x' - σ' after o' - - - o' - σ' after \bullet — \bullet - σ' standard
 x — x - σ before o - - - o - σ before \bullet - - \bullet - σ standard

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Figure 2. Mean Heights of 1,820 Grade I Pupils
in Eleven Public Schools
in Metro Manila



Legend: x' — x' - ♂ after o' - - - o' - ♀ after ● — ● - ♂ standard
 x — x - ♂ before o - - - o - ♀ before ● - - - ● - ♀ standard

SUMMARY

Of the 1,820 children involved in the study, 1661 or 91.3% were either maintained in the same NL in which they started the school year or improved by one NL or more.

Mean Height gain was 1.2 cm and 0.6 cm for males and females, respectively, while mean weight gain was 0.7 kg for both sexes, within the period covered by the study.

Improvements in both measures used, though more marked in weight, are evident as shown by the definite decrease in the number of children who were underheight and underweight to varying degrees - the highest percent decrease (65.5%) being observed among the severely malnourished.

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Appendix A

List of School Included in the Study

Manila (4 schools)

Melchora Aquino Elementary School
G. Santiago Elementary School
A. Bonifacio Elementary School
A. H. Lacson Elementary School

Quezon City (2 schools)

Culiat Elementary School
Teodora Alonzo Elementary School

Pasay City (2 schools)

Marcela Marcelo Elementary School
Epifanio delos Santos Elementary School

Caloocan City (3 schools)

Cecilio Apostol Elementary School
East Bagong Barrio Elementary School
Lerna Elementary School

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1974-75

A C K N O W L E D G E M E N T

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3. School Health Program Coordinator, for her dedicated efforts to the cause of better health services and nutrition among the elementary school children.
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6. Regional Directors, superintendents of schools and local school administrators, including regional and provincial coordinators, for their active participation in the successful implementation of the evaluation activities in their respective regions and divisions.
7. Finally to the classroom teachers who have rendered their technical expertise in order that this evaluation may produce meaningful results.

APPENDIX A

List of the 45 Pilot Schools involved in the evaluation of the Philippines-CARE School Nutrition Program.

<u>REGION</u>	<u>NAME OF SCHOOL</u>	<u>MUNICIPALITY - SCHOOL/CITY/DIVISION</u>	
I	1. Vintar Central School	Vintar	Ilocos Norte
	2. Sta. Catalina Elementary	Sta. Catalina	Ilocos Sur
	3. Agoo West Central	Agoo	La Union
	4. Fort del Pilar Elementary		Baguio City
	5. Tuba Central	Tuba	Benguet
	6. Twin Peaks Elementary	Tuba	Benguet
	7. Paoad Elementary	Paoad	Benguet
	8. Binmaley Elementary	Binmaley	Pangasinan I
	9. Villasis Central	Villasis	Pangasinan II
II	10. Penablanca Central	Penablanca	Cagayan I
	11. Ballesteros Central	Ballesteros	Cagayan II
	12. Kiangnan Central	Kiangnan	Ifugao
	13. Tumawini North Central	Tumawini	Isabela
	14. Bonfal Elementary	Bonfal	Nueva Vizcaya
III	15. Cojuangco Elementary	Paniquil	Tarlac
	16. Gapan North Central	Gapan	Nueva Ecija
	17. Camp Tinio Elementary		Cabanatuan City
IV	18. Boac North Central School	Boac	Marinduque
	19. T. M. Kalaw Elementary		Lipa City
	20. Victor de Guia Memorial	Pangil	Laguna
	21. Bagumbayan Elementary		San Pablo City
	22. Santolan Elementary	Pasig	Rizal
V	23. Tulay na Lupa Elementary	Labo	Camarines Norte
	24. Calabanga Pilot	Calabanga	Camarines Sur
	25. Malilipot South Central	Malilipot	Albay
	26. Jose Alindogan Elementary	Juban	Sorsogon
	27. Virac Pilot	Virac	Catanduanes

Appendix A (continued)

<u>REGION</u>	<u>NAME OF SCHOOL</u>	<u>MUNICIPALITY - SCHOOL/CITY/DIVISION</u>	
VI	28. Ivisan Elementary	Ivisan	Capiz
	29. Buenavista Elementary	Buenavista	Guimaras
	30. New Lucena Elementary	New Lucena	Iloilo
	31. Molo Elementary		Iloilo City
	32. J. L. Araneta Elementary	Bago City	Negros Occidental
VII	33. Lipata Elementary	Minglanilla	Cebu
	34. Pusok Elementary		Lapu-Lapu City
	35. Loon South Central	Loon	Bohol
VIII	36. Catarman East Central	Catarman	Northern Samar
	37. Calbayog City Pilot Central		Calbayog City
	38. Mercedes Elementary	Catbalogan	Samar
IX	39. Dipolog West City Central		Dipolog City
	40. Dapitan City Central		Dapitan City
X	41. Mainit Elementary	Mainit	Surigao del Norte
	42. Macabalan Central		Cagayan de Oro City
XI	43. Mintal Elementary		Davao City
	44. Maco Central	Maco	Davao del Norte
XII	45. Malungon Elementary	Malungon	South Cotabato

AN EVALUATION OF THE NUTRITIONAL IMPACT OF
NUTRIBUN FEEDING IN FORTY-FIVE SELECTED
PHILIPPINE ELEMENTARY SCHOOLS

INTRODUCTION

Recognizing that better nutrition is essential for the proper health and growth of many Filipino elementary school children, the DEED (Department of Education & Culture) and CARE (Cooperative for American Relief Everywhere) introduced a NUTRIBUN feeding program in the school year 1970-1971. From mid-June 1973 until the first week of March 1974, a project was undertaken to evaluate the extent of malnutrition at the beginning of the year and to note nutritional improvement, if any, at the end of the year.

CARE donated the WSB (Wheat Soy Blend) commodities and some ovens and DEED took charge of shipping the commodities, preparation of the CARE NUTRIBUN and classroom feeding by utilizing local school teachers. The CARE NUTRIBUN is made of soy wheat flour and weighed 170 grams. It provided 500 Calories and 17 grams of protein. Protein and Calories are frequently the two major nutrients in short supply in the Philippine diet.

METHODOLOGY

Forty-five schools in eleven regions of the country were selected for participation in the evaluation project. This involved 31,006 children of which 27,826 had complete weight records. The criteria for selection of these schools were:

1. The school was a participant in the CARE NUTRIBUN feeding program the last 2 years.
2. The school enrollment was 300 or more.
3. The local school officials and teachers expressed willingness to participate in the project.

The Chief of the School Health Division of DEC acted as the overall coordinator of the project. Supervision of the activities in the regions was the responsibility of the Medical/Dental General Office Supervisors. At the provincial level, either the Division School Physician, Division Dental Supervisor or the Division Nutrition Coordinator supervised the implementation of the project by the school principal and classroom teachers.

At the start of the project and quarterly thereafter, the children were weighed with minimal clothing and barefeet to the nearest 0.1 kg on a "Detecto" clinical scale. The age of the child was computed to the nearest month by subtracting the child's birthdate from the date of weighing. The nutritional status of the child was then determined using the Individual Growth Chart (Student Nutrition Chart). This chart was devised by the Food for Peace Division of the United States Agency for International Development and based on the Iowa Growth Standards. The chart is divided into 4 colored zones. The bottom red zone indicates malnutrition. The second to the bottom yellow zone suggests underweight. The line that divides the red and yellow zones is approximately 2/3 of the Iowa Standards. The third from the bottom white zone is between 90% and 110% of the standard weight for age. Any child whose weight falls in the upper green zone is considered overweight. (See Chart in Appendix)

An attempt was made to feed each child a CARE NUTRIBUN five days a week, Monday through Friday, excluding holidays. Records were kept by the teachers on the number of feeding days of each child. The CARE NUTRIBUN was prepared in various school and commercial bakeries using a standardized recipe.

RESULTS AND TABLES

TABLE I

Percent distribution of children according to nutritional zone before and after CARE NUTRIBUN feeding by sex.

S E X	No. of Children	Red Zone		Yellow Zone		White Zone		Green Zone	
		Before	After	Before	After	Before	After	Before	After
M	13,923	41.5	36.7	54.3	57.5	3.8	5.2	0.4	0.6
F	13,903	35.0	29.3	57.8	60.7	6.5	8.9	0.7	1.1
Both	27,826	38.3	33.0	56.0	59.1	5.2	7.1	0.5	0.8

At the start of the feeding project 38.3% of the children were malnourished, 56% were underweight and only 5.2% were normal in weight for their age. After CARE NUTRIBUN feeding the figures for these nutritional zones were 33.0%, 59% and 7.1%, respectively. For the whole group of children, this indicates nutritional improvement. The table further shows that more boys (41.5 before and 36.7 after) than girls (35.0 before and 29.3 after) were malnourished.

Growth response of the children to the feeding program was obtained by calculating their weights as percent of standards. Statistically, the Wilcoxon Signed Rank Test was used to analyze the data obtained.

Table II Mean Weights of Children as Percent Standard Before and After CARE NUTRIBUN Feeding By Grade, By Sex.

GRADE	Children		Weight (% Standard)		
	Sex	No.	Before	After	Gain
Grade I	M	2697	73.1	73.6	+0.5
	F	2562	73.0	73.4	+0.4
	Both	5259	73.0	73.5	+0.5
Grade II	M	2611	73.5	73.5	0.0
	F	2576	72.8	73.3	+0.5
	Both	5187	73.1	73.4	+0.3
Grade III	M	2412	71.6	72.1	+0.5
	F	2420	72.6	74.0	+1.4
	Both	4832	72.1	73.0	+0.9
Grade IV	M	2311	72.5	72.9	+0.4
	F	2370	73.6	75.0	+1.4
	Both	4681	73.0	73.9	+0.9
Grade V	M	2158	72.5	73.4	+0.9
	F	2151	75.1	77.3	+2.2
	Both	4309	73.7	75.3	+1.6
Grade VI	M	1734	73.3	74.9	+1.6
	F	1824	77.2	79.1	+1.9
	Both	3558	75.2	77.0	+1.8
Total/ Average	M	13923	72.7	73.3	+0.6
	F	13903	73.8	75.1	+1.3
	Both	27826	73.2	74.1	+0.9

Table II indicates a gradual improvement in weight by grade with the CARE NUTRIBUN feeding from 0.3 to 1.8% standard gain. Girls (1.3% standard) showed a larger gain than boys (0.6% standard). The larger gains in the upper grades might be due to increased nutrition knowledge gained by students in the classroom along with the CARE NUTRIBUN feeding. Health education is a part of all school health projects in the Philippines.

TABLE III
 AVERAGE PERCENT STANDARD DISTRIBUTION FOR WEIGHT OF CHILDREN ACCORDING TO
 NUTRIBUN INTAKE BY AGE BEFORE & AFTER FEEDING

A G E	Total No. of Pupils	NO. OF FEEDING DAYS											
		0 - 39			40 - 79			80 - 119			120+		
		No. of Pupils	Ave. % Before	Stand. After	No. of Pupils	Ave. % Before	Stand. After	No. of Pupils	Ave. % Before	Stand. After	No. of Pupils	Ave. % Before	Stand. After
6 to 6-11	125	1	80.2	81.0	5	72.54	70.20	78	78.09	78.80	41	75.85	76.81
7 to 7-11	290	-	-	-	16	71.51	72.43	181	74.72	75.15	93	73.99	73.97
8 to 8-11	312	2	71.25	70.50	21	72.07	72.53	192	74.16	74.08	97	72.88	73.77
9 to 9-11	311	3	71.43	69.35	12	77.00	79.14	195	73.39	74.31	101	72.65	73.40
10 to 10-11	295	1	64.7	67.1	15	76.88	76.44	173	71.48	72.39	108	71.51	72.95
11 to 11-11	293	5	76.94	81.10	24	72.14	73.09	160	75.32	76.67	104	72.46	73.95
12 to 12-11	183	3	69.00	69.73	10	70.30	68.97	104	73.75	75.25	66	71.80	72.88
13 to 14	31	1	66.3	64.5	3	68.33	67.90	18	68.82	69.31	9	74.3	73.88
GRAND TOTAL	1,840	16			106			1101			617		
Ave. % Std.			<u>72.48</u>	<u>73.53</u>		<u>72.99</u>	<u>73.37</u>		<u>74.02</u>	<u>74.77</u>		<u>72.80</u>	<u>73.74</u>
Ave. % Std. gain						<u>0.38</u>			<u>0.75</u>			<u>0.94</u>	

TABLE III

This data was gathered from a 10% random sample from 35 of the 45 evaluation schools with complete data on CARE NUTRITION intake.

This table shows that the higher the CARE NUTRITION intake the better was the response of the child as seen by the corresponding increase in the average percent standard gain - 0.33% in the 40-79 feeding group, 0.75% in the 80-119 feeding group and 0.94% in the 120 or more feeding group. The 0-39 feeding group was not included in the analysis since there were very few children (16) that fell under this category.

The average number of feeding days in the schools was 120, with a range of 71-165, although there were children who actually had only 11 feeding days while others had as many as 167 feeding days. The number of feeding days in some areas were altered either due to suspension of classes or lack of commodity. In the case of individual children, some were absent due to illness or other reasons. Even when a child received the CARE NUTRITION regularly, it did not mean that he ate it all. Since it was of a generous size, some children took it home to share with other family members.

TABLE IV

AVERAGE PERCENT STANDARD DISTRIBUTION FOR WEIGHT OF CHILDREN BY AGE IN RELATION TO THE PERCENTAGE OF CHILDREN WITH 120 FEEDING DAYS OR MORE.

A G E	Total No. of Pupils	Weight (% Standard)			Percentage of Children with 120 Feeding Days or More
		Before	After	Gain	
6	125	77.15	77.82	0.67	32.26
7	290	74.31	74.62	0.31	32.07
8	312	73.60	73.86	0.26	31.09
9	311	73.27	74.15	0.88	32.48
10	295	71.74	72.78	1.04	35.93
11	293	74.07	75.49	1.42	35.49
12	183	72.78	73.96	1.18	36.07
13-14	31	70.28	70.35	0.07	26.67
TOTAL	1,840				

The table was also compiled for the 10% Random Sample as in Table III.

A Rank Correlation Test made between the percent standard weight gain and the percentage of children with 120 feeding days or more was highly significant. This would indicate a positive relationship between the weight gain and the regularity in the feeding.

DISCUSSION

Even when weight gain was not significant there might have been other benefits from the CARE NUTRIBUN feeding. It could have saved some low income parents the money they usually spent on the children's snacks and allowed them to buy more food for the family. The CARE NUTRIBUN could have been more nutritious than the usual snack. Vitamin and mineral deficiencies might have been eliminated and general health improved. Since some children did not eat breakfast or snacks before lunch, the CARE NUTRIBUN appeased the pangs of hunger. After feeding some children are more mentally alert in the classroom.

CONCLUSION

It appears that supplementation of the children's diets with CARE NUTRIBUN improved their nutritional status, as is evidenced by the reduction of the number of malnourished children by almost 14%, the increase of those in the normal zone by about 36% and the overall average increase of about 0.9% in weight as compared with the standard.

According to Tables III and IV there is a positive correlation between the regularity of feeding and the weight gain.

Figure A - PERCENT DISTRIBUTION OF CHILDREN ACCORDING TO NUTRITIONAL ZONE BEFORE AND AFTER NUTRIBUN FEEDING, BY SEX

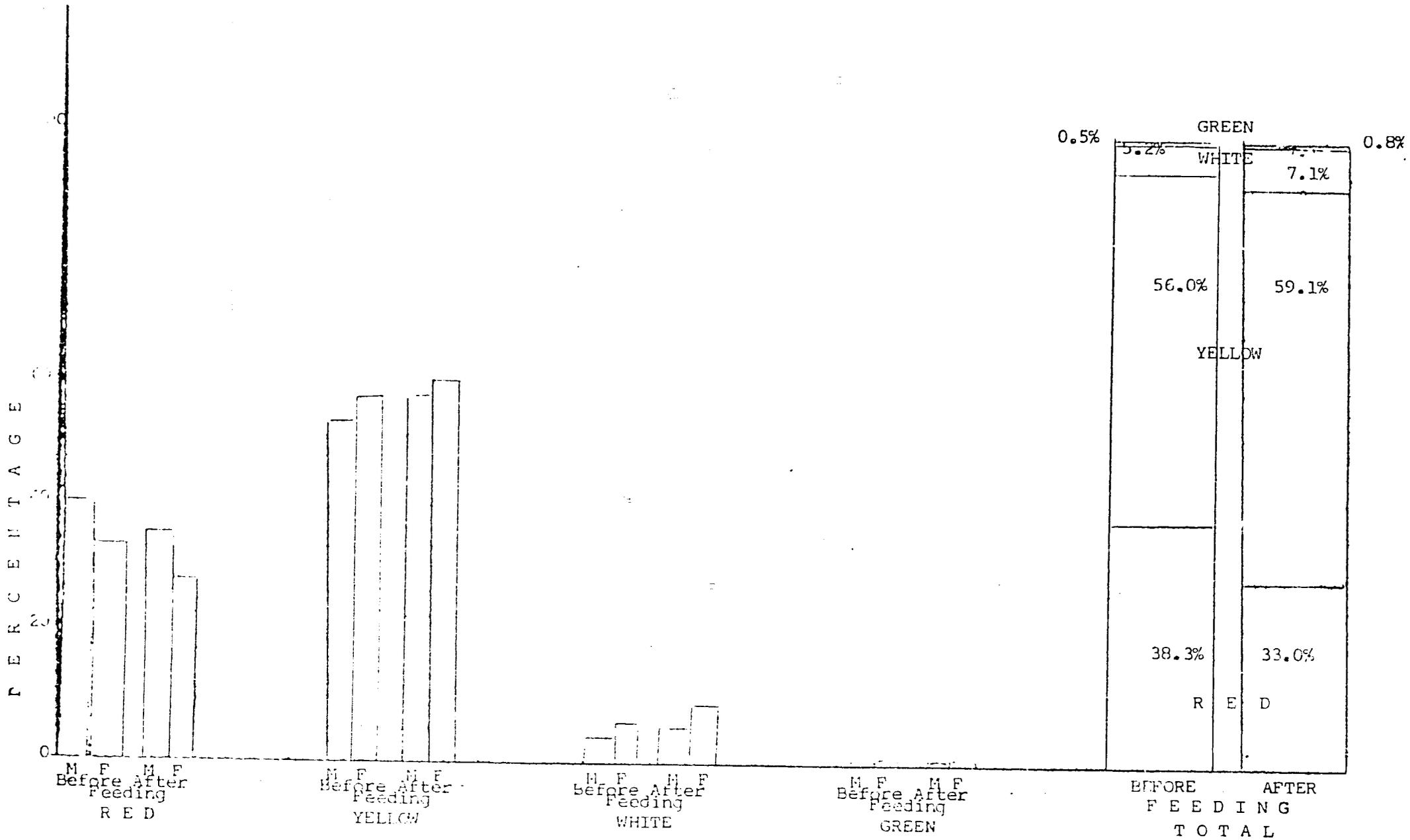


Figure B - MEAN WEIGHT GAIN IN PERCENT STANDARD BY GRADE, BY SEX

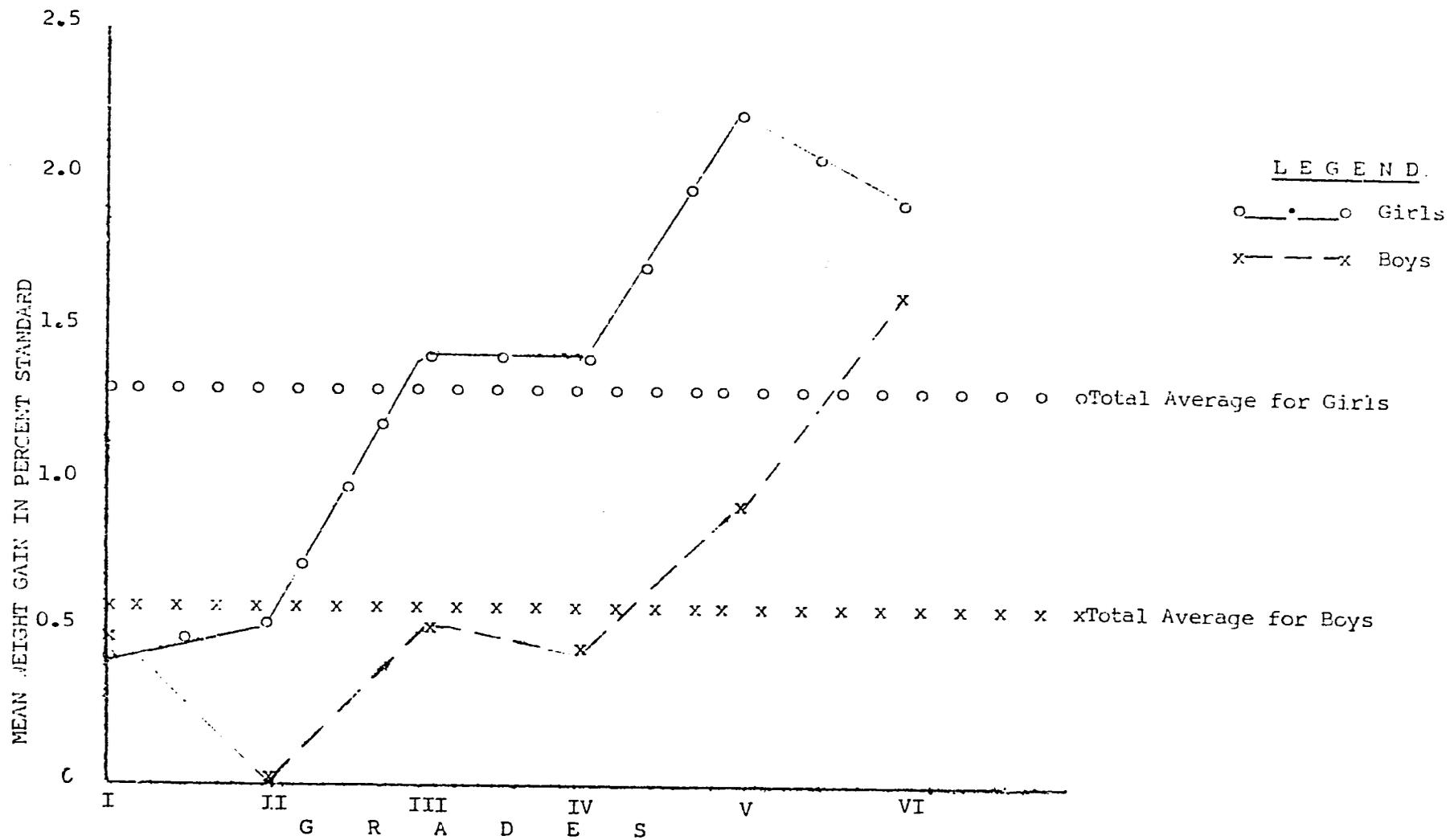
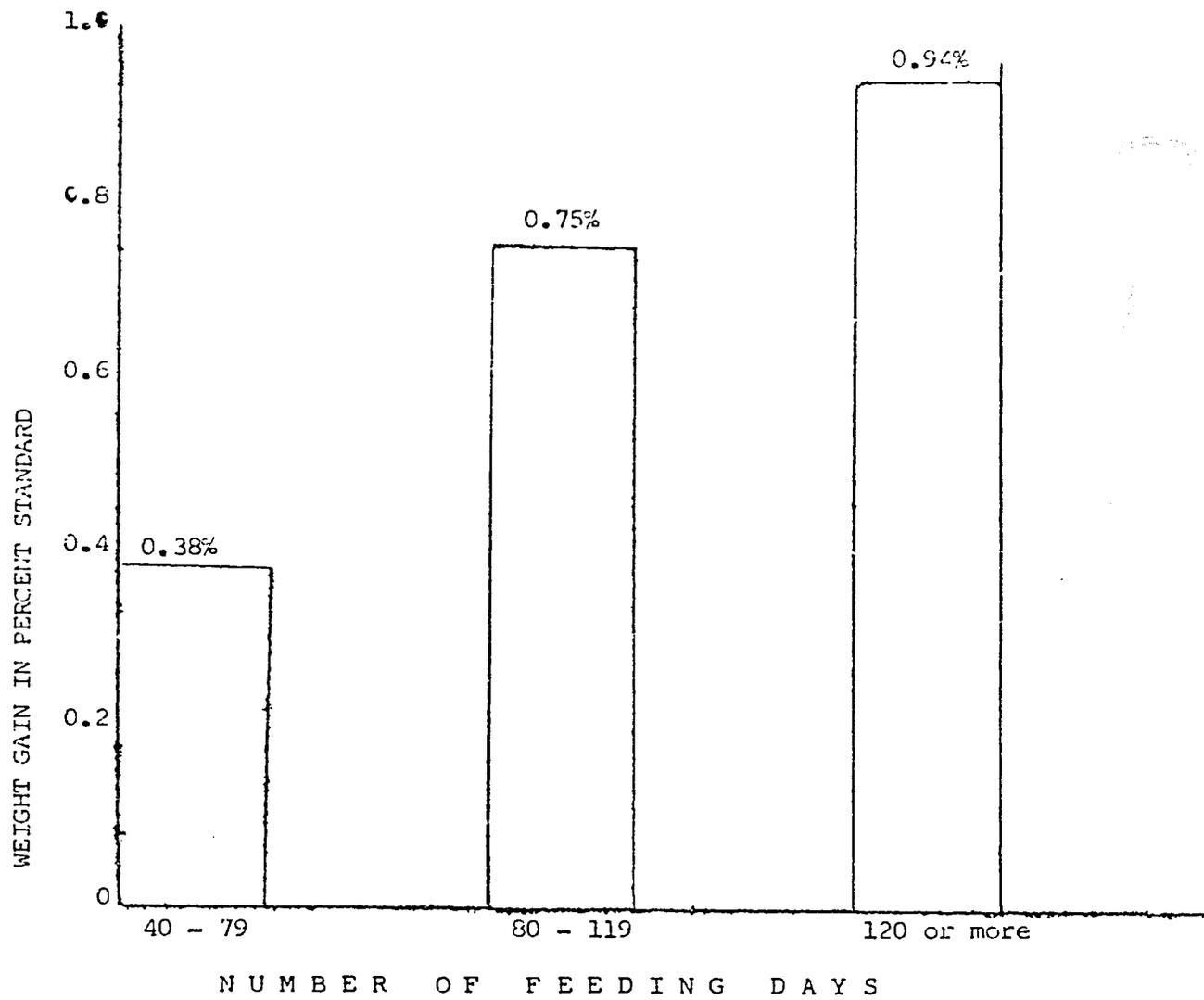


Figure C - AVERAGE WEIGHT GAIN IN PERCENT STANDARD IN RELATION TO THE NUMBER OF FEEDING DAYS



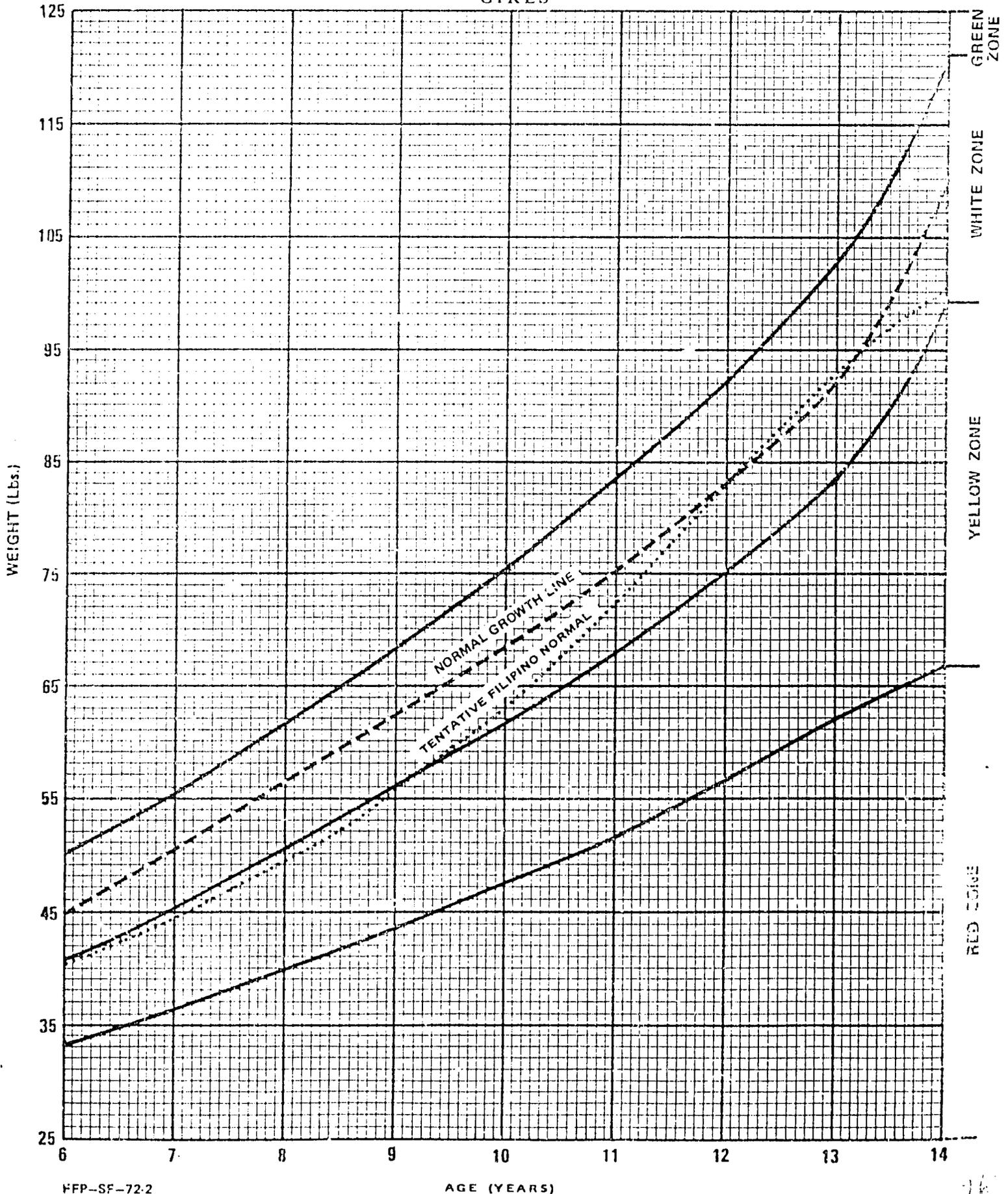
4



PHILIPPINE SCHOOL NUTRITION PROGRAM - INDIVIDUAL GROWTH CHART

Name _____ Date of Birth _____ Grade/Sec. _____
 Province _____
 School _____ Municipality _____ Barrio _____
 Date Started _____

GIRLS



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HOW TO USE THE INDIVIDUAL GROWTH CHART

1. An Individual Growth Chart should be prepared and maintained for each child. Use the chart corresponding to the sex of the child.
2. Fill in correctly the child's name and other data as indicated on the top of the Individual Growth Chart.
3. Compute the age of the child to the nearest month on the date of weighing by subtracting the date of birth from the date of weighing.

Example —	Year	Month	Day
Date of weighing	1971	7	21
Date of birth	1964	5	15
	<u>7</u>	<u>2</u>	<u>6</u>

If the difference under column "Day" is 1 to 15, the age of the child is 7 years and 2 months, whereas, if it is 16 to 29, the age of the child will be 7 years and 3 months.

4. Weigh the child carefully -- barefoot with minimum clothes on a scale, which accuracy has been tested, preferably using a beam-balance scale. Weighing should be done in July, October, January and April on the same date and time as much as possible. This should be accomplished regularly whether food commodities are received or not.
5. Take the correct weight of the child. Locate its weight on the chart and plot it on the vertical line corresponding to the age of the child to the nearest month. Note that each horizontal line corresponds to one pound weight and one vertical line to one month of age. After each weighing connect the plotted points on the growth chart. This will enable you to determine the child's growth curve and response to the feeding program.
6. Individual Growth Charts for each class should be placed in envelopes each representing the color on the chart, i.e., red, yellow, white and green near the Student Nutrition Chart. This individual growth chart is a permanent health record which should follow the child from grade to grade. For public schools, it should be attached to Form 137 at the end of each school year.
7. Each child should be encouraged to take an active interest in its own progress towards recovery from undernourishment by eating one nutribun a day!

* * * * *

NOTE:

The normal growth line is an imaginary line bi-secting the white or normal zone on the Student Nutrition Chart. The top of the normal growth line is ten percent above normal weight and the bottom of the white zone is ten percent below normal weight. The Filipino normal growth line is tentative and is expected to be revised as child health improves.

After you have plotted the child's normal growth curve on its Individual Growth Chart you will be able to see if its own growth rate is faster than normal. A faster (positive) than normal growth curve will show that the child is responding well to increased feeding and correcting his malnutrition.

Children in the Student Nutrition Program who fail to show a positive growth curve, should be checked by the school physician, other local doctors, and/or nurse to determine if they are suffering from any organic disease which requires treatment.

Father's Name _____
 Occupation _____
 Mother's Name _____
 Occupation _____
 No. of Living Brothers and Sisters _____

Immunizations (Enter Dates)		
	Primary	Booster
Small Pox		
BCG		
OPT		
Polio		
EI Tor		

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