

STUDY ON PROCESSING OF SOME BABY FOODS

BY

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THESIS

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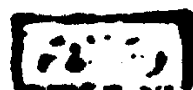
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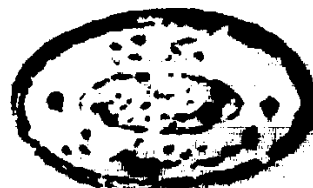
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P R E S E N T A T I O N

This thesis is dedicated to the greatest woman,
to my dear mother.

--ooOoo--

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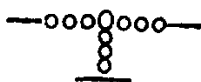
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I - INTRODUCTION

Millions of children in developing countries are suffering from malnutrition as a result of poverty, lack of suitable food, incorrect knowledge in nutrition and superstition. It is during the rapidly growing period of infancy and early childhood that malnutrition is most marked resulting in a high morbidity and mortality and probably leaving physical and psychological scars in later life in those who survive.

The global supplies of animal protein are grossly inadequate. Stereotyped protein foods for infant feeding such as animal milk are going to become even more difficult to obtain despite efforts to increase dairying and stock raising. It is, therefore, of fundamental importance to find suitable foods or mixtures of foods to substitute milk in the protein-deficient phase of infancy and early childhood.

Therefore, the FAO/WHO/UNICEF Protein Advisory Group at its meeting in Geneva (March 1970) has defined certain characteristics which should be fulfilled in protein-rich food mixtures in order to be

of value as supplementary foods for infants and young children. As protein is the critical need in the feeding of young children it is important that in the development of weaning regarding the protein requirements of infants and children and the factors influencing them, it was suggested that the concentration of protein should be around 20% if the net protein utilization has a value of 65%. For protein of high quality the concentration could be lowered.

On the other hand the formulated weaning food should be able to provide at least 300 - 400 calories per 100 gram of mixture. It is essential that children be encouraged to consume at least 100 gram of food and that mothers be educated not to cut down quantity of the usual food given to children foods, special attention should be paid to the quality and amount of protein in the product. Concerning fats, it is stated by the Protein Advisory Group (PAG) that the present knowledge does not permit fixing a dietary allowance of fat with certainty. Even so, it will be a great advantage to add to the formulas as much fat as technologically feasible without affecting the keeping quality of the food.

It is essential to fortify formulated protein foods with vitamins and minerals to satisfy the recommended allowances. It is desirable to ensure that the food has adequate amount of vitamin 'A', riboflavin, niacin, folic acid, ascorbic acid, vitamin D, calcium and iron, while it was found difficult to suggest the levels of these nutrients (vitamins and minerals) as well as of others, like iodine, that may be added to these foods. It was emphasized that fortification with vitamins and minerals should take into account the local needs and the prevalent nutrition problem of the population. And laterly the formulated foods should be such that it could be reconstituted easily and quickly into a gruel or porridge.

The recommended daily dietary allowances for infants and young children are shown in tables (1 & 2).

Table (3) shows some of protein - rich infant foods in developed countries made by the joint FAO/WHO/UNICEF Protein-Rich Food Program. All these mixtures have the principle of formulation being a cereal has been supplemented by one or more of the available protein sources which differe according to the local conditions, skim milk

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powder, different legumes, soy flour, cotton seed flour
and fish protein concentrates, all these supplements
have been used in the different mixtures listed.

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Table (1) Recommended daily dietary allowances

	Age Year	Weight Kg.	Height cm.	Calories K.cal.	Protein gm.	Fat Soluble Vitamins			Water soluble Vitamins				Minerals	
						A	D	C	B ₁	B ₂	Ni	Fe.		
						I.U.	I.U.	mg.	mg.	mg.	mg.	mg.	mg.	mg.
Infant	0- $\frac{1}{6}$	4	55	120 x Kg. of body wt.	2.2xKg. of body wt.	1500	400	35	0.2	0.4	5	400	6	
	$\frac{1}{6}$ - $\frac{1}{2}$	7	63	110 x Kg. of body wt.	2.0xKg. of body wt.	1500	400	35	0.4	0.5	7	500	10	
	$\frac{1}{2}$ -1	9	72	100 x Kg. of body wt.	1.8xKg. of body wt.	1500	400	35	0.5	0.6	8	600	15	
Children	1-2	12	81	1100	25	2000	400	40	0.6	0.6	8	700	15	
	2-3	14	91	1250	25	2000	400	40	0.6	0.7	8	800	15	

Church F. and Church N. (1969).

* I.U. Vitamin A acetate = 0.344 mcg.

** I.U. Vitamin D = 0.025 mcg.

Table (2) The average minimal daily
essential amino acids
requirements of infants

Amino acids	mg/Kg. of body wt.
Histidine	32
Isoleucine	90
Leucine	150
Lysine	85
Methionine	65
Phenyl alanine	90
Threonine	60
Tryptophan	22
Valine	93

Fleck and Munves (1962)

Table (3) A List of Protein food mixtures

Product	Country	C o m p o s i t i o n	Protein content
Inoaparina	Guatemala	Maize, cotton seed flour, vitamin A, lysine, calcium carbonate.	27.5
	Colombia	The same plus defatted soy flour.	27.5
	Mexico	The same plus defatted soy flour and without cotton seed flour	27.5
Fortiflex	Brazil	Maize, defatted soy flour, vitamin A, B ₁ , B ₂ .	30.0
Pronutro	South Africa	Maize, skim milk powder, peanut, soya, fish protein concentrate, yeast, wheat germ, vitamin A, B ₁ , B ₂ , niacin, iodized salt.	22.0