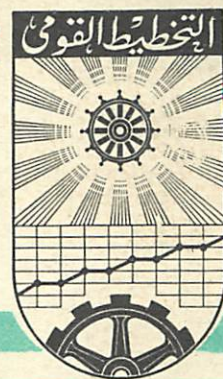


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THE INSTITUTE OF NATIONAL PLANNING



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Nutritional Requirements of A Selected
Group of Workers And Their Realization
In Industrial Feeding

By

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PREFACE

The aim of this article is to give a brief account of the work of the author's Doctorate Disertation about "Nutritional Requirements of A Selected Group of Workers And Their Realisation In Industrial Feeding".

The value of the work can be seen in acquiring experience of how to deal with problems of worker's nutrition in the Arab Republic of Egypt.

The ARE is predominantly an agricultural country which only in the last decades has developed further its industrial potentials, also with the aid from the socialist countries. Because of the rather low national income it can be concluded that food consumption deficiencies are widely spread among large parts of the population.

This problem is only now being studied, therefore every contribution which helps to find methods and ways to improve production, distribution and national food consumption is valuable. This applies particularly to works concerned with ways of improving the feeding of workers in industry.

Hence, the theme of the thesis has been chosen with respect to this need and it will be the greatest satisfaction of the author when at least part of her recommendations will be put in practice in her home country, the ARE.

SUMMARY AND CONCLUSIONS

At the very beginning of this thesis, the author explained the importance of adequate nutrition with regard to health and labour productivity. It follows that studies in nutrition and especially of nutrition in industry are the natural prerequisite for gaining an insight into the present state of the problem as well as for taking appropriate measures to deal with it. This is especially true in the case of developing nations where under-nutrition and malnutrition threaten the development of economic activities, economic growth, which at the same time is again a precondition for better nutrition. A rise in agricultural production and a steady growth of disposable income are acknowledged necessary steps to better nutrition. These conditions can be greatly helped by the assistance of the state - both financial and educational - and by a provident and enlightened management of workers' nutrition.

The problem of malnutrition and undernutrition exists nevertheless in industrially developed countries as well, not

because of the lack of appropriate foodstuffs or income but because of the lack of knowledge and education in nutrition. People tend to cling to their established feeding habits and the progress of special nutritional information through mass communications media is very slow. In most industrially developed countries it has been found that one of the most effective tools of rational nutrition and education is a specific nutritional programme carried out in practice through the system of workers' canteens. In most European countries the provision of feeding facilities in industrial enterprises is now generally recognised to be an integral part of the facilities of the enterprise and of its social programme.

These facts underline the usefulness and actual need of detailed studies in workers' nutrition such as is presented in this thesis.

The aim of this work is a study to improve nutritional requirements of workers and their realisation in the industrial

canteen. For the elaboration of this problem, the present work was carried out, primarily to:

- assess a model recommended food allowances at minimum cost for those women engaged in medium heavy work (Chosen group) in the CSSR applying a mathematical programming method,
- undertake a comparative analysis between the model and actual food consumption of women engaged in medium heavy work (particular group) in the Tesla factory canteen in Prague.

The actual food consumption of the chosen group was compared with those of women engaged in light and heavy work in the CSSR, the per capita food consumption (1970) in the CSSR, the tentative food allowances for adult women, per capita recommended food allowances model A_1 and per capita recommended food allowances model IIID and the constructed model recommended food allowances (in Kg per woman per year) at minimum cost for younger women engaged in medium heavy work in the CSSR. These comparisons resulted in that the actual food consumption of the chosen group was low in beef,

veal, milk, cottage cheese, other milk products, sugar, wheat flour, rye bread and fresh vegetables and fruits. It was excessive in eggs, butter, pork fats and lard. The nutritive value of the actual food consumption of the chosen group was in general lower in all nutrients except in fats (Tables 1, 2, 3, 4 and 5). Fats were consumed in higher amounts. The cost of the chosen group's daily food consumption which was 12.86 Czech crowns was lower than that of the recommended one-day food allowance of this model (13.52 Czech crowns).

This model was also applied to the food consumption of the particular group. The most significant food consumption deficiencies of this particular group was in beef, veal, pork (low fat), milk, cottage cheese, other milk products, sugar, rye bread and fresh vegetables and fruit. It was plentiful in butter and pork fats. The nutritive value of the food consumption of the particular group was lower than that of the dietary allowances of younger women engaged in medium heavy work except in fats (Table 6).

The latter was consumed in low amounts. The cost of the one-day food consumption of the particular group (12.57 Czech crowns) was higher than the cost of the one-day recommended food allowances of this model (13.52 Czech crowns). The number of women patronising the canteen was low compared to the number of those who brought their lunch from home or bought it from the canteen kiosk, were quite high. The group of women patronising the canteen reaches a higher level of intake of most of the nutritive factors than the particular group except in total protein.

It can be concluded that the type of food consumption of the particular group is actually in agreement with the food consumption pattern of the chosen group. Furthermore, the problem of an adequate diet lies not so much in the cost of consumption but rather in the capability of the consumers to choose well and wisely from the supplies available and to adapt their feeding habits to a more rational pattern once it is suggested to them.

Hence, it seems fair to emphasize that the results of this work support the application of this constructed model in canteens for the satisfaction of the nutritional requirements of women engaged in medium heavy work in the CSSR. Yet, the aforementioned measures in Chapter 3 which were suggested to overcome the negative results of food consumption of the particular group are also recommendable for the overall consumption of women engaged in medium heavy work in the CSSR. Such as more milk and its products, larger pieces of meat, more vegetables and fruit which must entirely replace starchy deserts. Fats and fatty foods must be reduced.

The results of this study have confirmed the usefulness of the workers' canteen as a tool of rational nutrition. It has been shown that the results of a scientific study of nutritional requirements can be with a bit of skill and effort applied in the daily production of meals in the factory canteen. This can be greatly helped by the use of standardised recipes or menus where the nutritional value has been calculated in advance.

Of course, factory canteens must not produce a unified type of food, since the nutritional needs of the workers vary according to age, sex, type of work and working conditions. The patronage of a canteen must be grouped accordingly, these must be informed in a well planned nutritional programme. This must be followed by the production of well planned, nutritionally adequate and differentiated, palatable menus at low cost. Only then can the canteen contribute to the growth of production, productivity of labour and help to protect the health of the workers.

Table (11): Nutritive Value of the Actual Daily Food Consumption
by the Chosen Group (B) Compared with Dietary Allow-
ances (E)

Nutrients		B 1)	E 2)	Index B/E o/o
Calories	(Kcal.)	2281.3	2500	91
Total Protein	(g)	74.2	85	87
Animal Protein	(g)	45.7	50	91
Plant Protein	(g)	28.5	35	81
Fats	(g)	103.0	90	114
Carbohydrates	(g)	270.8	338	80
Calcium	(mg)	647.8	800	81
Iron	(mg)	11.07	14	79
Vitamins:				
A	(I.U.)	3829	5000	77
Thiamine (B ₁)	(mg)	1.02	1.0	102
Riboflavine (B ₂)	(mg)	0.96	1.4	86
C	(mg)	22.60	50.0	45

Sources: 1) Ibid p. 61

2) Ibid p. 53, No. 9)

Table (12) ; Nutritive Value of the Actual Daily Food Consumption
by the Chosen Group (B) Compared with that by Per
Capita Food Consumption in CSSR (1970) (F)

Nutrients		B 1)	F 2)	Index B/F o/o
Calories	(Kcal.)	2281.3	3073.0	74
Total Protein	(g)	74.2	97.0	76
Animal Protein	(g)	45.7	52.1	88
Plant Protein	(g)	28.5	44.9	63
Fats	(g)	103.0	113.2	91
Carbohydrates	(g)	270.8	425.4	64
Calcium	(mg)	647.7	882.0	75
Iron	(mg)	11.1	14.4	77
Vitamins:				
A	(I.U.)	3829	5075	75
Thiamine (B ₁)	(mg)	1.02	1.62	63
Riboflavine (B ₂)	(mg)	0.96	1.51	64
C	(mg)	22.6	76.20	30

Sources: 1) Ibid p. 61

2) Ibid p. 64, No. 2)

Table (13): Nutritive Value of the Actual Daily Food Consumption
by the Chosen Group (B) Compared with that by model A1

Nutrients		B 1)	A1 2)	Index B/A o/o
Calories	(Kcal.)	2281.3	2541.0	90
Total Protein	(g)	74.2	84.4	88
Animal Protein	(g)	45.7	48.0	95
Plant Protein	(g)	28.5	36.4	78
Fats	(g)	103.0	87.6	118
Carbohydrates	(g)	270.8	360.6	75
Calcium	(mg)	647.7	860.0	75
Iron	(mg)	11.07	13.93	79
Vitamins:				
A	(I.U.)	3829	4713	81
Thiamine (B ₁)	(mg)	1.02	1.2	85
Riboflavine (B ₂)	(mg)	0.96	1.26	76
C	(mg)	22.6	50.3	45

Sources: 1) Ibid p. 61.
2) Ibid p. 69, No. 2)

Table (14): Nutritive Value of the Actual Daily Food Consumption
by the Chosen Group (B) Compared with that by Model
IIID

Nutrients		B 1)	IIID 2)	B/IIID o/o
Calories	(Kcal.)	2281.3	2523	90
Total Protein	(g)	74.2	91	81
Animal Protein	(g)	45.7	54.7	83
Plant Protein	(g)	28.5	46.3	62
Fats	(g)	103.0	91.2	113
Carbohydrates	(g)	270.8	347.5	78
Calcium	(mg)	647.7	836.0	77
Iron	(mg)	11.07	14.36	77
Vitamins:				
A	(I.U.)	3829.0	4416.0	87
Thiamine (B ₁)	(mg)	1.02	1.19	86
Riboflavine (B ₂)	(mg)	0.96	1.33	72
C	(mg)	22.6	49.6	46

Sources: 1) Ibid p. 61

2) Ibid p. 72, No. 2)

Table (15): Nutritive Value of Actual Food Consumption by the Chosen Group (B) Compared with that of Constructed Model (M)

Nutrients		B 1)	M	Index B/M o/o
Calories	(Kcal.)	2281.3	2482.0	92
Total Protein	(g)	74.2	88.4	84
Animal Protein	(g)	45.7	52.2	87
Plant Protein	(g)	28.5	36.2	79
Fats	(g)	103.0	87.5	118
Carbohydrates	(g)	270.8	342.0	79
Calcium	(mg)	647.8	837.0	77
Iron	(mg)	11.07	13.2	84
Vitamins:				
A	(I.U.)	3829.0	4522.0	85
Thiamine (B ₁)	(mg)	1.02	1.2	85
Riboflavine (B ₂)	(mg)	0.96	1.5	64
C	(mg)	22.6	45.0	50

Source: 1) Ibid p. 61

Table (16) : Nutritive Value of Food Consumption by the Particular Group (G) Compared with Dietary Allowances (H)

Nutrients		G	H 1)	Index G/H o/o
Calories	(Kcal.)	2090	2600	80
Total Protein	(g)	73.4	90	82
Animal Protein	(g)	48.7	55	88
Plant Protein	(g)	24.7	35	71
Fat	(g)	89.7	90	100
Carbohydrates	(g)	242.2	360	67
Calcium	(mg)	626.0	800	78
Iron	(mg)	10.58	14	76
Vitamins:				
A	(I.U)	4282.0	5000	86
Thiamine (B ₁)	(mg)	1.113	1	111
Riboflavine (B ₂)	(mg)	1.133	1.4	81
C	(mg)	32.8	50.0	61

Source: 1) Ibid p. 82

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