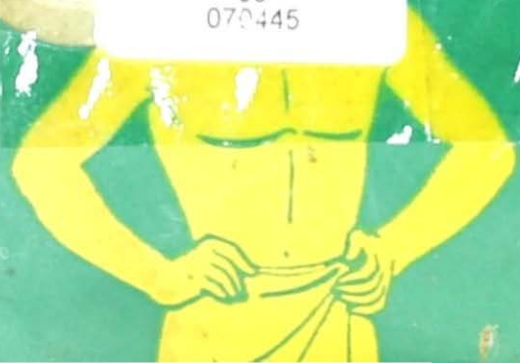


NUTRITION SERVICES IN BOMBAY STATE



1949 - 1958

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*"The Science of Nutrition is the
Science of Food and its relation
to life and health".*

With compliments from:

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Introduction

A FULL-FLEDGED DEPARTMENT OF NUTRITION was created by the Government of Bombay in 1949. It is located in the Haffkine Institute as a separate administrative unit with a staff of 35 members — medical, scientific and technical. The Department is composed of a well equipped laboratory where adequate facilities are provided by the Haffkine Institute, a Nutrition Clinic at the J. J. Group of Hospitals and a Field Unit with jurisdiction all over the State.

In addition, the department offers liaison service in the UNICEF Skim Milk Distribution in the State.

Since the establishment of the new Department of Nutrition, it has been actively concerned with the diverse problems connected with improving the nutritional status of the State population. Clinical nutrition research, laboratory investigations, human feeding trials, formulation of hospital diets and many aspects of Public Health Nutrition such as the study and improvement of institutional diets, diet and nutrition surveys, and nutrition education programmes, are some of the activities of this Department.

Public Health Nutrition Unit

There are very few elaborate and scientific surveys giving a fairly accurate picture of the dietary trends and their effect on the health and nutritional status. The Department has been carrying out diet and nutrition surveys since a decade. In order to get information on various segments of population, the following representative groups have been studied.

DIET AND NUTRITION SURVEYS

- (i) Lower middle class families in an urban area.
- (ii) Families of the industrial workers in an industrial area.
- (iii) Rural population in three Community Projects.
- (iv) Rural and urban population in one of the districts in North Gujarat where the incidence of stone in the urinary bladder is high.
- (v) Dubla Community in Varad area.

In view of the interest evinced by Government in the uplift of Adivasis and other backward classes, the diet and nutritional studies amongst the adivasis of the Dangs District was also carried out.



Bombay State Minister for Health, Shri M. S. Kannamwar, examining the 'Balanced Diet' at the State Level Seminar on 'Health and Women's Programme', Baroda, 1957.

The general observation that the intake of 'protective' foods increases with increase in the economic status, is confirmed by the analysis of the diets taken by these families.

Since Government has evinced keen interest in the welfare of the various population groups including industrial workers, the main emphasis has been to improve community nutrition and thus contribute to positive public health.

COMMUNITY FEEDING

Over 100 Industrial Canteens have been studied. With the exception of a few canteens, the general conditions are not very satisfactory. Based on the general observations, recommendations have been made for the development and promotion of good canteens in industry.

To improve the nutritional status of the workers, an organised programme of nutrition education comprising demonstration of nutritious recipes, talks and the screening of films on the subject of nutrition and dietetics has been introduced in the canteens.

Dietary conditions in residential institutions and schools in the different districts have also been studied, from time to time. Based on the existing dietary conditions, suitable balanced diets, within their financial limitations, have been recommended.

Thus it could be seen that the various groups at different age periods have

been studied by the Department. Some of the reports in this connection, have already been published by Government.

Cheap and nutritious snacks such as *chiki* and fruits were recommended by the Department for undernourished municipal school children, as a supplement to the existing feeding programme of 'toned' milk (8 ozs. per child, per day). The *chiki* contains roasted groundnuts or til-seeds, roasted grams and jaggery. It yields about 120 calories per oz. and besides, gives good amount of proteins and fats. In order to evaluate the effect of the supplementary feeding programme, a clinical nutrition survey of the 'experimental' and 'control' groups, statistically selected in the five representative schools has been undertaken in collaboration with the medical staff of the Municipal Corporation. The work is in progress.

HUMAN FEEDING TRIALS

The Department has also been interested in carrying out human feeding trials with foods such as 'Food yeast', groundnut cake flour, fish flour, hydrogenated oils, etc.

The study and improvement of diets in Government Hospitals have been one of the main activities of the Department. The recommendations made by the Department for Standard Diets in general hospitals and special diets for T.B., Mental and Leprosy patients have been accepted by the Government and introduced in the various State Hospitals.

HOSPITAL DIETS



*Cooking demonstration
of nutritious recipes.*

As typhoid patients require, during the acute febrile period, a high-caloric soft diet, the Department has worked out a suitable diet scale for these patients. As this diet scale was reported to be working very satisfactorily in a local municipal hospital, it has now been proposed for general introduction in Government Hospitals.

In order to ensure that the patients get in full whatever is intended for them, visits for surprise check are paid to various Government Hospitals in the State including Bombay City. After a study of the data collected during these visits, suitable reports are submitted to Government.

The Department has been actively concerned in the dissemination of knowledge on the principles of nutrition and practice of dietetics. For this purpose, several posters and charts and other 'visual aids' were specially designed to demonstrate the nutritive value of available foodstuffs and the dietary requirements of various age groups. Moreover, an illustrated brochure 'Road to Good Nutrition' first published in 1951, has been well received by the public throughout the country. In order that it may reach as many persons as possible, Government has subsidised its sale. Since then, two more editions of the brochure have been issued. Apart from basic information on the principles of nutrition and the practice of dietetics, the brochure contains information on the common sources of the various essential nutrients including vitamins and the dietary requirements of the various age groups. An intensive programme has been undertaken amongst the industrial population groups with a view to educating the labour class women.

**NUTRITION
EDUCATION**

Nutritionists of the Department regularly visit the different labour welfare centres to demonstrate nutritious snacks. Along with the demonstration, wherein the importance of cheap 'protective' foods, such as green leafy vegetables, etc. is stressed, a talk is given on the 'Right Methods of Cooking' to the housewives.

Popular group talks, radio talks, screening of films on the principles of nutrition and the importance of public health to the various groups of population are some of the other activities of the Department. During these talks, depending upon the type of audience, the importance of 'protective' foods, the composition of a balanced diet, popularisation of protein-rich foods, work done by the Department in developing community feeding, proper methods of cooking were fully explained as part of nutrition education programme.

In collaboration with the Department, the Films Division of the Government of India, has produced a documentary sound film (35 mm.) entitled "Food for Health".

In view of paucity of information on problems relating to maternal and child nutrition such as 'weights of new born infants' and 'weaning habits of infants', the Department has been actively engaged in collecting data on these studies. Among the nutritional problems to be studied in the Second Five Year Plan period emphasis has been put on the above subject. The cases studied mainly consist of poor and lower middle class families. Both the studies are in progress.

**MATERNAL AND
CHILD
NUTRITION .**

Clinical Unit

Clinical nutrition research is carried out at the 'Nutrition Clinic' established in 1950 at the J. J. Group of Hospitals, Bombay. Patients suffering from deficiency states including anaemia are admitted to the 'Clinic' for investigation and treatment. The 'Clinic' has been of considerable help in undertaking investigations into the aetiology of different nutritional disorders, some of which are not yet classified as diseased entities. The common disorders encountered are: recurrent diarrhoeas with evidence of hypoproteinaemia, cases of hypovitaminosis A and B and different grades of anaemia.

**NUTRITION
CLINIC**

The study of problems relating to diseases, caused as a result of malnutrition and undernutrition, has also received adequate attention by the Department. During the years 1948 and 1949, nutritional studies amongst the Displaced persons in Relief Camps formed a major field of clinical and laboratory investigations. Other investigations include "pregnancy anaemia" in North Kanara District, "Polyuria" syndrome in Ahmednagar District, "Epidemic Oedema" syndrome in Kaira District, "Vesical calculus" in Mehsana District.

**FIELD
INVESTIGATIONS**

Laboratory Unit

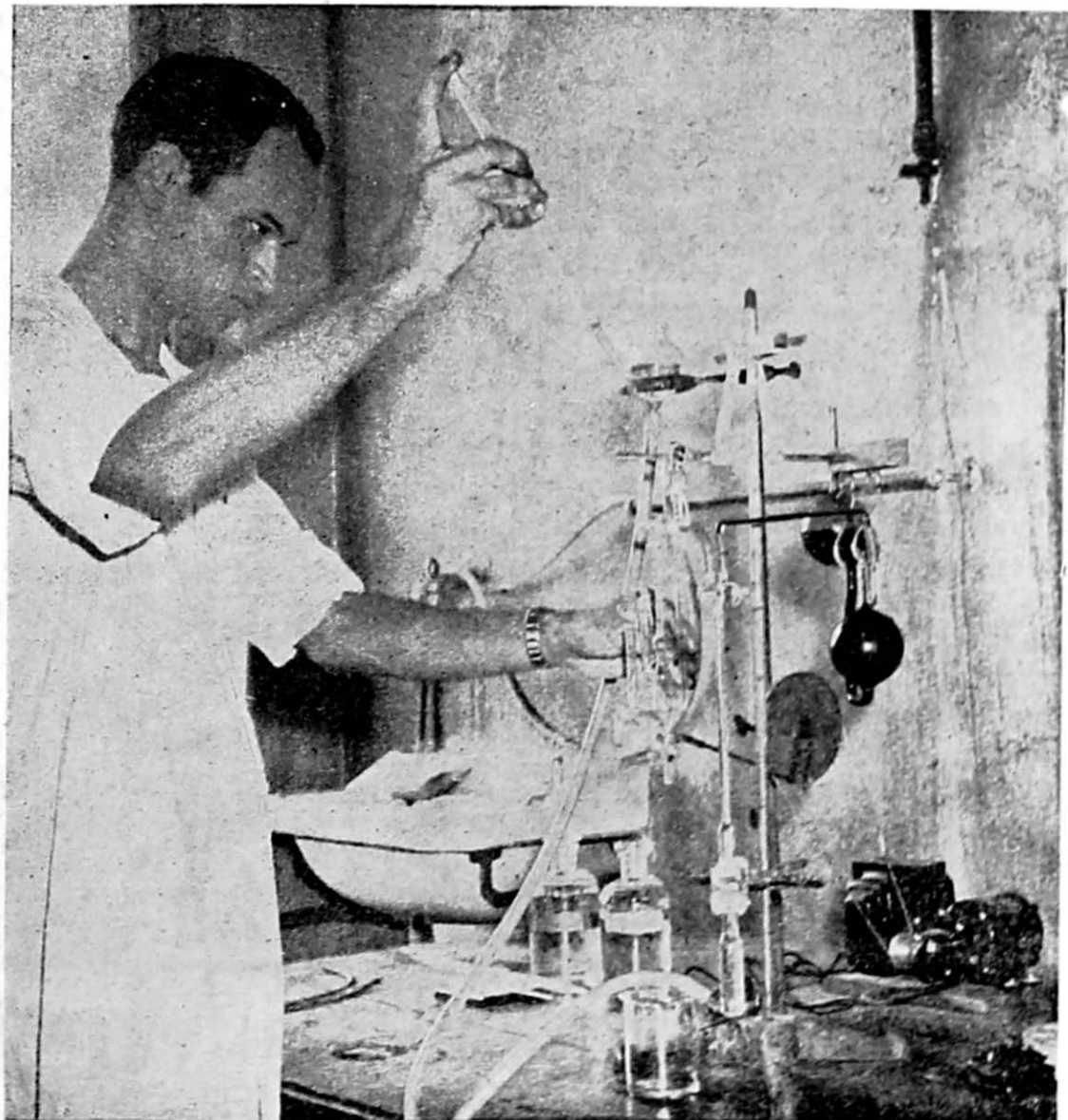
In view of the paucity of information regarding the nutritive value of some of the foodstuffs commonly consumed in Bombay State, the Department has been engaged in the analysis of these foods.

It is known that composition of foodstuffs differ depending on variety and conditions such as manurial, soil etc. under which they are grown. There are also some foodstuffs available in only certain areas which are yet to be fully investigated.

Over 70 different foodstuffs (such as cereals, leafy vegetables, non-leafy vegetables, fruits, oilseeds and nuts etc.) have been analysed for various nutrients including vitamins. The biological value and digestibility coefficient and essential amino acid composition of some of the foodstuffs have also been determined. The present values have an added significance that they are obtained by the recently developed methods.

It is observed that most of the leafy vegetables for example *alu*, *methi*, *sepu*, *rajgira*, *moras*, *ghol* etc. contain fairly good amount of minerals. These foodstuffs are particularly rich in carotenes (Pro-vitamin A) and also fairly rich in vitamin C.

**NUTRITIONAL
EVALUATION OF
FOODSTUFFS OF
LOCAL
IMPORTANCE**



*Evaluating the quality
of proteins in foodstuffs
by Van Slyke
Apparatus.*

Amongst fruits, the five varieties of mangoes analysed are very rich in vitamin A and fairly rich in vitamin B1, B2 and C. *Goras amla* is found to be a new rich source of vitamin C (120 mg/100 g.). Of oilseeds, *Charoli* is very rich in both vitamins B1 and B2, while niger seeds are specially rich in vitamin B2. Two ozs. of most of these foodstuffs will provide almost one-fourth of daily requirements of minerals and large part of vitamins of an individual.

Since pulses contribute appreciable amounts of proteins in the vegetarian diets, their analyses for the essential amino acids which are the building stones of the body tissues, were carried out in addition to the above studies. Knowledge of essential amino acids contents of an individual foodstuff is of far reaching significance from practical nutrition view point, as this information helps in selecting foodstuffs to meet the deficiencies of these amino acids in each other by each other. Five millets and seven leafy vegetables were also included in these studies. In general, these foodstuffs are low in phenylalanine, methionine and threonine compared to egg and milk proteins. Pulses before and after germination have also been studied for their vitamin C values and it has been found that sprouting of pulses increased on an average twenty fold vitamin C contents.

Biochemical investigations of practical importance such as influence of fermented foodstuffs on fatty infiltration of liver, isolation of a toxic principle from Lang or Khesari (*Lathyrus sativus*) *dal*, high incidence of stone in

EXPERIMENTAL
RESEARCH



*Biological evaluation of
foodstuffs.*

the urinary tract in Mehsana District, amino acid composition of human milk, vitamin A metabolism in health and disease, effects of antibiotics on vitamin A metabolism etc. have been carried out.

The Laboratory Section also affords facilities for testing of foodstuffs and food products for their fitness or otherwise for human consumption, purity and for bacteriological examination. Besides, clinical biochemical analysis on samples of 'Nutrition Clinic' is carried out.

**ROUTINE
ANALYTICAL
WORK**



*First Nutrition Education
Stall — Indian National
Exhibition, Bombay, 1949.*

Liaison Service

The distribution of UNICEF skim milk powder through organised centres has been one of the main items of ameliorative measures in Bombay State.

**UNICEF
FEEDING
PROGRAMMES**

At the request of Government of India, UNICEF Authorities had made available skim milk powder to India for free distribution to undernourished children below 14 years and expectant and nursing mothers through established channels. The Government of Bombay is also receiving the proportionate share of gifts of UNICEF skim milk powder, from time to time.

Though in the earlier period of organising this work, prejudice against the use of skim milk powder was experienced, with the passage of time, more and more persons, particularly those in charge of charitable institutions and social workers were inclined to accept it as a practical and beneficial method of supplementing the inadequate diets usually consumed in poor institutions.

There has been a remarkable increase in the activities of the UNICEF Skim Milk Powder Distribution Schemes in the State during the recent years. The Assistant Director, in-charge, Department of Nutrition, is the State Liaison Officer for the organisation and supervision of UNICEF Skim Milk Distribution programmes in the State.

Besides, the Department collaborates with some of the activities sponsored by the World Health Organisation and Food and Agriculture Organisation of the United Nations.

**W.H.O. AND
F.A.O.**



*Training in Nutrition
and Dietetics.*

General

The Department offers training for Ph.D. and M.Sc. degrees in Experimental Pathology and Biochemistry. It also trains outside candidates, from time to time, in field surveys, food analysis and experimental nutrition.

The staff of the Department participate in the training programmes sponsored by different organisations, in nutrition and dietetics.

Research enquiries sponsored by the Indian Council of Medical Research and similar scientific bodies in the field of nutrition are also conducted by the Department.

It will thus be seen that the problems related to human nutrition are many and satisfactory progress has been made in the State. The Department of Nutrition, Bombay, is considered as a model unit, both in this country and abroad. Scientific experts representing various international organisations like the WHO, FAO and UNICEF have been visiting the Department and are impressed by the scope and the development of the work of the Department, especially in the field of Public Health Nutrition.



This exhibit of the Department of Nutrition, Bombay, won the first prize (Silver cup) at the Subsidiary Foods Exhibition, Bombay, 1949.

FURTHER INFORMATION MAY BE OBTAINED FROM
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Issued by

THE DIRECTORATE OF PUBLICITY, GOVERNMENT OF BOMBAY,
BOMBAY

September 1958