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APPLIED DIETETICS

The Planning and Teaching of Normal and Therapeutic Diets

By

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SECOND EDITION



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To

Eleanor Saltonstall

Whose faith in the Food Clinic throughout the years has helped beyond measure towards the fulfillment of this book.

PREFACE TO THE FIRST EDITION

In 1918 a special clinic was organized as a part of the Medical Clinic of The Boston Dispensary, to undertake the dietetic treatment of the ambulatory patient. This was the Food Clinic of The Boston Dispensary, the first of its kind, functioning with a dietitian to guide and help the outpatient in fulfilling the food prescription given by the physician.

A satisfactory technique had to be developed for this new type of service. Principles of organization and methods of procedure had to be formulated, and relationships with other departments established. Food treatment for the outpatient had to be planned not only with respect to physical requirements as stated in the medical record, but also with careful consideration of mental capacity and attitudes, and of the influence of the environment—the home, the school and the occupation. Means had to be devised for securing and recording data. Moreover, for intelligent participation in making the dietary effective the patient had to be given an understanding of the underlying principles, and this entailed the development of educational methods and materials.

In the interests of this many-sided service, various forms, materials and data were gradually assembled and organized for the use of both dietitian and patient. The growth of the clinic and the increasingly intensive work with the patient gradually effected a closer interdependence of the physician, social worker, nurse, dietitian and health educator, in a unified plan of treatment.

Staff workers came to the Food Clinic for materials and advice. Students came also, and gradually various schools and hospitals, in this country and abroad, were sending students, singly, in groups and in classes, from the fields of medicine, dentistry, home economics, applied dietetics, social service, nursing and public health, for periods of study, observation and practice. The interest shown gave further impetus to the development of the material that the dietitian had been using for her own and her patients' needs and to its formulation in terms of the interests of various types of students.

A group of dietitians from local medical institutions gathered in the Food Clinic several years ago, to discuss methods and materials for use in teaching applied dietetics. The first drafts of some of the tables included in this book were revised by this group: Mrs. Quindara Oliver Dodge, Mrs. Beula Becker Marble, Miss Maniza Moore, Mrs. Octavia Hall Smillie and Mrs. Thelma Tubbs Currier. The belief and encouragement of this group was an added stimulus to accomplishment. Since that time the Food Clinic has expanded the tables, added new ones and confirmed their practicability through use with patients and students.

Thus the book can be pictured as having been in the process of development for many years.

In 1920, the South End Diet Kitchen, founded in 1875 to provide "food for the sick poor," decided that it could best fulfill its purpose by contributing to the support of the Food Clinic, and to that end it eventually transferred its funds to The Boston Dispensary. The directors, under the leadership of their president, Mrs. Richard M. Saltonstall, have always encouraged every development of theory, method and practice in the Food Clinic.

There have been so many friends and helpers, both within and without the Food Clinic, that it would be impossible to mention all by name, and this opportunity is taken to express to them again, as if each were named, the thanks that have been given them by the spoken word. Grateful recognition is given to past associates in the Food Clinic, for their various contributions: to Miss Bertha Wood, who in the early years stated effectively in her book, "Food for the Foreign Born," principles that the Food Clinic, from its inception, has held to be fundamental; to Miss Gertrude T. Spitz, whose devoted service to the Food Clinic movement has strengthened faith in it, helped to develop its philosophy and won for it many adherents; to Mrs. Rachel Meserve Hoyt, who demonstrated the possibility of the education of the patient; to Mrs. Jean Reyner Costigan, who collaborated in formulating the first drafts of the Dietary Outlines and Tables of Food Values and Measures; to Miss Charlotte Raymond, whose great interest in the field of applied dietetics has added much to the dissemination of knowledge of the customs and food habits of the foreign born; and to Miss Mabel Stimpson who, through a study of a group of children in the Children's Medical Clinic, demonstrated the importance of a careful consideration of food habits and environmental influences in medical treatment.

To present associates in the Food Clinic, special appreciation is gratefully expressed: to Miss Elizabeth Barden for admirable service rendered to patients, students and co-workers, in testing and strengthening through years of practical application the theories and data that constitute this book; to Miss Helen Finkelstein, who correlated closely the dietetic treatment of the patient as given in the Food Clinic, in the Diagnostic Ward and in the pre-school Dental Clinic, in the interests of both student and patient; and to Miss Catharine Hazen, who demonstrated the value of educational methods with food allergy patients. Grateful acknowledgement is given to Miss Mary Pfaffmann, the health educator of the staff, who developed methods and compiled materials for teaching children and mothers the relation of food to body needs, and who has rendered invaluable service in connection with the preparation and editing of this book; and to Miss Florence Goldman for her great care, intelligence and patience in typewriting the manuscript.

Throughout the years, Dr. Stuart B. Foster, of the Department of Chemistry, State Teachers' College in Framingham, Massachusetts, has reviewed and verified the data contained in the Tables, and with his guidance the Foreword to the Tables was written. His cooperation is deeply appreciated, and also that of Dr. Hazel E. Munsell, U. S. Department of Agriculture, Bureau of Home Economics, who kindly reviewed the data given in the vitamin chart.

The section concerning the mental and emotional factors that influence the diet has been reviewed by Dr. Augusta F. Bronner, of the Judge Baker Child Guidance Center. In demonstrating the interaction of the mental life and food habits, the Food Clinic has been encouraged by Dr. Bronner's recognition of the importance of this relationship.

The assistance of various physicians has been most valuable in formulating the medical data included in the text and the Dietary Outlines. Co-workers in the Department of Social Service of The Boston Dispensary have appreciated, from the pioneering days of the experi-

ment, that the work of the Food Clinic is vitally related to their own service; and their understanding of social factors in relation to food has contributed much to the philosophy herein outlined.

The book is the result of labor that is felt to be closely integrated with the aims and service of The Boston Dispensary as a whole. Deep appreciation is expressed to the Director, Mr. Frank E. Wing, and also to Mr. Michael M. Davis, Director when the Food Clinic venture was begun, to the Administrative Staff and co-workers in every department, for their constant encouragement and faith.

Miss Dorothy B. Hacker, valued associate in the Food Clinic for several years, gave, devotedly, time and labor to the first drafts of the material of this book, which counted as a long step toward the final accomplishment.

1936. F. S.

PREFACE TO THE SECOND EDITION

Since the publication of the first edition of Applied Dietetics there has been accelerated research in nutrition and growing interest in applied dietetics with an increase of the number of nutrition courses. For students, public health workers, teachers, nurses, social workers and physicians the author believes the new edition of Applied Dietetics will be of continued value.

Perhaps outstanding in the newer knowledge of nutrition are the findings concerning the vitamins. At the time of the first edition the vitamin values of foods were based primarily on biological experimentation, inasmuch as the vitamins had not been isolated and their chemical composition was unknown. Today the chemical structures of most of the vitamins are known and many foods have been analyzed for their content of these different chemical compounds. Therefore, the quantitative estimate that had previously been indicated by the plus sign is expressed in figures in the various tables and diets of the new edition. With the exception of vitamin A and vitamin D the names of the vitamins are used as determined by their chemical composition. While the book primarily gives consideration to food values, it indicates when medication will be necessary in certain diets where it is impossible to meet vitamin requirements. Various foods are now enriched with vitamins and minerals, and the figures for the food values of many of these are included.

There is marked evidence of a desire on the part of both professional and lay people for greater knowledge concerning the vitamins, what they are, the amounts required, their effect on the body, where they can be obtained in food, and the amounts which the various foods supply. Ways and means of teaching this information are contained in the chapters on the education of the patient on the normal and therapeutic diets and in the Dietary Outlines. In this edition Dietary Outlines are given for conditions of vitamin deficiencies. Lists of foods equivalent in vitamin values are included, and methods for conservation of vitamins.

Research has contributed new scientific data with respect to the mineral values of foods, and there are new standards for the normal dietary. This has involved some changes in the tables in the new edition. The figures for the food values remain much the same but the diets have been re-evaluated in terms of the latest requirements. A table for potassium has been added in terms of average servings of some common foods arranged according to their potassium content.

For students in medicine and allied fields there has also been much consideration of therapeutic diets, not the least among them the diabetic diet. A new chart on diets in diabetes shows the use of the food constituents in relation to those of the normal diet, and variations in the diabetic diet according to the patient's weight.

In the chapter on the education of the patient on the normal diet there are new illustrations. These include an example of an especially helpful set of charts that record how each food constituent serves the body, the amounts needed per day at various ages according to the latest figures, and food sources by means of pictures of servings of foods with the

amount of the food constituent each serving contains.

As in the previous edition there are many references to nationalities in the chapter on environmental factors, and a chart of food practices of some foreign peoples is included in the Tables. This subject has become of increased importance through the studies made by the Committee on Food Habits of the National Research Council.

The summaries in table form at the end of the book now have introductory remarks to give detailed information for their use in analysing and synthesizing the data given in the diets. There are also added findings in the table of physiological data. In the table of weights and measures more figures of the metric system are stated.

It is believed that these changes will make the book more effective.

I wish to thank the publishers for their continued faith in this method of teaching applied dietetics. Also the many teachers and students in various fields for demonstrating in their work the value of the method described in this book. Many suggestions have come from my associates still at the Boston Dispensary who contributed to the first edition. Dr. Joseph Rosenthal has been of special help on account of the close integration of the Food Clinic and the Diabetic Clinic of which he is chief. The many physicians who send patients to the Food Clinic have given approval of the statements in their special fields: particularly Dr. Kathryn S. Andrews, Dr. Robert S. Buck, Dr. William Dameshek, Dr. Samuel H. Proger and Dr. Siegfried J. Thannhauser. Dr. Benjamin Alexander of the Harvard Medical School has read with meticulous care the part of the manuscript relating to the vitamins. The new computations were assembled by Mrs. Marie M. Alexander and Mrs. Mary L. Craig. Mrs. Craig has worked constantly with the writer, and the second edition would not have been fulfilled without her devotion and help.

1943. F. S.

INTRODUCTION

THE USE OF THE BOOK

The aim of this book is to present a procedure for planning and teaching normal and therapeutic diets. The methods herein described are based on certain principles of nutrition that serve as guides in the construction and the use of diets for the needs of the individual patient, making it unnecessary to memorize formulas. A fundamental principle is that food is composed of the same constituents as the body, and when taken into the body and broken down by physiological processes supplies the substances with which to build and repair tissue, provide energy and regulate the functioning of the different body parts. The therapeutic diet is to be conceived of as a deviation from the normal diet. With the realization of these principles, the normal diet is considered in relation to normal physiology; whereas the therapeutic diet, considered in terms of pathological physiology, may call for an increase or decrease in the amount of a food constituent, or the omission or change in consistency of a food or foods as used in the normal diet.

Throughout the book the body requirements, in terms of the food constituents, are based on consideration of height, weight, age, sex and activity. The diets are based on the requirements of a man weighing 70 kilograms, although diets for the child and for pregnancy are also included. Since the same individual, in terms of normal weight and activity, is considered throughout the book, it is possible to demonstrate clearly the relationship between the diets.

Part I develops each step in the construction of normal and therapeutic diets in relation to body needs, and provides criteria for the selection of food constituents in right amounts, and the amounts and kinds of foods necessary to supply them.

The effect of the relation of personality to food is emphasized in the chapter on *Environmental factors that influence the effectiveness of the diet.*

Chapters on the education of the patient include material and methods helpful in teaching not only the principles of normal nutrition but also their application to the therapeutic diet. These chapters discuss such matters as *Gaining the confidence and cooperation of the patient;* and *Conference with the patient.* The chapter on the education of the patient on the therapeutic diet discusses further: *The modification of the normal diet; Procedure in teaching the patient;* the *Application of the procedure to specific diseases.*

Part II is a series of tables which may be used with or without the text to simplify the computation of the diet. They will serve for reference and interpretation, much as do the tables on which the engineer relies. For convenient reference they are listed in the table of contents by number and page.

Part III comprises a series of Dietary Outlines, that are both complete and concise, for the dietary treatment of various diseases or abnormal conditions. Each Dietary Outline considers the following factors: *Body part affected; Physiology; Pathological physiology or abnormal condition; Dietetic treatment; Other contributing factors in dietetic treatment; Food for the day; Reason for the selection of the*

foods used in the special diet; Meals; Environmental factors that influence the effectiveness of the diet; Education of the patient; Abnormal conditions and diseases that may be found in association with the particular disease described.

All these data are brought together at the beginning of Part III, in tabular form, to show the normal requirements of the food constituents, and their variation for the therapeutic diet. Reading across the columns of this chart, one sees the amounts of the various food constituents needed per day for each disease or abnormal condition. Reading down the columns the chart shows that only in certain diseases or conditions does the requirement of a food constituent deviate from the normal.

In *Part IV* the normal and therapeutic diets are computed, to illustrate how the food prescription may be fulfilled, and the figures are starred when the amount is below the normal requirement. Suggested meal plans and menus, of different cost, are given for each diet. It is to be remembered that these diets are only illustrative, to teach the principles of applied dietetics. The foods in the menus may be exchanged for foods of equivalent food values.

At the end of the book summaries are given to bring the data together, in order that the principles and data on which the diets are based can be easily reviewed. One of these summaries records the amounts of the food constituents required for the typical normal and therapeutic diets, to show any deviation of the therapeutic diet from the normal. Another states the amounts of foods used in various therapeutic diets, making clear the changes from the normal amounts. Still another chart supplies, in summarized form, the menus of normal and therapeutic diets previously set forth in detail, showing how closely the normal diet can be followed by the patient, using foods already present in the family diet.

The material of the book has been arranged in its present form to be of value to workers in various fields of nutrition. It will be helpful to the *physician* in the dietetic treatment of the patient, in the office and hospital as well as in the clinic. The *social worker* will find it a means of increasing her understanding of the principles of diet therapy and of the influence of related environmental factors, and will be better able to help the patient to make the best possible social and economic adjustments to his diet. To the *student* in home economics or applied dietetics already familiar with the principles of the science of nutrition, experience in applying these principles in the treatment of an individual patient in terms of his particular needs will render them vital. The *teacher* and *public health worker*, deeply concerned in community health and serving as interpreters of scientific findings to the community, know the great need of teaching the relation of food to the body. To them the book will be a helpful guide. For instructors in nutrition it will be a help in organizing their courses. The *nurse* realizes the importance of a knowledge of nutrition as a part of the general health program, and as a therapeutic measure, and will find here how to make practical application of this knowledge.

All data upon which the book is based have been taken from the most recent and authoritative sources. While all the information given can be found scattered among various books and journals, this compilation offers, in one place, as much as possible of the material useful for planning and teaching diets.

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PART I

CHAPTER 1

THE DAILY FOOD REQUIREMENTS OF THE BODY

THE RELATION OF FOOD TO THE BODY

The body is a builder of its own substance and finds its materials in food. Food is composed of the same constituents as the body, and when taken into the body and broken down by physiological processes offers the substances with which to build and repair tissue, provide energy, and regulate the functioning of the body parts. A study of the needs of the body indicates that food must supply calcium and phosphorus for the skeleton (bones and teeth), iron for the blood, vitamins for growth and health, these and other minerals and vitamins for certain regulatory processes of the body, protein for tissue, carbohydrate and fat for energy. This relationship between the composition of food and the composition and needs of the body is basic and must be considered in all dietetic treatment, both normal and therapeutic. A knowledge of the food requirements of the body, of the food constituents necessary to fulfill them and of the foods that are sources of the various food constituents is fundamental in the construction of a diet (Tables 1, 2, 3).

REQUIREMENTS OF FOOD CONSTITUENTS—BASIC STANDARDS

Scientific studies have shown in what amounts, approximately, the food constituents of carbohydrate, protein, fat, calcium, phosphorus, iron and the vitamins are needed to keep the body in health and to prevent or alleviate certain pathological conditions.

"*Average weight*" refers, in this book, to the weight of the individual based on sex, height and age,—designated variously in the literature as the "desired," "normal," "ideal," "optimal," or "expected" weight. Tables giving the average weight for individuals of different ages and heights have been compiled by various authorities (Tables 5 to 8). The average weight can be only an approximate measurement, at best, since the weight of an individual is influenced by type of build and by certain other factors. Thus the average weight must have a range within a limit—a variation within 10 per cent for the adult is considered safe—and should be used only as a guide. Tables usually express the weight in pounds, but these figures may be converted into kilograms,[1] the unit of the metric system commonly used for body weight in computing food requirements (Table 6).

Protein has for its primary function the building and repair of tissue (Table 1). "There is no known life without protein." It also supplies energy, each gram providing 4 calories. The extent to which a protein can perform its function depends upon the amino acids it contains. The proteins of foods from animal sources—milk, cheese, meat, fish, poultry and eggs—contain the essential amino acids, and are designated complete protein, whereas the proteins from vegetable

[1] 1 kilogram = 2.2 pounds. 1 gram is approximately $\frac{1}{30}$ of an ounce. The units of the metric system are generally used abroad and in all scientific work (Table 14).

sources—bread, cereals, vegetables, legumes and nuts—contain no appreciable amounts of some of these essential amino acids, or are altogether lacking in them, and are designated incomplete protein. The soy bean, however, contains essential amino acids, and is therefore a complete protein. The protein of vegetable foods must be supplemented with animal protein to ensure the maintenance of life and the support of normal growth. It is especially important to provide for the child sufficient amounts of the protein foods that contain the essential amino acids.

For the adult, the daily requirement of protein ranges from $\frac{2}{3}$ to $1\frac{1}{2}$ grams per kilogram of average body weight (Table 2). One gram per kilogram is often given as the recommended allowance. The body may be maintained in normal condition by the use of $\frac{2}{3}$ gram per kilogram, but the usual daily intake of a person whose diet is not restricted for therapeutic or economic reasons will often approximate $1\frac{1}{2}$ grams per kilogram of average body weight.

The rapid growth of the child demands a high allowance of protein (Table 2). The daily requirement ranges from 2 to 3 grams per kilogram of average body weight. The usual daily intake of infants is $2\frac{1}{2}$ to 3 grams, of the school child from $1\frac{1}{2}$ to $2\frac{1}{2}$ grams, and of the child in his teens from 1 to 2 grams per kilogram of average body weight. These allowances are optimal and afford a 50 per cent margin of safety.[2]

Another standard used to compute the daily requirement of protein is based on the caloric requirement for moderate activity. On this basis it is estimated that 10 per cent of the calories required by the adult and 15 per cent of the calories required by the child should be derived from protein.

Carbohydrate provides primarily energy for body activities, and at the same time exerts a protein-sparing action (Table 1).

For the adult, the daily requirement ranges from 4 to 6 grams per kilogram of average body weight, depending upon the degree of activity and the amount of fat used in the diet. Each gram of carbohydrate provides 4 calories (Table 2).

For the child, the carbohydrate requirement per kilogram of average body weight is much greater, to provide not only for increased energy expenditure but also for increased rate of growth. The daily requirement ranges from 6 to 10 grams per kilogram of average body weight (Table 2).

On the basis of the caloric requirement, 50 per cent to 60 per cent of the calories for the adult and 50 per cent of the calories for the child should be derived from carbohydrate.

Fat is an essential constituent of every body cell. Like carbohydrate it supplies energy for the body's activities and has a protein-sparing action (Table 1). By weight it contributes over twice as much energy as carbohydrate, giving 9 calories per gram. The daily requirement of fat for the adult ranges from 1 to 2 grams per kilogram of average body weight, depending upon the degree of activity and the amount of carbohydrate in the diet (Table 2). On this basis a proper ratio will be maintained between the carbohydrate and the fat content of the diet. Some highly unsaturated fatty acids have been shown to be nutritionally essential, but it seems permissible to assume that normal dietaries will supply

[2] Sherman, Henry C., *Chemistry of Food and Nutrition*, 6th ed., p. 490–491, Macmillan Co., 1941.

this need without any special planning.[3]

For the child, the daily fat requirement ranges from 2 to 3 grams per kilogram of average body weight (Table 2).

On the basis of the caloric requirement, 30 per cent to 40 per cent of the total calories for the adult and 35 per cent of the total calories for the child should be derived from fat.

The *energy requirement* is measured in heat units expressed in calories. The body's requirement for fuel to supply energy must consider both the basal need of the body and the increased need for various grades of activity as illustrated on page 47.

The *basal energy requirement*—that is, the energy requirement of the body as nearly as possible at absolute rest,—represents the minimum amount of energy needed for the inner workings of the body, such as of the heart and lungs, and for its fundamental chemical processes.

There are several ways in which this can be estimated. The *actual basal energy requirement* may be determined by means of a respiration apparatus which measures the oxygen consumption of the individual, from which may be computed the basal energy requirement expressed in calories.

The *body surface area* is a basis used in *predicting* the basal energy requirement. It is determined from the actual height and weight of the individual. By means of the Dubois Surface Area Chart or its modification (Boothby and Sandiford), and tables giving the calories needed per square meter per day, the basal energy requirement in calories can be estimated (Tables 9 and 10).

The number of calories needed per kilogram of body weight per day, as estimated from many determinations of the basal metabolic rate of normal persons, is a practical method of ascertaining the basal energy requirement in terms of the *average body weight.*

In a discussion of the caloric needs of children, Holt found it simpler to use the unit of body weight, and stated, "In the opinion of Benedict and Talbot there were no important differences between caloric values expressed per unit of body surface and per unit of body weight."[4]

The *total energy requirement* for the day may be determined by using the basal energy requirement, plus stated increases for the various grades of activity (Table 11).

Another method of determining the total energy requirement for the adult is based on the average weight and the number of calories needed per kilogram of body weight according to the degree of activity (Table 11). For the child, the total energy requirement is based on the factors of age, sex and activity (Tables 12 and 13). These methods have proved satisfactory in clinical practice.

To determine whether the estimated amounts of the food constituents—carbohydrate, protein and fat—fulfill the energy requirements, the number of grams of carbohydrate and of protein are multiplied by 4, the number of grams of fat by 9, and the results are totaled. Since the amounts of carbohydrate and fat are given in proportion to the degree of activity of the individual, the results should be in approximate accord with the caloric requirement based on the average weight of the individual and the degree of activity. Following the practice of supplying the food constituents in terms of body weight, it will be found that automatically the energy require-

[3] Sherman and Lanford, *Essentials of Nutrition*, 2nd ed., p. 23, Macmillan Co., 1943.

[4] Holt, Dr. L. Emmett, *Food Health and Growth*, p. 51, Macmillan Co., 1925.

ments are fulfilled; that is, if the requirement of food constituents is met, the calories will be sufficient.

The *mineral requirements* of the body are receiving a great deal of attention in research and in applied dietetics. Certain minerals—calcium, phosphorus, iron, iodine and copper—have been found to have most important functions in connection with the regulation of body processes. The study of other minerals, while it has not so far yielded conclusive evidence with respect to their definite relation to body processes, indicates their possible relationship to diet.

The mineral requirements of the adult are estimated to be 0.8 gram of calcium, 1.32 grams of phosphorus and 12 to 15 milligrams of iron per day (Table 2).

The child, because of increased demands for growth, needs 1 to 1.4 grams of calcium and 1 to 1.5 grams of phosphorus per day. The iron requirement of the child is based on the estimated caloric requirement, 0.5 gram of iron being allowed for each 100 calories required per day,[5] and according to age, the requirements are given in Table 2.

These allowances are optimal and provide a 50 per cent margin of safety. It is generally considered that if the diet fulfills the calcium, phosphorus and iron requirements, it will carry sufficient amounts of the other minerals to meet body needs. The amount of iodine in food is dependent upon the iodine in the water and soil of the region in which the food is grown.

The *acid-base balance* is given consideration due to the claim advanced that there is an advantage in having in the diet an excess of base-forming elements over acid-forming elements. However, Sherman stresses the fact that it is still an open question whether this is of practical importance to human nutrition.[6] It has been found that when sufficient kinds and amounts of food are given to supply the necessary food constituents to meet the body requirements, an excess of base-forming elements is present (Tables 46 to 48).

Vitamins are considered essential for growth and health. The relative values of different foods, as sources of the various vitamins, formerly expressed by a symbol such as (+) are now given in figures. The vitamin content of an increasing number of foods has been determined and on this basis a tentative standard of requirements for human beings has been recommended by the Committee on Food and Nutrition of the National Research Council, 1941 (Table 2).

THE FOOD PRESCRIPTION

The food prescription used in this book is the statement of the amounts of the food constituents—carbohydrate, protein, fat, calcium, phosphorus, iron and vitamins—and of the calories needed, per day, by an individual of a certain age, sex, height, weight and activity. The units of measurements used are given in the Table of Weights and Measures (Table 14). The food prescription is written on the basis of the foregoing data and may be summarized as follows:

[5] Sherman, Henry C., and Lanford, Caroline Sherman, *Essentials of Nutrition*, p. 156, Macmillan Co., 1940.

[6] Sherman, Henry C., *Chemistry of Food and Nutrition*, 6th ed., p. 247–248, Macmillan Co., 1941.

SUMMARY OF BODY REQUIREMENTS IN TERMS OF FOOD CONSTITUENTS

A Basis for the Food Prescription

Basic Data	*Example of Data Applied to a Typical Individual*
Average Weight	155 pounds or 70 kilograms
Sex	Male
Age	30 years
Height	5 feet, 8 inches
Activity	Moderate
Protein Standard per kilogram per day, ⅔–1.5 grams	70 × 1.5 = 105 grams protein
Fat Standard per kilogram per day, 1–2 grams	70 × 2 = 140 grams fat
Carbohydrate Standard per kilogram per day, 4–6 grams	70 × 5 = 350 grams carbohydrate
Energy Requirement: per kilogram per day moderate activity, 40–45 calories	70 × 40 to 45 = 2800 to 3150 calories
Calories from food constituents:	
Protein, 1 gram = 4 calories	105 × 4 = 420 calories
Fat, 1 gram = 9 calories	140 × 9 = 1260 calories
Carbohydrate, 1 gram = 4 calories	350 × 4 = 1400 calories
	Total 3080 calories
Mineral Standards per day*	
Calcium, 0.8 gram	Calcium, 0.8 gram
Phosphorus, 1.32 grams	Phosphorus, 1.32 grams
Iron, 12 milligrams	Iron, 12 milligrams
Vitamin Standards per day*	

	Man	Woman	
Vitamin A, I.U.	5000	5000	Vitamin A, 5000 I.U.
Thiamine, micrograms	1800	1500	Thiamine, 1800 micrograms
Riboflavin, micrograms	2700	2200	Riboflavin, 2700 micrograms
Niacin, milligrams	18	15	Niacin, 18 milligrams
Ascorbic Acid, milligrams	75	70	Ascorbic Acid, 75 milligrams

The Food Prescription	Protein, 105, grams; Fat, 140 grams; Carbohydrate, 350 grams Calories, 3080 Calcium, 0.8 gram; Phosphorus, 1.32 grams; Iron, 12 milligrams. Vitamin A, 5000 I.U.; Thiamine, 1800 micrograms; Riboflavin, 2700 micrograms; Niacin, 18 milligrams; Ascorbic Acid, 75 milligrams

* Recommended by the Committee on Food and Nutrition of the National Research Council, 1941.

CHAPTER 2

THE CONSTRUCTION OF THE NORMAL DIET

THE BASIS FOR THE SELECTION OF FOOD

When the food prescription has been written, a selection must be made of the kinds and amounts of food to fulfill it. In practice, the actual food intake of the individual is used as a guide in choosing the foods to be included in the prescribed diet, since it is desirable to adhere as closely to usual food habits as is consistent with health needs.

The *food intake* or accustomed diet of the patient, and a review of the foods that might be used to supply the food constituents needed, would seem to indicate that there is an unlimited number of different foods for choice. But when these foods are studied and classified they fall into a small number of groups; namely milk and its products; eggs; meat, fish and poultry; fats and oils; fruits; vegetables; legumes; cereals (flour, cereals, bread and crackers); sweets; and nuts.

The *food constituent* of which a particular group of foods is a good source determines the value to the body of the food within that group. Milk and cheese, eggs, meat, fish and poultry are given first consideration as sources of *complete protein*; potato, legumes, cereals, breads and nuts also contribute to the protein content, but being incomplete must be combined with the complete protein; cream, butter and oils for *fat*; cereal products, sugar, fruits and vegetables for *carbohydrate*; milk, cheese, vegetables and fruits for *calcium*; meat, eggs, whole grain and enriched products, vegetables and fruits for *iron*; eggs, milk, meat, fish and certain vegetables for *phosphorus*; and milk and its products, fortified vegetable fats, meat, eggs, the whole grain and enriched cereals, fruits and vegetables for *vitamins* (Table 3). It will be noted that many foods contain more than one of the food constituents, and may even be rich in several of them. Some contain only a single one, as sugar in the carbohydrate group, vegetable oil in the fat group.

An important development in recent years is the process of enriching foods. White bread is now enriched with thiamine, niacin and iron. Calcium, riboflavin and Vitamin D have been suggested as other desirable additions. Many cereals have been restored to the whole grain nutritive values of thiamine, niacin and iron for the various grains. In addition to this restoration some cereals are further fortified with Vitamin D. The Vitamin A content of oleomargarine and other fats has been increased. By various methods the Vitamin D content of milk can also be greatly increased. It is desirable to use these fortified foods in place of those which have been highly refined.

The *protective diet* is another helpful guide in fulfilling a food prescription. Science states that if certain groups of foods are included in the diet every day in certain amounts, the food constituents necessary for the protection of health will be provided adequately,—and experience verifies this.[1] The protective diet includes the following:

Milk:

1 pint for the adult and 1 quart for the child daily.

[1] Stiebeling and Ward, *Diet at Four Levels of Nutritive Content and Cost*, Circular No. 296, United States Department of Agriculture, Washington, D. C.

Protein foods:

At least 60 to 105 grams of protein* per day. Each of these foods supplies about 7 grams of protein:

Complete protein	*Incomplete protein*
1 ounce meat	½ cup dried beans, peas, lentils (cooked)
1 egg	
1½ ounces fish	
1 glass milk	2 large potatoes
1 ounce cheese	1 cereal dish cereal
1½ tablespoons soy beans, dried	2½ slices bread
	1 ounce nuts

* At least half the amount of protein must be complete protein.

Bread, cereals, flour and flour products:

Use 8 or more servings per day.

Vegetables:

At least 2 servings every day. A green or yellow vegetable ensures vitamin A.

Potato in addition to other vegetables if desired.

Fruits:

At least 2 servings every day. A citrus fruit daily ensures ascorbic acid.

Sugar:

Not more than ½ pound a week of sugar. Other sweets as desired.

Fats:

9 teaspoons per day of fat, including butter, oleomargarine, and other kinds of fat. At least 3 teaspoons should be fats containing vitamin A.

This is a general statement of the optimal amounts of food that provide the necessary food constituents and sufficient calories. The choice of foods in the diet should always have reference to the specific needs of the individual. Individual taste may be satisfied by substituting for a food not desired another of approximately equivalent value,—a procedure discussed in detail in the following pages.

Environmental factors must receive careful consideration in the construction of a diet, since the practice of good habits of hygiene, mental as well as physical, is essential to the success of treatment and is dependent in part upon conditions in the home, the school, and in occupation (Part I, Chapter 4).

A *nutritional history* of the patient, obtained with the aid of a special outline (p. 8) will be found helpful in the study of environmental factors. The data secured need not follow the sequence specified in this outline but may be set down according to the response, interest and attitude of the patient as the conference or interview proceeds.

The form for the Nutritional History of the child uses the heading "School," instead of "Occupation" and "Education" as for the adult, and the family relationships are given in greater detail.*

---

*SCHOOL Location Distance Walk Ride
Grade Recess
Hrs. A.M. Lunch Time
P.M. Study Periods
Leaves for School—Time Returns from School—Time
Extra School Activities: Home Lessons — Hours of study
Music Lessons — Hours of practice
Other Lessons — Hours
Athletics Time for play Other activities

FAMILY RELATIONSHIPS:

Attitudes:
Parents to each other:
Parents to children:
Children to parents:
Children to children:

Child to relatives:
Relatives to child:

Type of Parents:
Mother:
Father:

NUTRITIONAL HISTORY—ADULT

Date

Name Diagnosis Nationality B.D. No.

Language S.S. in B.D.

Address Religion S.S. Outside

S.E.D.K.

Sex Age Ht. Ft. In. Av. Wt. Lbs. Kilos Pr. Wt. Lbs. Kilos

FAMILY No. Sex Age Occupation Health

Adults

Children

OCCUPATION:

Type of Work
Home
Outside Home

EDUCATION:

Previous Training:
Graduated from:
Present:
Trade School
Evening School
Extension Classes
Music Lessons
Continuation School
Other

HOUSE—Rooms no.
Bedrooms No.
Toilet—common
private
Piazza
Flights
Yard
Source of heat
Ventilation
No. windows

Bathroom
location
light
water—hot, cold
how supplied—summer, winter
Bathtub—stationary
portable
Shower

Household Equipment: Facilities for Food Preparation

Stove—Kind
Saucepan—Sieve—Kettle
Refrigerator—Kind
Double Boiler —Mixing Bowl

NEIGHBORHOOD: accessibility to Public bath—Public playground—Park—Community center
use of

INCOME OF FAMILY: Total Amount

Earnings Aid: Public Private Other sources

Expenditures:
Rent
Light and Heat
Electricity
Gas
Wood
Coal
Oil
Ice
Carfare
Insurance
Clothing
Church
Recreation
Laundry
Cleaning Material
Food

HYGIENE—Day's Routine

Rising time Breakfast time Rest Time Place

Cleanliness of Body

Equipment: Soap—face cloth—towel—nail brush—file—comb—brush—

Washing: Frequency Head Neck Ears Hands Nails

Facilities Place Type

Bathing: Frequency

Facilities Tub Shower Sponge Municipal

Care of Teeth—Frequency of cleaning

Equipment: brush

Condition of teeth

Dental care

Elimination: Time Bowel Urination

Sleeping Conditions:

Location		
Bedroom	Size	No. occupants
Windows, No.	Open	Closed
Bed, No. in	With whom	
Bedtime	Hours of sleep	Kind of sleep
Bedclothes	Amount	Kind

RECREATION:

Clubs	Special Interests
Classes	Athletics
Movies	Reading
Radio	Home—Library
	Type of Literature

RELATIONSHIPS:

Family

Occupation

Companions

Mental Attitudes:

MEALS:	Place	Hour	Time Allowed	Time Taken	Use of Difference
Breakfast					
Noon Meal					
Night Meal					
Extra Meals					

Regularity

Appetite

Companionship

Atmosphere at meals

Method of service in the home

Table Self Family

FOODS:

Attitudes: Satisfactory Unhappy Finicky
Resistant Resentful Dissatisfied

Idiosyncrasies

Mastication

First Visit: Food Intake for the Day			Family Purchases		Food Habits
Meals	Foods	Total Amts.	Per Week	Cost	
Breakfast	Milk, Fresh				
	Milk, Canned				
	Cheese				
	Eggs				
	Meat				
	Fish				
	Bacon				
	Cream				
Noon Meal:	Butter				
	Fat-Oil				
	Fruit				
	Fruit, Dried				
	Vegetables				
	Legumes				
	Potato				
Night Meal:	Cereal, white				
	Cereal, Wh. Gr.				
	Bread, white				
	Bread, Wh. Gr.				
	Crackers				
	Flour				
	Sugar				
Extras:	Desserts				
	Tea				
	Coffee				
	Cocoa				
	Candy				
					Food Deficiencies:
Total Money Spent per Week					C P F Ca Fe vitamin A, thiamine, riboflavin, niacin, ascorbic acid.

SUMMARY OF THE FINDINGS

NUTRITION—Food Intake—

- Food Constituents
- Foods
- Food Habits and Meals
- Food Money

HYGIENE

- Personal—Body Cleanliness
- Community—Neighborhood
- Mental—Family Relationships
- Health Habits
- Recreation
- Attitudes toward food

EDUCATION OF PATIENT

- Food and Body Needs
- Food Values
- Budgeting
- Habit Training—Food and Hygiene
- Materials Used

FOOD ORDER PER DAY DATE

Foods	Amounts		Grams				Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	H.M.	Gms.	C	P	F	Ca	Fe	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk												
Cheese												
Eggs												
Chicken												
Meat												
Fish												
Bacon												
Cream												
Butter												
Oil												
10% Fruit												
Fruit												
Fruit												
5% Veg.												
10% Veg.												
Veg.												
Cereal												
Bread												
Potato												
Sugar												
Dessert												
Total of Food Constituents												
Total Calories												

FORM FOR COMPUTATION OF DIETS—USED FOR PATIENTS

CALCULATION OF DIET

CARD NAME B. D. No.

AV. WT._____ KILOS

Date 194	FOODS	FOOD ORDER: GRAMS Total Amt.	C	P	F	Ca	Milligrams Fe	I.U. Vitamin A	Micrograms Thiamine	Micrograms Riboflavin	Milligrams Niacin	Milligrams Ascorbic Acid	FOOD INTAKE: GRAMS PER MEAL Morn.	Noon	Night	GRAMS Total Amt.	C	P	F	Ca	Milligrams Fe	I.U. Vitamin A	Micrograms Thiamine	Micrograms Riboflavin	Milligrams Niacin	Milligrams Ascorbic Acid
ORDER	Milk																									
	Cheese																									
	Eggs																									
	M.F.C.																									
	Bacon																									
	Butter																									
	Fats																									
	Fruit %																									
	%																									
	%																									
	Veg. %																									
	%																									
	Potato																									
INTAKE	Cereal																									
	Bread																									
	Crackers																									
	Sugar																									
	Dessert																									
	Totals																									

Total Calories

Boston Dispensary Food Clinic Fm 49A

FORM FOR COMPUTING THE PATIENT'S DIET

With an understanding of the environmental influences and the food habits of the individual, and with the standards of the protective diet in mind, the diet can then be computed to fulfill the requirements of the food prescription as outlined in Part I, Chapter 1, page 5. It is helpful to group the foods that are the sources of the same food constituent, using for that purpose a computation card such as the one given here (p. 12), or a similar form.

In the form illustrated (p. 14), the foods of the first group give, primarily, protein, the next fat, and the third, carbohydrate. As most of these foods contain minerals and vitamins as well, each food must be checked also for its content of calcium, phosphorus, iron and vitamins. When the prescription is filled, the total amounts of the various food constituents can be found and recorded at the bottom of the computation sheet. From the total number of grams of carbohydrate, protein and fat the total calories can be estimated.

FOOD VALUES AND MEASURES

In the Table of Food Values and Measures can be found the amount of a serving of a particular food in terms of its weight in grams and its household measure, and the amounts of the various food constituents that it supplies (Table 15). In the case of milk, for example, the table states that one cup weighs 240 grams and contains 12 grams of carbohydrate, 8 grams of protein, 9.5 grams of fat, 0.283 gram of calcium, 0.223 gram of phosphorus, 0.5 milligram of iron, 461 I.U. of vitamin A, 125 micrograms of thiamine, 523 micrograms of riboflavin, 0.22 milligram of niacin, 3 milligrams of ascorbic acid, and 5 I.U. of vitamin D. The carbohydrate, protein and fat are figured to one decimal point, but for convenience the fraction may be disregarded, or rounded to the next whole number; for example, the figure for fat in milk may be rounded to 10 grams. If more than one serving of a food is required, the desired amount may be determined through multiplication.

COMPUTING THE DIET

The purpose of computing the amounts of the various foods in the diet is to secure the total amount of food constituents required for body needs. There is no definite procedure determining which of the food constituents—protein, fat or carbohydrate—shall be given first consideration. In order to have definite figures for the following example of the method of computing the diet, specific foods were chosen to fulfill the food prescription given on page 5. The following selection of food is *not* arbitrary.

Protein is considered first here in the same order as on the computation sheets (pages 12–14).

FOODS SELECTED FOR PROTEIN VALUES*

Foods	Amounts		Grams					Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Household Measure	Grams	Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	.566	.446	1.	922	250	1046	.44	6
Cheese	2 T.	30	1	7	10	.279	.210	.3	450	7	165	.06	
Egg	1	50		7	5	.027	.112	1.5	500	75	125	.03	
Meat, poultry	4 oz.	120		20	26	.012	.200	2.8		180	240	9.44	

* ½ T. gelatin and 1 cup bouillon can be written in the computation sheet and would contribute 8 grams of incomplete protein.

TYPICAL DIET FOR.....

Name Sex Age Ht.....Ft.....In. Av. Wt.....Lbs.....K Pr. Wt.....Lbs.
Record No.
Nationality Occupation Activity Income

Food Constituents and Calories Required for:	Gram			Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Normal Diet												
_____ Diet												

COMPUTATION OF DIET

Foods	Amounts		Grams					Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Household Measure	Grams	Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk													
Cheese													
Egg													
Meat, poultry													
Fish													
Cream													
Butter													
Oil													
Other fats													
Fruit: %													
%													
%													
Vegetables:													
%													
%													
Potato													
Bread: White													
Whole Grain													
Other breads													
Crackers													
Cereals: Refined													
Whole Grain													
Sugar													
Jelly													
Molasses													
Other "sweets"													
Candy													
Desserts:													
Beverages:													
Totals of the Food Constituents													
Calories from the Food Constituents							Total Calories						

Signed:

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of the food prescription:

Carbohydrate	25	grams
Protein	58	grams
Fat	60	grams
Calcium	.884	gram
Phosphorus	.968	gram
Iron	5.6	milligrams
Vitamin A	1872	I.U.
Thiamine	512	micrograms
Riboflavin	1576	micrograms
Niacin	9.97	milligrams
Ascorbic Acid	6.	milligrams

It will be noted that milk is the only one of these protein foods to carry carbohydrate. They provide, however, 50% of the complete protein needed, nearly 50% of the fat, calcium sufficient for the adult, almost all the phosphorus required, and ½ the requirement of iron.

Fat is the next food constituent considered. With 60 grams of fat already contributed by the protein foods, sufficient amounts of other foods that are rich sources of fat will fulfill approximately the requirement of 140 grams. The following selection is made—again remember the choice is not arbitrary:

Foods Selected for Fat Values

Foods	Amounts		Grams					Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Household Measure	Grams	Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Cream, light	½ c.	120	6	4	24	.112	.096	.2	1416	40	200		
Butter	6 t.	30			24	.004	.004		810				
Mayonnaise	3 t.	15	.5		11	.002	.005	.1	30	4	10		

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of the food prescription:

Carbohydrate	6.5	grams
Protein	4	grams
Fat	59	grams
Calcium	.118	gram
Phosphorus	.105	gram
Iron	.3	milligram
Vitamin A	2256	I.U.
Thiamine	44	micrograms
Riboflavin	210	micrograms
Niacin	—	milligrams
Ascorbic Acid	—	milligrams

These foods will be seen to be valuable primarily for their fat and vitamin A content.

Carbohydrate is the third group of food constituents to be considered here. The amount needed for the food prescription is 350 grams. It will be noted that the foods already selected for protein and fat do not carry significant amounts of carbohydrate, and that only the limited amount of 31.5 grams has been accumulated. The foods that are chief sources of carbohydrate—fruits, vegetables (especially potato), bread, crackers, cereals, sugars, jellies and desserts—will provide the amounts necessary to fulfill the carbohydrate requirement. In the following selection special foods are chosen from the different groups of food used,—for example, rolled oats from the cereal group and the orange from the fruit group,—to demonstrate that some foods relied upon for carbohydrate will make significant contributions also of minerals and vitamins.

FOODS SELECTED FOR CARBOHYDRATE VALUES

Foods	Amounts		Grams					Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Household Measure	Grams	Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Fruit													
10 per cent—orange	1 m.	100	11	1		.024	.018	.4	225	110	50	.22	54
15 per cent—apple	1 m.	150	21	1	1	.011	.018	.6	108	60	45	.75	9
20 per cent—banana	½ m.	50	12	.5		.004	.014	.3	175	25	38	.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	.5	.007	.021	.6	1000	75	45	.58	22
5 per cent—lettuce	3 lvs.	30	1	.5		.023	.009		1500	23	45		5
5 per cent—string beans	1 s.d.	100	7.5	2.5		.065	.044	1.4	1000	75	110	.64	25
10 per cent—carrots	1 s.d.	100	9.5	1	.5	.045	.041	.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		.022	.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	.060	.090	.9		198	156	.81	
whole wheat	2 sl.	60	30	6	1	.030	.090	1.2		192	108	1.24	
Flour	1 T.	7	5	.5		.001	.007	.1		26	18	.09	
Crackers	2	8	6	1	1	.002	.008	.2					
Cereals													
Macaroni, cooked	¾ c.	150	22	4	.5	.006	.044	.4		15		.11	
Oats, rolled, cooked	¾ c.	180	18	5	2	.016	.126	1.5		219	65	.40	
Sugar	9 t.	45	45										
Jelly	6 t.	40	30										
Desserts													
Cake	2″ cu.		26	2	4	.018	.032	.3	154	62	69	.20	

When the figures of the columns are added the following amounts will be found toward fulfilling the requirement of food prescription:

Carbohydrate	334	grams
Protein	37.5	grams
Fat	12	grams
Calcium	.334	gram
Phosphorus	.676	gram
Iron	11.1	milligrams
Vitamin A	10,222	I.U.
Thiamine	1380	micrograms
Riboflavin	919	micrograms
Niacin	9.18	milligrams
Ascorbic Acid	144	milligrams

It will be noted that these foods supply almost the total carbohydrate required. However, they provide only incomplete proteins. The minerals and vitamins are in small amounts but make significant contribution to the total because these foods are eaten in abundance.

The total figures for the different food constituents show that the foods selected practically and satisfactorily fulfill the food prescription, as follows:

TOTAL VALUES OF FOODS SELECTED FOR FOOD PRESCRIPTION

	Grams			Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligram	Milligrams
	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Food Prescription	350	105	140	3080	.8	1.32	12	5000	1800	2700	18	75
Computed Diet	365.5	99.5	131	3039	1.336	1.749	17	14350	1936	2705	19.15	150

The *calories* are checked by multiplying the total grams of carbohydrate and protein by 4, the fat by 9, and totaling the results. It has been stated (Part I, Chapter 1) that the amounts of carbohydrate and fat are prescribed according to the degree of activity. Therefore it is evident that if the food prescription for carbohydrate, protein and fat is fulfilled, the caloric requirement will be met.

The *minerals* are assured in adequate amounts since this diet is based on the plan of the protective diet. The calcium is adequate because liberal amounts of milk and cheese are used. The milk, eggs, meat, whole grain bread and cereal provide sufficient phosphorus. The iron comes largely from the meat, egg, whole grain and enriched bread and cereal, fruits and vegetables (Table 3). Other minerals, such as copper and manganese (Tables 37, 38), although important in the diet, are not computed here since it is generally assumed that a diet which supplies sufficient amounts of calcium, phosphorus and iron will carry these other minerals in amounts adequate for safety. Not until there is a pathological condition does definite consideration need to be given to iodine.

The *vitamins* will also be assured in sufficient amounts, since this diet contains the foods included in the protective diet. The adequacy of the vitamin content is verified by calculating the vitamin values of the various foods (Table 15).

The *acid-base balance* need not be a matter of concern because a protective diet contains liberal amounts of milk, fruits and vegetables, which give a basic ash, and therefore there is in this diet a sufficient excess of alkaline ash over acid ash (Table 48).

If in constructing a diet it is found that the kinds and amounts of food selected do not meet the food prescription, it will be necessary to increase or decrease the amounts of food used, or to substitute foods with different food values, until the need is approximately met. After becoming familiar with the composition of the foods, the food prescription can usually be filled at the first computation, with few, if any, changes.

FOOD FOR THE DAY

Since the patient must assume the responsibility for carrying out the diet in the interval between visits to the clinic, information given him relative to the diet, to be of practical use, should be in accord with his established food habits, tastes and income, and should be presented to him in a clear and concise manner (Part I, Chapters 5 and 6).

The kinds and amounts of food that have been selected with the patient to fulfill the food prescription may be listed on a special form as follows:

FORM WITH FOODS FOR THE DAY WRITTEN IN, TO GUIDE THE PATIENT IN CARRYING OUT THE FOOD PRESCRIPTION

Food for the Day

Milk	2 cups
Cheese, American	1 ounce or 2 tablespoons
Egg	1
Meat	4 ounces or ¼ pound
Cream, light	½ cup
Butter	6 teaspoons
Mayonnaise	3 teaspoons
Fruits	
10 per cent	1 serving
15 per cent	1 serving
20 per cent	1 small serving
Vegetables	
5 per cent	2 servings
10 per cent	1 serving
Potato	1 large
Bread	5 slices
Crackers	2 saltines
Cereal	2 servings
Sugar	9 teaspoons
Jelly	6 teaspoons
Desserts	
Cake, plain	2 inch cube
Gelatin	¼ tablespoon
Bouillon	1 cup
Beverages	
Tea and coffee as desired	

EQUIVALENTS

To help him to vary the diet, the patient is given lists of equivalents,—that is, the amounts of various foods that may be substituted for the foods selected for the diet (Tables 21–45). Foods are considered equivalent to one another usually in only one food constituent, but the varying amounts of the other food constituents they contain must be taken into consideration. In the normal diet, based on the protective diet, where liberal amounts of the food constituents are allowed, these variations may usually be disregarded as they tend to equalize or balance themselves over a period of time. But in diets lacking this margin of safety because of limitations due to therapeutic or economic reasons, the equivalents must be more nearly identical in food value to the foods selected for the day.

A list of food equivalents may be given to the patient, or the food equivalents may be written on the form, "Food for the Day," as follows:

FORM WITH FOODS FOR THE DAY AND EQUIVALENTS WRITTEN IN TO GUIDE THE PATIENT

Food for the Day		
Milk	2 cups	1 cup equals 1 ounce cheese and 2 crackers
Cheese	1 ounce	or 1 egg
Egg	1	or 1 ounce meat, fish, poultry or cheese
Meat, fish or poultry	4 ounces or ¼ pound	
Cream, light	½ cup	or ½ cup milk plus 2 scant tablespoons butter
Butter	2 tablespoons	or 2 tablespoons fortified oleomargarine
Mayonnaise	1 tablespoon	or 1 tablespoon oil or butter or French dressing
Fruits:		
10 per cent	1 serving	equivalent to 1 orange
15 per cent	1 serving	equivalent to 1 small apple
20 per cent	½ serving	equivalent to ½ banana
Vegetables		
5 per cent	2 servings	or 1 serving 10 per cent vegetable
10 per cent	1 serving	or 2 servings 5 per cent vegetable
Potato	1 large	or 1 serving of cereal or 1 slice of bread
Bread	5 slices	1 slice equals 1 small potato or 1 small serving of cereal or 3 crackers
Cereal	2 servings	
Sugar	2 level tablespoons	
Jelly	1 heaping tablespoon	or 1 heaping tablespoon of jam or marmalade or sugar or 1 scant tablespoon of molasses
Dessert		
Cake, plain	1 serving	or 1 serving of pudding or 1 small piece of pie or 2 slices of bread with 1 heaping tablespoon of butter

RECIPES

Many of the foods allowed in the diet, or their equivalents, may be combined into "made dishes." Recipes will help the patient to adopt new combinations and methods of preparation and to use unaccustomed or unfamiliar foods, enabling him to vary his diet and to utilize all the foods prescribed. Authoritative cook books provide dependable recipes. It is important to know the food value of a recipe in meeting the requirements of the food prescription (Tables 17 and 18).

MEALS FOR THE DAY

On the same form with "Food for the Day" there is often written an arrangement of the diet in a "Meal Plan for the Day," for the guidance of those who wish explicit directions,—that is, not only concerning the amounts and kinds of foods they should eat, but as to when they should eat them and in what combinations (Tables 16 and 17).

The habits, occupation and other environmental conditions of the individual or family, influence the type of meals taken. For example, there is the American breakfast as distinguished from the Continental breakfast of coffee, rolls and butter, without fruit (Part I, Chapter 4).

Most authorities consider it advisable to give children their heavy meal at noon and the light meal in the evening. This may mean that adjustments must be made for the adult members of the family who are not at home at noon and so would have dinner in the evening.

A *meal plan for the day*, adjusted to the needs of the typical patient for whom this food prescription has been written, is shown in the adjoining column.

The foods given here are the same as those used in the series of "Typical Diets and Menus," normal and therapeutic (Part IV).

The patient may vary his meals according to his own desires provided that during the day he utilizes sufficient food to fulfill his body requirements.

Menus are planned (Part IV) with reference to such considerations as the cost and availability of the foods, the patient's tastes and habits, the household equipment and the length of time required for preparation and service. In the illustration on page 20 three menus are given using different foods, but which have approximately the same food value. The first is of low cost, in which variety is necessarily limited; the second is what the moderate income allows; while the third represents greater expense and variety, greater appeal to the aesthetic sense and the expenditure of more time in preparation and service.

FORM WITH FOODS FOR THE DAY ARRANGED IN A MEAL PLAN TO GUIDE THE PATIENT

Meal Plan for the Day

Morning

Fruit
Cereal with milk or cream and sugar
Egg, 1
Bread or toast, 2 slices with butter and jelly
Beverage with cream and sugar if desired

Noon

Macaroni, rice or potato, 1 serving
Cheese, egg, or small serving of meat, fish or poultry
Vegetables, 1 serving, cooked or in salad, with butter or mayonnaise
Bread and butter, 2 slices
Fruit, 1 serving, cooked or raw
Milk, 1 glass

Night

Soup, with crackers
Meat, fish or poultry, 1 serving
Potato, rice, or spaghetti, 1 serving
Vegetables, 2 servings, cooked or in salad, with butter or mayonnaise
Bread with butter, 1 slice
Dessert, 1 serving fruit and cake or pudding or pie
Beverage with cream and sugar—if desired

MEANS FOR VARYING THE DIET

It is seen that there are several ways in which the menus may be varied and still fulfill the food prescription (see Tables, Part II):

By the use of different kinds of meat, vegetables, cereals and fruits in the various meals;

By changing the foods from one meal to another,—that is, by varying the type of meals;

By using equivalents,—that is, substituting for foods specified in the diet others of approximately the same food value;

By combining foods allowed, or their equivalents, into "made dishes" through a knowledge of recipes.

TYPICAL MENUS OF APPROXIMATELY THE SAME FOOD VALUE BUT AT DIFFERENT LEVELS OF COST

Low	*Moderate*	*Liberal*
Morning Meal	*Morning Meal*	*Morning Meal*
Prunes, 5 small	Orange, 1	Orange juice
Oatmeal with milk and sugar	Oatmeal with cream and sugar	Shredded wheat with strawberries and cream
Egg, 1	Egg, 1	Egg, 1
Bread, 2 slices with butter	Bread or Toast with butter and jelly	Muffin with butter and marmalade
Coffee with milk	Coffee with cream and sugar	Coffee with cream and sugar
Noon Meal	*Noon Meal*	*Noon Meal*
Macaroni with cheese	Macaroni with cheese	Creamed chicken and mushrooms in macaroni ring
Cole Slaw	Tomato salad with mayonnaise	Stuffed tomato salad with dressing
Bread, 2 slices with butter	Bread, 2 slices with butter	Roll, 2 with butter
Apple	Baked apple with cream	Apple snow with boiled custard
Milk, 1 glass	Milk, 1 glass	Milk, 1 glass
Night Meal	*Night Meal*	*Night Meal*
Tomato juice	Bouillon with 2 saltines	Consomme with 2 saltines
Meat Stew	Roast Beef, 1 serving	Planked sirloin steak
Meat	Baked potato	Parsley potato balls
Potato	Carrots, buttered	Glazed carrots
Carrots	String beans, buttered	Hearts of escarole with Roquefort cheese dressing
Onion		
Bread, 2 slices with butter	Bread, 1 slice with butter	Roll, 1 with butter
Banana	Fruit gelatin with cream	Fruit ice
Gingerbread	Plain cake	Cup cake
	Coffee, if desired	Coffee, if desired

SUMMARY: STEPS IN THE CONSTRUCTION OF THE NORMAL DIET BASED UPON THE FOOD PRESCRIPTION (PART I, CHAPTER 1, P. 5)

Select food in terms of—
- Foods that are the principal sources of the food constituents
- The usual food intake of the patient
- The foods that are included in the protective diet
- Environmental factors that influence the effectiveness of the diet.

Compute the amounts of the food constituents supplied by these foods with reference to the requirements of the food prescription:
- Protein, fat, carbohydrate
- Minerals—calcium, phosphorus, iron
- Vitamins—Vitamin A, Thiamine, Riboflavin, Niacin, Ascorbic Acid

Calculate the total calories.

Give the patient directions for food for the day, with lists of equivalents, recipes, a meal plan and menus.

CHAPTER 3

THE CONSTRUCTION OF THE THERAPEUTIC DIET

The purpose of the therapeutic diet in medical treatment is to help maintain or as nearly as possible restore the normal functions of the body part affected by disease or abnormal condition, or to compensate for the dysfunction.

BASIS OF THE THERAPEUTIC DIET

The *principles that govern the normal diet* are likewise the basis of the therapeutic diet. The factors of height, age, sex, average body weight and activity, as well as environmental factors, must be considered. The standards with respect to the amounts of the food constituents required for normal body needs must be kept in mind, as well as the foods that are the principal sources of these food constituents.

The *physiology and pathology of the body part* affected being known, (Part III, Dietary Outlines), and the relation of the body part to food, the guiding principles in the practice of diet therapy as a part of medical treatment are clearly indicated. Also the *findings of the medical examination* and *laboratory tests* that are significant in diet therapy (Table 52) must be evaluated, not only for purposes related to fulfillment of the food prescription but also for checking the effectiveness of dietetic treatment.

Dietetic treatment will be modified in accordance with new facts established by investigations in the fields of medicine and allied sciences.

Environmental factors must be given careful consideration, as in the normal diet, since right habits of hygiene, mental as well as physical, are essential to the effectiveness of the diet (Chapter 4).

The *modification of the normal diet* planned to meet the special needs of the therapeutic diet must be based on an understanding of the nature of the disease and of the condition of the individual patient; and the amounts of the various food constituents must be computed with reference to the increase or decrease that the food prescription may require. Frequently certain foods must be given in larger or smaller quantities than those which the patient is accustomed to take, to make sure that the food constituents shall be present in amounts required. When for a considerable period the patient is too ill to take the necessary food, he will begin to suffer from the deficiencies of his diet as well as from his disease. When certain foods have to be omitted, and no other foods can be substituted therefore, medication must be prescribed by the physician. Often it may be necessary to change the consistency of a food or the method of preparation, in order to include it in the diet. There may need to be a rearrangement of the number and frequency of the meals and feedings.

In order to help the patient to carry out his diet, or to understand it better, he is given a list of "Food for the Day" with equivalents, and when desirable, recipes using the foods allowed in the diet. The equivalents are adapted to the particular dietetic requirements of the patient, and as far as possible to his individual tastes and preferences.

When further guidance is indicated or desired, a "Meal Plan for the Day," utilizing all the foods included in the diet, is outlined with the patient and adjusted to his environment.

THE EDUCATION OF THE PATIENT

With each disease certain characteristic points, varying with different diseases, will need particular emphasis. In teaching the patient it should be known, furthermore, in what ways and to what extent he needs special guidance and service. The material given the patient to help him in carrying out the dietetic treatment must be so clearly presented that he will readily understand and follow it (Part I, Chapter 6).

PRINCIPLES UNDERLYING VARIOUS THERAPEUTIC DIETS

Salient points in the application of the foregoing factors to the construction of the therapeutic diet, with reference to certain diseases, will be dealt with here, and again in a series of Dietary Outlines (Part III).

In **food allergy,** the foods that are found to be causes of symptoms or predisposing factors are omitted, but the food constituents must be provided in normal amounts, by food or by medication. Diets vary according to the theory and practice of the physician.

The *omission of all foods to which the patient shows a positive skin reaction* is the common practice.

On the *restricted diet*, so named, physicians list for their patients, without tests, certain kinds of food that are to be avoided, because it is believed that they tend to intensify symptoms or produce unfavorable reactions. In general these are foods that are not easily digested or that affect the digestive tract unfavorably (p. 170), such as very cold foods and drinks, and beer; cocoa, chocolate and concentrated sweets—candy, jams and jellies; condiments, spices and richly spiced foods; fried foods, pastries and hot breads; various kinds of fish, especially shell fish; meats—turkey, veal, pork, ham, bacon, liver; vegetables and fruits that are high in cellulose and form gas, and nuts that cause irritation to the throat and coughing.

The *elimination diet* (Table 54) is another means of determining the foods to which the patient is allergic. This diet is free from milk, eggs and wheat. Other foods are tried out, one after another, for a period, in a succession of diets, until the offending food is identified. The results obtained from certain well-known routine elimination diets have proved satisfactory to the originators of these diets and to others. This method is being adapted by various physicians who desire special elimination diets to meet the needs of their own practice.

Foods belonging to the same biological group (Table 53) as the food giving a positive reaction are sometimes omitted, even when they show no reaction, the physician believing that their family relationship is sufficient reason to regard any one of them as a possible cause of symptoms. Lists are available in which both plants and animals are arranged according to their biological groups. Or the practice may be to allow these foods and to watch closely for any symptoms which may occur as the result of their presence in the diet.

Sometimes it is difficult to provide an adequate diet if many or important foods are prohibited. It is possible, however, to avoid a deficiency in the diet by giving larger amounts of the foods allowed than the normal diet supplies, or by prescribing medication when minerals and vitamins are lacking.

Food for the day should be so distributed that there will be no excess at any one meal. It is advisable, especially for children, to have the main meal at noon time. If the adult patient desires extra food at bedtime, it should be of a

kind that is easily digested and allowed by his diet.

Symptoms are often caused or intensified by factors other than food that the various tests may not identify (Part III, Dietary Outlines). Therefore, in addition to the physical examination and various tests, a careful history of the patient's environment is essential to the plan and the success of treatment. With an outline such as the Nutritional History (Part I, Chapter 2) as a basis, a careful search is made for causative or predisposing factors outside and inside the home (Part III, Dietary Outlines).

It is most important that the patient should understand the principles underlying these procedures in dietetic treatment, that he may coöperate intelligently and in fullest measure (Part I, Chapter 6).

In **atonic constipation** there is a lack of muscle tone of the intestine. The food constituents remain normal and the amounts and kinds of food are the same as in the normal diet, which supplies adequate bulk and roughage. (See Foreword to Tables, p. 79). A liberal fluid intake of at least the normal amount, six to eight glasses daily, is stressed (Parts III, Dietary Outlines and IV, Diets).

In **spastic constipation,** there is an irritability of the intestine resulting in spasm, or alternating spasm and atony. Here, again, the amounts of the food constituents remain normal. Attention must be given to the consistency and choice of foods used as the sources of the food constituents, since the colon is extremely sensitive to stimulation. The meals may follow the usual routine of the patient Parts III, Dietary Outlines and IV, Diets).

In both conditions of constipation, regular habits of bowel elimination, adjusted to the daily routine of the patient, should be established to help make the dietetic treatment effective (page 35).

In **colitis,** the body part affected is the large intestine where inflammation of the mucosa is present. The amounts of the food constituents remain normal, but as in the ulcer diet attention must be given to the consistency of the foods and to the foods chosen as the sources of the food constituents. Several small meals are often better tolerated than three large meals (Parts III, Dietary Outlines and IV, Diets).

In **peptic ulcer,** the body part affected is the mucosa of the stomach or duodenum, which is ulcerated to varying depths. In addition there is usually hypermotility, and hydrochloric acid may be present in excess in gastric ulcer. The aim of dietetic treatment is to avoid irritation of the ulcer and to allow the stomach to rest as much as possible and to neutralize high acid.

Again, the procedure will be to consider the modification of the food constituents, a change in the type and consistency of the food and a rearrangement of feedings that will bring about the result desired from treatment. The normal function of the stomach is to soften and break the food. For the ulcer diet this softening and breaking is done in the preparation of the food, to lighten the work of the stomach and to lessen the irritation. It is also desirable to increase the fat content of the diet, since it is known that fat depresses the flow of the hydrochloric acid which is irritating to the ulcer.

The amounts of carbohydrate and protein remain normal, but some of the foods used as sources of these food constituents must be excluded or modified (Parts III, Dietary Outlines and IV Diets).

The foods given must not be irritating —mechanically, chemically or thermally. Some of the carbohydrate foods—whole grain cereals, vegetables and fruits—contain varying amounts of cellulose, which

is irritating to the ulcer and must be softened as much as possible or removed by cooking and straining. Enriched white bread and very finely ground whole grain or enriched cereals should be used in preference to the coarser products. Because concentrated sweets may ferment and produce gas, they should be given only in very small amounts. Certain of the protein foods, as meat, fish and poultry, contain fiber which should be avoided. These foods, and soups, gravies and chowders made from them, contain extractives which stimulate the flow of the hydrochloric acid, for which reason they should be omitted until the patient is convalescent. Other causes of irritation are the acid-tasting foods, condiments, spices, coffee, tea, cocoa, very hot or cold foods and fried foods. Orange juice and tomato juice, although acid-tasting foods, should be given as soon as possible for their ascorbic acid content. If diluted or given after other foods, they may be tolerated very early in the treatment. The use of alcohol and tobacco is usually strictly prohibited as nicotine stimulates the flow of hydrochloric acid. The meals should be small in amount, with regular feedings between meals so that some food will be present in the stomach at all times to prevent free acid from irritating the ulcer. Milk combines readily with hydrochloric acid and if given regularly at frequent intervals helps to lessen the irritation. Not only must there be conditions for physical rest, but in the treatment of the ulcer patient special attention must be given to causes of emotional disturbances, which prevent the effectiveness of the diet.

Bleeding ulcer, when treated according to the Meulengracht diet uses the food as in the last column on page 181. The principle for dietary treatment of ulcer holds good for the Meulengracht diet. Its principal value is to give sufficient of the food constituents to compensate for malnutrition caused by hemorrhage. However, some authorities give nothing by mouth until the bleeding has stopped.

In **gastritis** the treatment parallels the treatment of ulcer.

In **underweight,** there is a need of food in excess of normal body requirements, to provide for storage of adipose tissue. Therefore, larger amounts of carbohydrate and fat are given, to increase the caloric value of the intake. There must also be sufficient thiamine to help metabolize the carbohydrate, and to stimulate the appetite for the required amount of food. It is important to find the cause of the underweight,—whether it is due to insufficient amounts of the food constituents and of the kinds of foods to supply them, to poor utilization of the food eaten, or to emotional or endocrine factors. The treatment of these conditions is necessary for the effectiveness of the diet. Care should be taken to choose as sources of the food constituents foods which are most acceptable to the patient, to encourage him to take the desired amounts. Too much bulk is not desirable because it gives a feeling of satiety. Sources of concentrated carbohydrate and fat, such as sugar, cream and butter, are used, but these must be given carefully because they cloy the appetite if taken in too large amounts (Parts III, Dietary Outlines and IV, Diets).

In order that sufficient amounts of food shall be taken, it is frequently desirable to give intermediate feedings; but if this destroys the appetite for the regular meals they should be omitted and the necessary amount of food for the day taken in the regular meals.

In **obesity,** there is an excess storage of adipose tissue. Here again it is essential to learn the cause, emotional or pathological, underlying the condition. It is

evident that the procedure in dietetic treatment is to reduce the amount of the food constituents, carbohydrate and fat, thereby decreasing the caloric value of the intake. The protein remains normal. Although the amount of food is limited, the foods chosen should supply minerals and vitamins sufficient for the protection of health, and provide sufficient bulk to give a feeling of satisfaction (Parts III Dietary Outlines and IV, Diets).

In **diabetes,** the body part affected is known to be the Islands of Langerhans of the pancreas, the dysfunction of which results in a deficiency of insulin. Insulin is the internal secretion of the pancreas which is of fundamental importance for proper carbohydrate metabolism. New discoveries have been made in the interrelation of the secretions of the endocrine glands to the pancreas, mainly the pituitary, adrenals and thyroid. Although the evidence for this relationship is significant it is not as yet conclusive. However, the influence of endocrine secretions should be given consideration in the treatment of diabetes. For instance, in studies of the pancreas in relation to other endocrine glands it has been found that when there is an excess amount of these other endocrine secretions it disturbs the normal equilibrium between the insulin and the secretions of these glands, and necessitates an increased amount of insulin for carbohydrate metabolism.

It has also been found through experimentation that insulin and high amounts of fat in the diet lessen the amount of insulin secreted by the pancreas, thereby resting it. It may also be assumed that high amounts of carbohydrate will increase the secretion of insulin by the pancreas, thereby placing a strain on the pancreas unless sufficient insulin is given to protect it.

From the above evidence many authorities believe today that diets low in carbohydrate and liberal in fat should be prescribed, and insulin should be administered if necessary early in the treatment of the disease and in sufficient quantity to metabolize all of the carbohydrate prescribed in the diet.

These new discoveries and changing viewpoints have influenced the type of diet advocated for the diabetic, and there are many types of diets according to the belief of various authorities. The evident procedure, in any case, however, is to consider a modification of the food constituents that will counterbalance the deficiency of insulin. Bottle insulin should be given if necessary to insure the metabolism of the entire amount of carbohydrate needed by the body and to keep the blood sugar level within the normal range and the urine approximately sugar free. Even in the diet with insulin, about one half the carbohydrate, one to one and one half times the fat and the same amount of protein of the average normal diet is usually prescribed. The caloric value of the intake thus provided is satisfactory since it is desirable for the diabetic to stay within his normal weight, and since most patients seem to gain weight more easily when taking insulin. It has also been shown that if the caloric value of the intake is below the normal requirement over a period of time, the basal metabolic rate will be lowered, thereby decreasing the actual requirement of food. Present day methods of treating diabetes allow the inclusion in the diet of amounts of carbohydrate foods adequate for body needs. This obviates the need of special "diabetic foods," such as diabetic bread and other products.

When there is a high blood cholesterol the fat is greatly decreased and vegetable fats are given. In associated conditions such as underweight the carbohydrate

may be low normal and the fat may be high normal. When the diet is decreased in carbohydrate and fat, the minerals may remain normal, but it is almost impossible to satisfy the standard vitamin requirements without medication.

For normal growth and development the child patient requires a normal diet with sufficient insulin to utilize it. Concentrated sweets are omitted.

In **liver disorders,** it must be remembered that "every kind of food ingested demands activity on the part of the liver." The liver is so closely involved in the metabolism of the various food constituents that these must be carefully evaluated in the diet according to the type and extent of the impairment of the liver function.

"The loading of the liver with glycogen establishes a most favorable condition for the functioning of the liver." In both acute and chronic liver disorders the carbohydrate is given fifty per cent above the normal.

The migration of fat to the liver is small when the liver is charged with glycogen and protein. This is the most prophylactic condition for the liver. The fat content in the diet is reduced in chronic and acute disorders and in hypercholesterolemia. When the biliary secretion is lessened and fails to reach the intestines and impairs the digestion and absorption of fat, the fats are decreased.

The liver has a most important part in protein metabolism, converting the products of the cleavage of amino acids (ammonium salts) into urea. The liver also plays an important role in the storage of protein, and this reserve protein helps to protect the liver.

Since only foods containing sterols from vegetable sources are used in hypercholesterolemia, the vitamin content of this diet is diminished. In all the diets the foods must be carefully calculated with respect to their vitamin content. Medication will often be necessary, as thiamine, niacin, and riboflavin, especially, seem to have a protective action for the liver.

Diseases of the biliary tract are closely associated with liver disorders. As a precaution in liver disturbances the dietary principle involved in the dietetic treatment of the gall bladder is generally followed, even when the biliary tract is not affected. The diet prescribed is bland, non-irritating and non-stimulating.

Alcohol is prohibited by clinicians, and tea and coffee are not generally allowed.

Meals are taken customarily, with intermediate feedings, usually of fruit juices, to help fulfill the high carbohydrate requirement.

In **gall bladder disturbances,** of certain types, the diet usually given is low in fat (Table 26) and contains normal or increased carbohydrate, normal amounts of protein, normal amounts of minerals and high amounts of vitamins. The foods chosen should be those that are easily digested. Condiments and a high residue are contraindicated to avoid distention and increased peristaltic action of the intestines with consequent irritation of the gall bladder (See Part III, Peptic Ulcer). Usually small meals are given at frequent intervals.

In the **ketogenic diet,** the carbohydrate is reduced to the lowest practical minimum and the fat is greatly increased, which results in an incomplete oxidation of the fat, producing a ketosis. The protein is low normal. It is impossible to supply the normal requirement of minerals and vitamins by the foods allowed in the diet, and therefore the minerals and vitamins are prescribed as medication. Fillers which have no food value, such as agar jelly and bran wafers, help to give

a feeling of fullness and satisfaction and provide a means of utilizing the cream and butter in the diet (Parts III, Dietary Outlines and IV, Diets, and Table 55).

In **nephritis,** the kidneys are affected. The protein content of the diet is modified according to the type of disease. In acute nephritis the protein is decreased to low normal, or even much below the normal, to lessen the work of the kidneys. The carbohydrate and fat remain normal except that the high normal is often used to provide sufficient calories when the protein is greatly lowered. In the presence of edema, the fluids are restricted, depending on the previous day's output of urine.

In subacute nephritis, it is now common practice to give adequate amounts of protein, although many physicians restrict animal protein to a minimum and some omit it from the diet entirely. In the nephrotic type, with edema, the protein is increased in an attempt to replace its loss from the body. The fat content is sometimes reduced on the theory that this will reduce the blood cholesterol which is usually high. The other food constituents should be given in normal amounts. In the treatment of edema, some authorities recommend administration of acid salts together with a neutral diet or one containing a preponderance of acid ash, and restriction of sodium chloride (Table 40).

In chronic nephritis, the normal diet is given, and the output of urine determines the amount of fluid intake allowed. Protein is restricted in the terminal stages of renal failure (Parts III, Dietary Outlines and IV, Diets).

In **pregnancy,** care must be taken to provide minerals and vitamins in adequate amounts, and the content of the normal diet is increased with respect to these food constituents. If the food intake does not provide them in sufficient amounts, medication should be given. During the last months of pregnancy it is usual to increase the caloric content of the diet, but when there is an excessive gain in weight the caloric value of the intake may have to be restricted. When kidney complications are present the protein intake is reduced. For the condition of pernicious vomiting in pregnancy, the carbohydrate is increased to provide a glycogen reserve, and the fat, which is usually not well tolerated, is decreased. Small, frequent feedings of dry food with little or no fluids are usually better tolerated in this condition (Parts III, Dietary Outlines and IV, Diets).

In **rickets,** there is a faulty metabolism of calcium and phosphorus due to an incorrect balance between calcium and phosphorus and vitamin D as a result of dietary deficiencies or poor environmental conditions, or both. If the requirement of calcium and phosphorus cannot be supplied by the diet, medication should be prescribed. It is most important that children especially have sufficient fish liver oil to supply the required vitamin D. However, milk can be greatly increased in vitamin D value by various methods. Liberal amounts of vitamin A and ascorbic acid also should be supplied for skeletal development; for "care must be taken not to attribute entirely to vitamin D what is here partly due to vitamins A and C also."[1] The diet should contain adequate amounts of the other food constituents (Part III, Dietary Outlines).

For *other diseases* not included in the Dietary Outlines (Part III) and for which diet is a part of medical treatment, the construction of the diet can be evolved by consideration of the factors given under

[1] Sherman, Henry C., *Chemistry of Food and Nutrition*, 4th edition, p. 445, Macmillan Co., 1932.

the heading, "Summary of the Factors in the Construction of the Therapeutic Diet," p. 29. For example:

In **cardiac conditions,** when the physiology and pathology are considered, it is evident that the main purpose of the diet is to reduce the strain on the heart. "In the presence of heart failure there is evidence to indicate that a rapid reduction (in two or three weeks) in weight of approximately 10 per cent from a normal or underweight level, exclusive of edema fluid, is accompanied by considerable improvement in the functional state of the vascular system. When the lower weight level is reached, a diet which maintains the weight likewise maintains the beneficial effects on the cardio-vascular state for at least several months."[2] In planning the diet, then, one or more of the following procedures will be adopted:

Food constituents:—Carbohydrate and fat will be reduced to decrease the caloric value of the intake below maintenance, but the protein, minerals and vitamins will be normal. The effect will be to lower the metabolism. Sodium chloride should be reduced in the presence of edema.

Foods:—Those giving bulk, or which ferment easily or are otherwise indigestible, will be avoided. The low fat content of the diet helps to decrease the length of time the food remains in the stomach.

Meals:—Small meals will be given to avoid bulk. Frequently five small meals are better tolerated than three large meals a day and they do not tax the digestion.

In **arthritis,** many and varied theories for dietetic treatment have been presented, but as yet none has been generally accepted and therefore it is not discussed here. However, if one wishes to construct a diet on the basis of any one of the theories, the necessary data are available in the Tables.

In **tuberculosis,** the aim in dietetic treatment is to give the patient a diet to maintain the average weight. Usually a normal diet is adequate. Earlier methods of treatment called for a high caloric diet, but it is no longer considered desirable to put excess weight on the patient. If the patient is below his average weight, the diet is given in terms of that for underweight. Fish liver oil is given for its vitamin content, and foods high in ascorbic acid are given for their protective value. If associated conditions are present they are treated as indicated.

The **anemias** are not discussed here because they are now treated by medication, and a normal diet is given.

In **gout,** the food constituents are given in low normal to normal amounts. If the patient is overweight a low caloric diet is given as in obesity. Foods very high in purins, such as liver and other glandular organs, are omitted. Even foods containing one-third as much purin as these, such as meat, shell fish, peas and beans, are given moderately. Other vegetables carry small amounts of purin. A table showing the purin content in average serving of various foods facilitates the construction of this diet (Table 49). Alcoholic beverages should be omitted.

Diets classified according to the consistency of their food content include the so-called "restricted liquid," "full liquid," "soft" and "light" diets[3] (Table 56).

The *restricted liquid diet* provides, for a very short period, limited non-gas-forming nourishment to patients having a serious impairment of the functions of diges-

[2] Personal communication from Dr. Samuel H. Proger.

[3] Adapted from a Committee Report of the Diet Therapy Section of the A. D. A., J. A. D. A., Vol. 9, p. 46, May, 1933.

tion. It should be given at frequent intervals, to relieve thirst, supply the tissues with fluid, aid the eructation of gas and furnish a small amount of carbohydrate to counteract the fasting ketosis. The food content should consist only of liquids that are clear, non-gas-forming, non-residue and sub-acid, supplying water, carbohydrate and a small amount of protein in the most soluble and easily digested forms.

The *full liquid diet* increases the nutritive value of the restricted liquid diet, providing normal amounts of the food constituents. The foods supplied should be those that remain liquid at room or body temperature, contain no fiber and are non-gas-forming. This diet is used only for a limited period.

The *soft diet* progresses to the use of solid foods that are easily digested. It provides normal amounts of the food constituents, but in the choice and preparation of foods as little residue as possible is included, and foods that ferment easily are avoided. Meat, fish and poultry are permitted by some physicians. Meals may follow the patient's usual routine unless the amounts taken at the meal are small, in which case intermediate feedings are given to provide adequate food to fulfill the body's needs.

The *light* diet is less rigidly restricted in residue. There is a more liberal use of protein foods, the easily digested vegetables and fruits and the whole grain bread and cereal. Foods requiring a long period for digestion are avoided.

A REVIEW OF DIET THERAPY IN TERMS OF THE FOOD CONSTITUENTS

An understanding of a particular disease or abnormal condition immediately suggests the food constituent or constituents that are to be modified in the dietetic treatment. In the review of diet therapy on page 30, in terms of the food constituents concerned, it is indicated whether the provision of the food constituent should be in increased (+) or decreased amounts (−), or remain normal (N).

SUMMARY OF THE FACTORS IN THE CONSTRUCTION OF THE THERAPEUTIC DIET

- The Normal Diet as a Basis
  - Height, age, sex and average body weight
  - Activity
  - Food constituents—amounts necessary to fulfill body requirements
- The Therapeutic Diet
  - The specific disease or abnormal condition
  - The body part affected
    - Normal physiology in relation to food
    - Pathological physiology or abnormal condition
    - Dysfunction in relation to food
  - Foods to compensate for the dysfunction of the body part affected
- Modification of the Normal Diet
  - Food constituents—increase or decrease in amounts
  - Foods—increase or decrease in kinds and amounts
    - Omission of certain foods
    - Change in the consistency of foods
    - Change in method of preparation of foods
  - Meals—rearrangement of number and frequency of meals and feedings
- Adaptation of the diet to the tastes and preferences of the individual, as in the normal diet.
- Consideration of environmental factors that influence the effectiveness of the diet, as in the normal diet.

DIET THERAPY IN TERMS OF FOOD CONSTITUENTS

Carbohydrate:	
Acidosis	
Epilepsy	−
Pregnancy	+
Pyelitis	−
Diabetes	−
Diarrhea	+
Hyperthyroidism	+
Liver disorders	+
Obesity	−
Underweight	+
Protein:	
Liver disorders	N
Nephritis	
Acute	−
Chronic	N
Nephrosis	+
Pregnancy (toxemia)	−
Fat:	
Acidosis	
Epilepsy	+
Pregnancy	−
Pyelitis	+
Diabetes	N
Diarrhea	−
Gall bladder disturbances	−
Liver disorders	−
Nephrosis	−
Obesity	−
Ulcer	+
Underweight	+
Calcium and Phosphorus:	
Dental defects	+
Certain diseases of the skeletal structure	+
Pregnancy	+
Rickets	N
Iron:	
Pregnancy	+
Secondary anemia	N*
Iodine:	
Goiter	+
Vitamin D:	
Dental defects	+
Certain diseases of the skeletal structure	+
Lactation	+
Pregnancy	+
Rickets	+
Certain skin disorders	+
Vitamin A:	
Dryness and scaliness of skin and mucous membrane	+
Impaired reproduction and lactation	+
Lowered resistance of mucous membrane of respiratory and gastro-intestinal tract to infection	+
Night blindness	+
Ophthalmia, Xeropthalmia, Keratomalacia	+
Pregnancy and lactation	+
Thiamine:	
Anorexia	+
Beri-beri	+
Circulatory disturbances	+
Digestive disturbances	+
Disturbances of central nervous system	+
Impaired reproduction and lactation	+
Muscular weakness	+
Pellagra	+
Polyneuritis	+
Pregnancy and lactation	+
Riboflavin:	
Anorexia	+
Cheilosis	+
Digestive disturbances	+
Disturbances of central nervous system	+
Lesions of mucous membranes and skin	+
Lowered resistance to infection	+
Microscopic changes in eyes	+
Pellagra	+
Poor condition and loss of hair	+
Pregnancy and lactation	+
Niacin:	
Dermatitis	+
Disturbances of central nervous system	+
Gastro-intestinal disorders	+
General muscular weakness	+
Loss of appetite	+
Pellagra	+
Soreness of mouth and tongue	+
Ascorbic Acid:	
Anemia	+
Damaged heart conditions	+
Decalcification of bones and teeth	+
Hemorrhages of capillaries	+
Lesions of gums	+
Lowered resistance to infection	+
Pregnancy and lactation	+
Scurvy	+

*With medication.

CHAPTER 4

ENVIRONMENTAL FACTORS THAT INFLUENCE THE EFFECTIVENESS OF THE DIET—PHYSICAL AND MENTAL

THE SCIENCE OF PLANNING THE DIET

In planning a diet it is always necessary first to consider the body requirements in terms of food. The body requirements and the computation of the kinds and amounts of food necessary to fulfill them have been described in detail (Parts I and II). The use of these data may be called the *science* of planning the diet.

THE ART OF PLANNING THE DIET

But more than science must enter into effective dietetic treatment; for the diet is planned for a human being who cannot be controlled like an animal under experimentation. The influence of personality traits and of a great variety of factors in family and community life must be considered; and the adaptation of the diet to these factors may be called the *art* of planning the diet.

"What is spoken of as a 'clinical' picture is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears."[1]

IDENTIFICATION OF THE PATIENT

To plan a dietetic regime that will be possible of fulfillment in the home environment, it is essential to obtain, from records and from careful study of the patient, a mental picture of him against the background of his habits and attitudes, his desires and his necessities.

[1] Peabody, Francis, *Doctor and Patient*, p. 33, Macmillan Co., 1930.

The information received from the patient on admission to the outpatient department or in the office, and the data on the medical records will be helpful. The patient's name often carries certain implications pertaining to cultural and environmental backgrounds, nationality, and food habits and customs. The home address offers a clue to the nature of the facilities for the purchase, care and preparation of food, as well as to the conditions favorable to proper sleep, recreation and other health habits.

NUTRITIONAL HISTORY

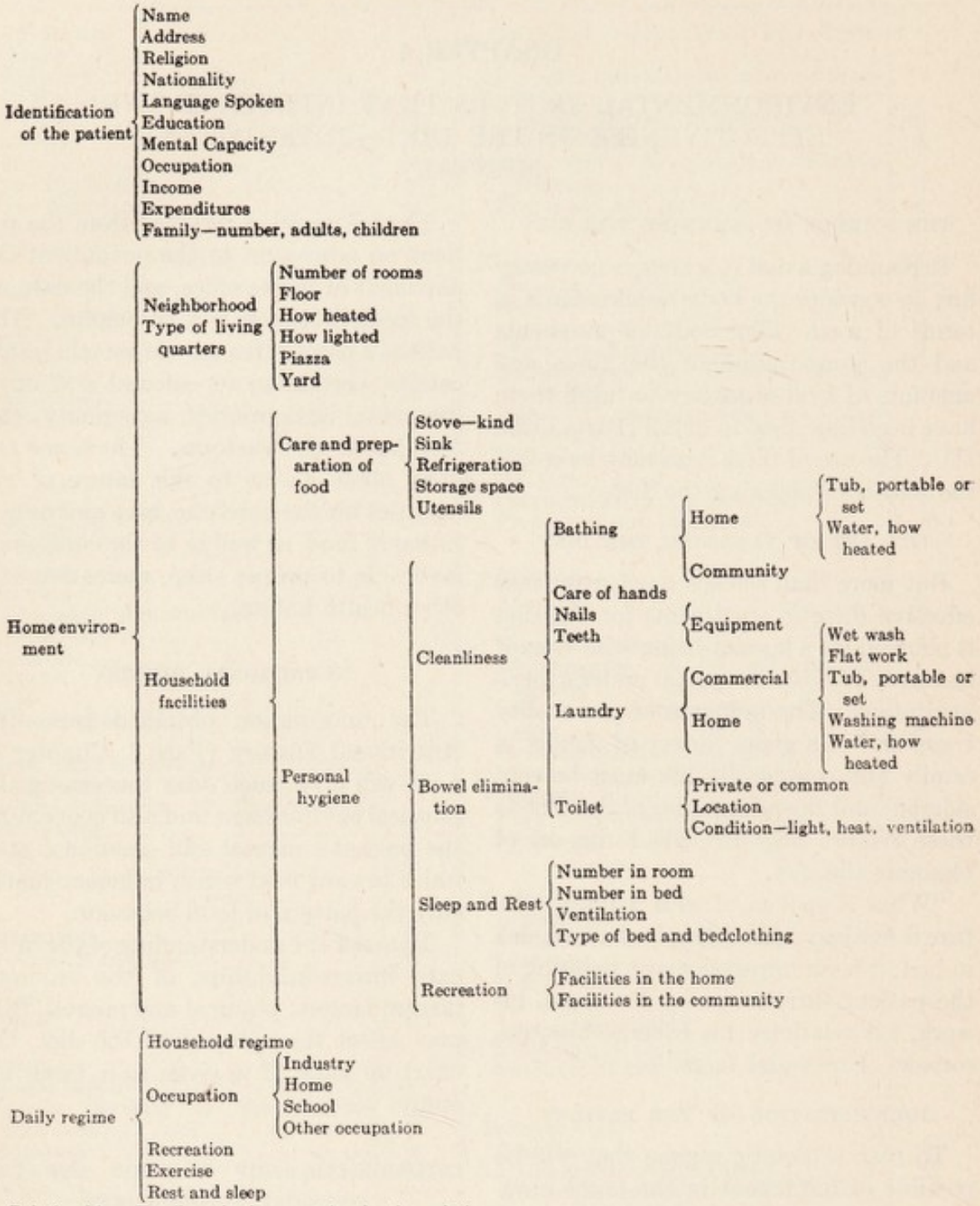
The information obtained from the Nutritional History (Part I, Chapter 2, p. 8) will give much data concerning the physical environment and also concerning the patient's mental and emotional attitudes toward food which influence markedly the pattern of food behavior.

To assist the understanding of the intricate interrelationships of the environmental factors, physical and mental, that may affect the outcome of the diet, the chart on page 32 is given as a basis for study.

INTERRELATIONSHIP OF FOOD AND THE PHYSICAL ENVIRONMENT

Certain of these environmental factors affecting dietary habits will be discussed here, first in terms of their physical aspects. Later it will be shown how these correlate with mental attitudes toward food.

Factors Other than Food that Influence the Diet



The Income

The income controls the standard of living to so great an extent, with respect both to body needs and the satisfactions of life, that it must always be given due consideration in relation to the diet. To judge the adequacy of an income it is necessary, in food treatment as in social treatment, to know the number of people dependent upon it, the basic needs of each

individual and the requirements for fulfilling these needs in accordance with the standards of the individual or family concerned (Part I, Chapter 2).

The necessaries of life, such as food, shelter, clothing, and savings, are closely interrelated in their demands upon the income, and it requires definite planning to keep the outlay for them in proper ratio. It is essential in dietetic treatment to be aware of the extent to which these demands, singly or in combination, may prevent the fulfillment of the body's need for sufficient food. Primary needs cannot be satisfied when the income is below the minimum level of the cost of living. Under such conditions, one or more of these needs will inevitably fall below good health standards.

Food is usually the need that first suffers this restriction. It is true that in diets on all levels of income there are only a certain number of food groups from which to choose; but with the lower level income there are definite restrictions with respect to the kinds and amounts of foods within these groups that can be purchased, and the degree to which desires can be satisfied.

The diet planned at the minimum cost must be followed strictly in accordance with the specifications of the expert who plans it. In fact the diet of minimum cost requires able management and it takes a person of initiative and ability to carry it out successfully. One might call it a border line diet, with little margin for safety.[2] The typical diets and menus given in this book (Part IV) are what would be called "liberal," in terms of income, with respect to the amounts and kinds of foods they allow.

Shelter, the home, should supply suitable facilities and equipment for the care and preparation of food, for maintaining good habits of personal hygiene (including rest and sleep and cleanliness), for recreation, and for satisfying as nearly as possible the desire for wholesome living. The location of the home becomes a factor in relation to income when it entails outlay for lunches and transportation. With the low income, these expenses limit further the money that can be spent to fulfill food requirements. The paragraphs, "Food Within the Home," and "Food Outside the Home" (p. 34) consider further the interrelationship of food and shelter.

Clothing can be considered as the shelter or covering of the body, as the home shelters the family or individual, and thus it affects the physical health. The type of clothing needed varies with the age, sex, size, occupation and activity of the individual, as well as with climatic conditions. Again, the standard that is maintained with respect to health and taste in the matter of clothing influences the expenditure of the income sometimes to the neglect of food. But as "food is more nearly a fixed requirement," it is truly stated by one writer that the less the worker earns the greater the proportion of his income that must be spent for food, to the renouncement of all other desires. On the low income, it is difficult to obtain food for caloric requirements and, in cold weather, sufficient coverings to maintain needful body heat.

Savings gives a sense of security, and this is desirable. However, unless the income is above that necessary to maintain standards of health, the savings may

[2] It is interesting to note in "Diet at Four Levels of Nutritive Content and Cost," Stiebeling and Ward, Circular No. 296, U. S. Dept. of Agriculture, that as the level of income is raised the outlay for milk, fruits, vegetables, meat, fish, poultry and eggs increases, while that for bread, flour, cereals and legumes decreases. "Your Meals and Your Money," by Gove Hambidge, which is an interpretation of the above circular, contains a chart, p. 53, that illustrates graphically this trend in the economics of food consumption.

be carried at the expense of some of the necessaries of life. "Not until they (food, shelter—including light and heat—clothing, and incidentals covering health and cleanliness) have been provided for should anything be set aside under the heading of savings or insurance."[3]

Nationality

Nationality, racial traditions and age-old practices affecting the choice and preparation of food play a large part in determining the eating habits of the family and the individual. To the foreign born facing new and unaccustomed conditions on every hand, not the least difficult problem is that of obtaining sufficient and acceptable food. While many of their native foods can be procured in this country, and can be prepared and served in customary ways, on the other hand subtle but definite influences lead the foreign born gradually to adopt some of the food habits of the new environment. The younger generation, entering the life of the community through school and work, brings back into the home the habits and customs of neighbors and mates, and the family food habits become a fusion of those of the native country with those of the adopted country. All too frequently this makes for an inadequate diet. This is true especially of those who come to live in cities from villages and farm districts where they have always produced much of their own food. Many of these people are to be found in the low income group in this country. With the unwonted demands on their limited funds they naturally turn to the foods that are the cheapest and most filling—the cereal group—with the result that foods are not purchased in proper kinds and amounts for body needs (Table 4).

[3] Taylor, Maurice, *The Social Cost of Industrial Insurance*, Alfred A. Knopf, 1935.

Food Within the Home

A lack of knowledge of ways of purchasing, storing, and preparing food, as well as of food values, conditions the feeding of the family. The ability of the homemaker to choose foods that are economical and yet meet the body needs, and to prepare them in an appetizing manner even with poor facilities, is a most influential factor in the cultivation of good food habits. The cost of fuel, the type and condition of the stove, and the number and kinds of cooking utensils that the family possesses may limit the number of foods that can be prepared at the same meal, as well as the methods of preparation. The means for refrigeration and for storage are other factors in determining the selection, conservation, and preparation of food. If sufficient money is not available, or if the wage earner and not the homemaker controls the purse and the purchase of food, or if there is not storage space, the homemaker cannot take advantage of sales, or practice the economy of buying in large quantities. Sometimes there is no place in the neighborhood where the housewife can buy the desired food economically, while buying in the more distant markets involves the expense of transportation and the carrying of burdensome amounts. Often medical treatment requires that the homemaker shall shop under conditions that will entail least physical strain.

Food Outside the Home

Some members of the family—as the child at school or the adult at work—must frequently eat away from the home. The adequacy of the meal that is carried from the home will again depend largely upon the ability of the homemaker to choose and prepare proper and appetizing food. Perhaps the meal is eaten in the restaurant and the responsibility will lie upon

the individual himself to select food with special thought for the fulfillment of body needs. The greater expense for meals eaten in the restaurant makes a wise choice of food difficult expecially if the cost must be kept at the minimum; and the difficulty is more serious when the individual must eat all of his meals in the restaurant, and becomes complicated indeed when the choice of food must be governed by the requirements of the therapeutic diet.

Even when food is provided in kinds and amounts necessary to fulfill body needs, it cannot serve its purpose successfully unless habits of good personal hygiene are established by the patient to keep the body in fit physical condition.

Sleep and Rest

The quality of sleep and rest is greatly dependent upon the type of the home environment and the regime of the individual and the family. To ensure restful sleep there should be proper sleeping conditions,—comfortable beds with no crowding, clean and suitable bedclothing, proper temperature and ventilation, and the sleeping quarters so arranged that any member of the family who might need or wish to rest during the day or to retire early could do so without being disturbed.

Rest reduces the energy requirement of the body. It is an important factor, therefore, in the dietetic treatment of the underweight. Fatigue induced by overactivity, or lack of proper sleep and rest, may affect the appetite so unfavorably that the food intake will be insufficient for body needs.

Body Cleanliness

While the relation between body cleanliness and food for body needs may seem slight, yet in our modern culture, cleanliness of teeth, hands and nails is associated with food habits. Principles of sanitation and of preventive medicine are also here involved, with their inferences with respect to the relation between cleanliness and communicable disease. To meet the needs of cleanliness as a sanitary measure, adequate facilities should be available in the home, the school, in industry, and in the community at large. The school and community often assume the responsibility of supplying facilities lacking under poor housing conditions, as in the case of the public bath.

Laundry

The cost of supplies for both body cleanliness and laundry must be accounted a definite charge against the income, and estimated in balancing expenditures. Here again care must be taken lest the money necessary for food be encroached upon.

Adequate equipment and materials for laundry or "clean clothes" will also depend largely on the type of shelter or home. Facilities will range from the portable tub and no running water, demanding a heavy output of energy, to the modern set tub with running water, and even the mechanical washing machine and instantaneous hot water. These details greatly influence the demands on the energy of the homemaker. A source of release for the woman of inadequate equipment is the "wet wash" or "flat work" done by the commercial laundry. This again is often a necessary prescription for the patient whose physical condition does not permit severe activity.

Bowel Elimination

Proper habits of bowel elimination are related not only to the kinds and amounts of the food and the fluid intake but also to such factors as the daily regime and the

toilet facilities available in the home and the school or the place of occupation. The toilet that is poorly ventilated, badly lighted, ill heated, in an unfavorable location and inadequate for the number using it, is not conducive to good habits; nor are the hurried breakfast, the morning rush, or conditions and regulations often met in the day's occupation. The factor of time is important. Establishing the habit of a regular bowel movement requires that sufficient time be allowed for it definitely at a period in the day's regime when there need be no feeling of haste.

The Occupation and the Daily Regime

The hours of work, whether at school, or in the home, or in industry, will affect the diet by determining the times for meals, as well as the hours of sleep and the amount of leisure for recreation and other activities. If the hours that a member of the family must follow, with respect to meal time, do not coincide with those of the rest of the household, some adjustment must be made in the home to guard against forming faulty food habits. In school or industry, the facilities that exist for eating,—such as a dining room or equipment for heating food brought from home,—and the amount of time allowed, are factors in determining the type of lunch the individual will have, where and how much he will eat, and how rapidly and with what satisfaction. For the patient on a therapeutic diet these problems are accentuated, and it is necessary to plan carefully for the meals eaten away from home. The degree of activity that the occupation requires will determine the energy requirement, which must be fulfilled by food.

Recreation

Physical fitness for play depends largely upon a proper food intake. The desire for food is dependent in part upon a sense of well being, which in turn is influenced by the maintenance of a proper balance between activity and rest. Recreation should be advantageous to health, stimulating the desire for food; but when it leads to overexcitability or overactivity, it is harmful. Fatigue from such causes must be avoided, especially in the child, lest it affect the appetite and the body's utilization of food. Further, there must be a proper balance between the physical activities of recreation and the food intake to maintain average body weight. Food taken in larger amounts than are required for the body's activities will lead to overweight; while activity with less food than the body requires leads to underweight.

INTERRELATIONSHIP OF FOOD AND MENTAL ATTITUDES

Various environmental factors have been discussed in terms of the physical aspects of their relation to food. But the "impressionistic painting" which Dr. Peabody has urged involves also an understanding of the patient in terms of his mental and emotional attitudes toward food. "Not only must the basal physiological mechanism of the individual be thoroughly investigated; in addition all other factors involved in the personality must be reviewed, all relevant factors in the life situation must be scrutinized and evaluated."[4]

It is especially important to understand the mental life of the child and to help him develop right attitudes toward food, since it has been demonstrated that mental as well as physical habits are developed in childhood that affect the health status throughout the entire span of life.

[4] Campbell, Charles Macfie, *Human Personality and the Environment*, p. 5, Macmillan Co., 1934.

It would be simple if the deviation from the normal in food habits or in personal hygiene could be traced to a single causal factor. Rarely can this be done. Behavior in relation to food is often a matter of interplay between the physical and emotional life. The motives may be hidden in a condition or a combination of circumstances seemingly unrelated or only indirectly related to food and consciously or unconsciously guarded by defensive attitudes that are difficult to penetrate.

Eliot stated (1933)[5] that she could find no report of experimental or descriptive data in respect to the relationship between eating habits and personality traits. There is evidence of increasing interest in this subject and many studies made by graduate students are now available. However, there is need of much further research, and meanwhile the principles of psychology and psychiatry and the various other sciences basic in the field of mental hygiene must be relied upon for help in interpreting food in its significant social implications, or in estimating rightly the influence of mental attitudes upon food habits.

An understanding and appreciation of mental attitudes and social settings, when developing a dietary plan with the patient, will make for more intelligent coöperation with others who are participating in his treatment. There must, of course, be a differentiation between cases in which a few suggestions to the patient will solve the problem and those where a penetrating and systematic analysis of personality must be undertaken.

The patient himself must be led to understand the problems that his situation presents, and the significance of his attitude toward food, to the end of developing in himself a sense of responsibility toward the solution of his difficulties, and a desire to follow a plan for an adequate diet.

The Income and the Necessaries of Life in Relation to Mental Attitudes

When an inadequate income or loss of employment entails living conditions that are unsatisfactory, limits the outlay for food, for the home and household facilities and for clothing, and threatens the sense of security that the possession of savings gives,—these limitations in the physical environment often produce unhappy mental and emotional reactions. Harassed with fear and worry over the future for himself and his family, frustrated in many ways, resentful, discouraged to the point of indifference, with loss of faith in the possibility of a better future, the patient can make but little effort to help himself in the plan for dietetic treatment. "The stress of a psychological situation influences emotions, alters the direction of thought, modifies the code of values."[6] "Why make a plan for me?" the patient will say. "Where am I to get the food? What is the use of planning a diet when there is no money to pay for food?"

The individual of independent spirit strives to maintain as long as possible the standards of living that are visible to the world,—those related to place of residence and type of clothing. Only he and his family need know what food they are consuming and whether in adequate quantities. From a feeling of pride or shame the child or adult may describe his diet not in terms of what he is eating but what

[5] Eliot, Abigail, *Eating Habits in Relation to Personality Development of Two and Three Year Old Children: A Study of 69 Children in Two Nursery Schools.* Genetic Psychology Monographs, Vol. XIII, No. 5, Clark University, Worcester, Mass., May, 1933.

[6] Campbell, Charles Macfie, *Human Personality and the Environment*, p. 5, Macmillan Co., 1934.

he thinks his food habits should be; or with a hostility born of sensitiveness he may resent questions concerning his diet and begrudge giving information. Such attitudes impede dietetic treatment, which cannot become effective until the patient can assume a more normal mental state and is willing to discuss his situation frankly.

The young people of the family who go out to work acquire a feeling of independence because of the financial contribution they make to the household. This may lead to greater coöperation in achieving and maintaining higher dietary standards with which the parents are in sympathy; but it may be a source of constant disturbance and dissension concerning money and ways of living. The independent young girl often arouses conflicts in the family concerning her diet, when in her desire to maintain a certain weight she persists in food practices harmful to health.

Nationality

Similarly racial customs and religious laws pertaining to food tend to exert an important influence on the emotional life. There is a constant feeling of discontent in the elders, for example, when the home is not near the markets from which accustomed foods can be obtained. Within the home, conflicts arise when the young people become critical or hostile and irreverent toward food customs cherished by their elders. Sensitive concerning accustomed food habits and fearful that they will be misunderstood, a patient often becomes unhappily self-conscious when describing his food intake, and may even deny certain food usages characteristic of his race. In planning the diet with the patient who prefers his food prepared in the traditional ways, care must be taken to adhere to the accustomed foods or methods of preparation in order to avoid arousing disapproval, distrust or resentment.

The use of certain foods is associated with religious and historical holidays, and the patient becomes unhappy at the thought of being restricted in his choice of food on such occasions. This attitude changes to one of pleasure and interest in his diet when it is demonstrated by a display of foods that he need not feel set apart from his family at such times but can share in the feast without exceeding his diet (Part I, Chapter V).

In the social life without the home, food customs often cause unfavorable emotional reactions. The patient may not like to eat with others than his own group, or out of loyalty to religious laws he may feel that he cannot eat where these are not observed. He may be reluctant to display a lunch containing foods that are distinctive of his race or religion to a group whose food customs are different from his own. A feeling of timidity, insecurity or resentment may be aroused in him, as in the case of other economic or social differences, and in self-defence he purchases a lunch that conforms to those of his companions, although it may be less desirable and more expensive than he can afford. His choice of place for spending vacation periods may be limited by the same considerations.

Language difficulties due to unfamiliarity with the language of the adopted country limit the patient's contacts and his understanding of practices other than his own. These restrictions give rise to feelings of inferiority or frustration which often make for conflict in the family life. In the clinic, when the patient does not understand directions and perhaps cannot make himself articulate, he again feels that he is being limited in the participation of what is of vital concern to him.

It will be shown how, in the interests of developing a favorable attitude toward the diet and dietary directions, the patient is helped to overcome these difficulties of language, with their effects of confusion, antagonism, futility, and the discouraging sense of being misunderstood (Part I, Chapter V).

Sleep and Rest

The quality of sleep and rest affect one's mental and emotional reactions to a considerable degree. Often, it is not a dislike of food that is the disturbing factor in the behavior of the child who will not eat his meal, but irritability due to overactivity or insufficient rest, or both, for these are among the primary causes of lack of appetite in both child and adult.

Body Cleanliness

Even though body cleanliness may be no more than an aesthetic consideration, it induces the feeling of well being which, in turn, is reflected in the enjoyment of food.

With wise guidance, adaptation of facilities and the establishment of a daily regime the child can be led to develop proper habits of cleanliness as a matter of routine and to practice them contentedly and with pride. But when the mother or adult resorts to nagging, struggle or punishment in training the child to habits of cleanliness, the unhappy mental state produced in the child may affect the appetite unfavorably, and is very likely to do so if the unpleasant situation occurs just before a meal time. Moreover, in developing habits of cleanliness it is most unwise to use food as a means of discipline and so to invest it with unhappy associations.

Bowel Elimination

Because of social taboos, an atmosphere of shame and false modesty has been created with respect to the processes of urination and bowel elimination. In taking a nutritional history it usually becomes evident that in most family circles the correct names for the body parts and their functions are avoided, and names with little or no meaning are substituted to disguise reference to them. This retards a proper understanding of these processes. False standards are often created, and emotional disturbances are associated with the organs of excretion. The patient develops an attitude of reserve, and even of shame, with regard to them, which is often inhibiting to the proper functioning of the body. The dietary can hardly overcome these conditions.

The Occupation and the Daily Regime

A lack of interest in or of a desire to follow a suggested dietary procedure or hygienic regime is often due to unhappiness in conditions of work. An unpleasant situation faces the child at school or the worker at his trade, and mental or emotional disturbances are created that may manifest themselves in divers undesirable patterns of behavior. Emotional distress may be expressed overtly, seemingly without relation to cause, in the form of food dislikes. Often a food idiosyncrasy, an unwholesome attitude toward food can be traced to such deep-lying causes. They may represent an escape from an intolerable life situation. And when these attitudes are carried into the home they may have a disturbing effect upon family food habits. It is important, then, to know whether the child is reasonably successful and happy in his school life, in his work and in his friendships; whether the worker's position holds a promise for future advancement, provides pleasant human relationships and compensation adequate to

maintain positive health, mental as well as physical.[7]

The nervous breakdown of the housewife is likely to be due to maladjustment resulting from a sense of inferiority with regard to her work, which is often expressed in overanxiety, worry, discontent, imaginary illnesses, fear of disease, or a food dislike. She may become indifferent to good dietary standards to the point of being indulgent to herself and her family, and cease to set an example with respect to an intelligent dietetic and hygienic regime.

The child's life is regimented to a great extent by food. The infant becomes aware, through hunger pangs, of his need of food, and derives contentment when that is satisfied. The various factors that have already been considered as a part of the day's regime,—activity, habits with respect to sleep, play and body cleanliness,—all affect the child's attitude toward food. The healthy, happy child, with good health habits, comes to his meal with a zest for food, and partakes of it in the same spirit in which he carries on the other activities of his day's work and play. These desirable behavior patterns with respect to food must be carefully cultivated from earliest childhood, not only to satisfy nutritional needs but as a foundation for right attitudes towards food in later life.

But there is another picture, well known, of the child who becomes resistant and resentful at the call to stop his play and "wash up" in preparation for meal time; or the child who indulges in food idiosyncrasies, and dawdles in eating, perhaps daydreaming, making of the meal time a period when he can profitably act the dictator, or using it as a device for securing undue attention. Under such conditions meal time awakens undesirable attitudes that provoke irritability, anger and unhappiness, with ill effects not only for the child himself but for the rest of the family.

The meal time should be a means of developing a healthful attitude toward food. Here, as in other situations, the child looks to the adult for an example of behavior as well as for encouragement, and the adult will often find in the child's attitude toward food a reflection of his own. Modern health education is making of the school lunch, from the nursery school onward, a means for cultivating good food habits in an atmosphere of happiness and in a spirit of coöperation on the part of both child and adult.

Recreation

For the adult and the child, recreation and play contribute to the feeling of well being, and there is usually greatest enjoyment of food after zestful activity. But play or recreation may be a source of disappointment and unhappiness, due perhaps to lack of skill or to physical disability. Often feelings of shame, jealousy, and timidity or insecurity as to status in the group are engendered, extending perhaps to underestimation of the ability for accomplishment in other fields and leading to withdrawal from social contacts. Under these conditions undesirable personality traits develop that may become manifest in apparent inability to eat, or in refusal of food as a form of reprisal.

Today there is happily a healthier tendency to enter into group play and recreation with the purpose of correcting or compensating for some deficiency, either physical or mental, and through new interests and associations to overcome self-

[7] Stern, Frances, The Nutritionist Looks at Mental Hygiene, *Mental Hygiene*, Volume XIV, No. 1, January, 1930.

indulgence and whims, including food idiosyncrasies, and to pursue a normal life including a normal diet.

In the use of the Nutritional History (Part I, Chapter 2), every-day situations such as these that have been suggested are scrutinized carefully. Commonly looked upon as routine matters they are found to have definite relationship to food behavior. Many other such factors than are referred to here would suggest themselves in the study of patients individually.

Food is an integral part of the patient's life. The pattern of his food behavior, good or poor, favorable or unfavorable to dietetic treatment, is the product of his background,—his environment, training and reaction to experience. Clearly, knowledge of his physical needs and of the foods that fulfill them is not sufficient; it is of greatest importance to understand the pattern of his food behavior in the light of social settings. Always the distinctive food habit will be found to have a much deeper significance than appears on the surface. It is symptomatic, conditioned by life situations. When the Nutritional History records attitudes of resistance, resentment, or frustration, their cause must be found before they can be overcome. It should be known for what purpose the patient is using food other than to satisfy normal needs and desires.

For those who are engaged in the study and interpretation of human personality, herein lies opportunity to supply scientific data. A closer correlation of the observations and findings of the various groups having a common interest in these studies should yield much of benefit in the treatment of the patient. In applied dietetics this material would be of increasing importance.

SUMMARY OF THE FACTORS OTHER THAN FOOD THAT INFLUENCE A DIET

Income and Expenditure: The income controls the standard of living to so great an extent, that it must always be given due consideration in relation to the diet. Because of the close interrelationship of the necessaries of life, it is essential to be aware of other demands which so often prevent the fulfilment of the body's needs for food.

Nationality: Racial stock, traditions and age old practices affecting the choice and preparation of food play a large part in determining the eating habits of the family and the individual.

Education: Language and mental capacity determine the method of teaching, and affect the ability of the person to learn the food values.

Food Within and Outside the Home: A lack of knowledge of ways of purchasing, storing and preparing food, and of food values conditions the feeding of the family. The adequacy of the meal which is carried from the home or eaten in the restaurant will also depend on the thought given to the fulfilment of the body needs for the day as well as the amount of the income.

Sleep and Rest: Insufficient rest or sleep causes conditions such as fatigue and irritability that affect the appetite unfavorably.

Body Cleanliness: Body cleanliness is associated with good food habits and is important in the practice of preventive medicine.

Bowel Elimination: Proper habits of bowel elimination are related not only to the kinds and amounts of the food and fluid intake but also to such factors as the daily regime and the toilet facilities.

The Occupation and the Daily Regime: The hours of work will affect the en-

joyment of the diet by determining the times for meals as well as other activities.

Recreation: Physical fitness for play depends largely upon a proper food intake. Activity should not result in excessive fatigue. Recreation contributes to a feeling of well being and there is usually enjoyment of food after zestful activity.

Interrelationship of Food and Mental Attitude: The pattern of food habits is usually significant of certain mental attitudes influenced by life's situations which must be understood and taken into consideration when developing a dietary plan.

CHAPTER 5

THE EDUCATION OF THE PATIENT ON THE NORMAL DIET

The fulfillment of the diet plan depends to a great extent upon the successful education of the patient in the principles underlying his diet. These must be presented to him clearly and simply.

GAINING THE CONFIDENCE AND CO-OPERATION OF THE PATIENT

To obtain the comprehensive knowledge of the patient that is essential in teaching him in relation to his needs, it is important to have his confidence and coöperation, and these he will give in response to a kindly approach and sympathetic interest. Helped further by an understanding of human relationships, one should be able, in taking the nutritional history (Part I, Chapter 2), to form the desired picture of the patient as a whole—his personality and intelligence level, his daily régime and environmental conditions.

In discussing with him his special interests and leading him to talk freely of his daily life, friends and family, much helpful information can be secured without direct questioning. One should be able to recognize the presence of inhibitions or disguised motives, as when the patient wishes to cover poverty or other unsatisfactory living conditions; for the information upon which the diet is based must be accurate or it will obstruct correct dietetic treatment.

Furthermore the surroundings in which treatment is given will affect the patient's attitude. Posters and pictures illustrating fruits, vegetables, the grains, or a principle of hygiene, by possessing artistic merit enhance interest in and the desirability of the health practices which they suggest. The Russian samovar, the coffee pot of the Near East countries, the Italian pottery and other household objects, of artistic as well as of cultural value, are evidence to the foreign-born patient that the crafts and customs of his native country are appreciated. Pictures and other objects of interest can be chosen that besides being decorative will have definite value both for direct and indirect teaching.

A room that is attractively decorated, and which gives opportunity for a private, unhurried conference in a quiet, friendly atmosphere will induce the patient to speak freely and frankly. These desirable conditions can be provided in office and clinic, and will have the effect of stimulating the patient to greater cooperation in constructing the plan of his dietetic treatment.

AROUSING AND SUSTAINING INTEREST

The patient must acquire the information that will enable him to carry out his diet at home intelligently and faithfully. Moreover, he must be actuated to apply the knowledge he gains to the formation of desirable habits. And on return visits, praise for progress, and encouragement in overcoming his difficulties, should help to sustain his interest and give him inspiration for successful accomplishment.

In the following pages methods and means are presented for teaching the patient. The extent and manner of using this material will depend upon the patient's intelligence level, his actual knowledge, what it is desired to accom-

plish in his behalf and the time that can be devoted to his instruction. The teaching procedure described here follows logically the points considered in Part I, Chapter 2. However a different method does not preclude the use of the materials or suggestions given herein.

APPROACH TO THE PATIENT

The *method of approach* to the patient will be determined by what is learned in conference with him.

The content of necessary knowledge should be developed slowly with the average patient, to be certain that he is learning and applying the information gained. So far as possible the patient's own knowledge and experience should be used, because it will give him a feeling of security to start from the known and gradually proceed to the unknown. The process of his education will often extend over many visits, the points made being continually reemphasized and new ones advanced.

Language difficulties, as with the patient who is foreign born, call for special aids in teaching, such as food models or food pictures, to help visualize the foods that may be used. Books contain helpful pictures, and magazines and catalogs will furnish illustrations that can be pasted into a notebook for convenient reference. Such illustrations help the patient to identify foods which, though familiar to him, he does not recognize by their names in the unknown language.

When it is necessary to make use of an interpreter it is especially important to visualize directions as far as possible, so that the patient may understand them, at least in part, and not have to depend wholly on the interpreter.

The *child and the mother* should, if possible, make the first visit together when the child is the patient, since the child is dependent on the home to supply his needs. The conference with them should yield insight into the home conditions, the relation between mother and child and the child's relations to other members of the family, upon which so much of the ultimate success of the diet plan depends. Both mother and child should understand the principles underlying the diet, and have a common interest, a unity of purpose, in fulfilling the requirements. A spirit of domination on the part of either is to be deprecated. Lest the child become introspective he should be helped to feel that he can participate as usual in the general family life.

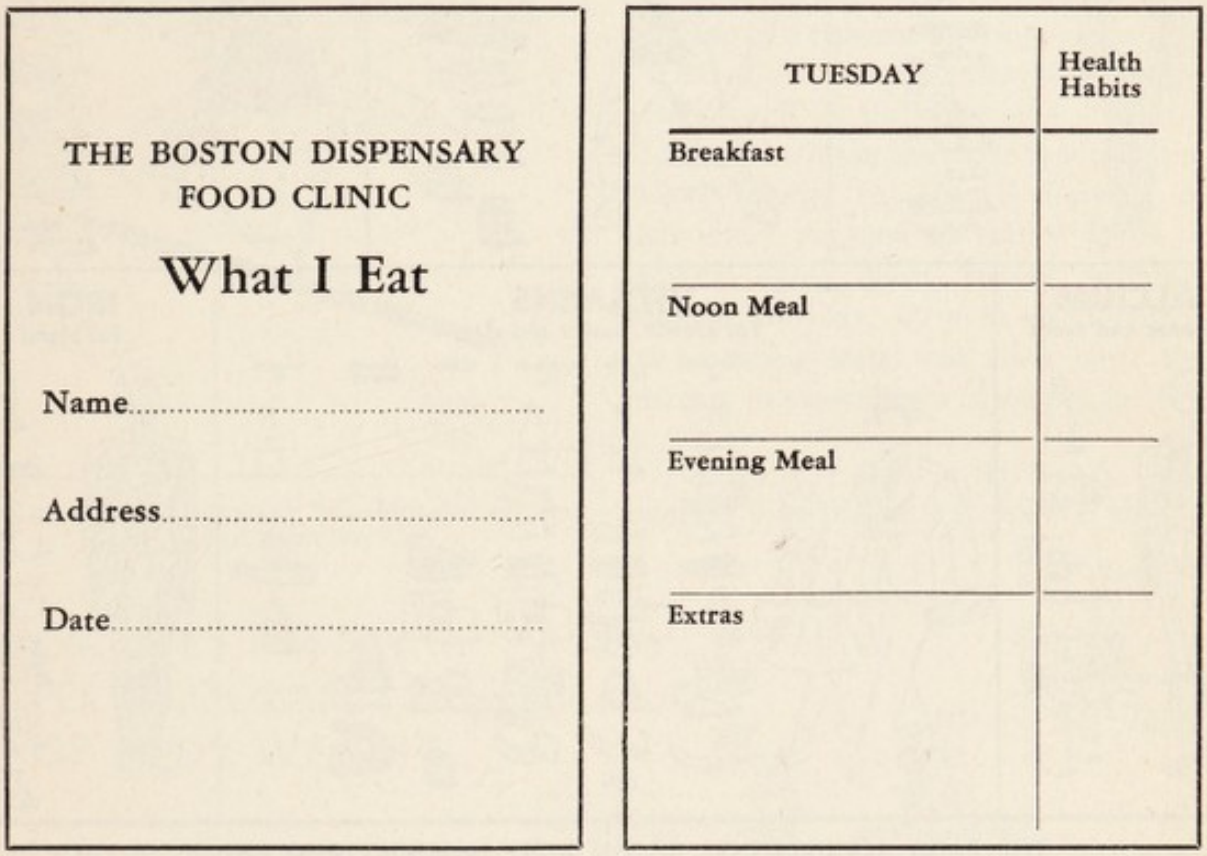
Methods of teaching the child should be adapted to his intelligence level. Illustrative materials—pictures, games, stories, handwork, experiments and exhibits that utilize the child's interests and experience—are of great value. By these means, and in words that he can understand, the child can be taught the body's needs, the food constituents and how food serves the body,—just as the adult is taught them in more advanced terminology. Helpful methods of teaching these principles have been evolved, with illustrative materials, in a series of lessons for children published under the title, How to Teach Nutrition to Children.[1]

Other members of the household upon whom the patient may be dependent for the preparation of his food should also be given directions at first hand rather than only through explanation by the patient.

The patient is often asked to keep a record of what he eats, and it is desirable that he should have a special booklet to serve as a food diary (p. 45). He will

[1] Pfaffmann and Stern, How to Teach Nutrition to Children, M. Barrows and Co., New York, 1942.

assign a greater importance to the diet when recorded in such form and will feel a keener desire to coöperate. While a record of this type will not be definite enough for exact computation of the diet, it will show the trend of the patient's eating habits, and whether he understands his diet and is carrying it out.


THE BOSTON DISPENSARY
FOOD CLINIC

What I Eat

Name.....

Address.....

Date.....

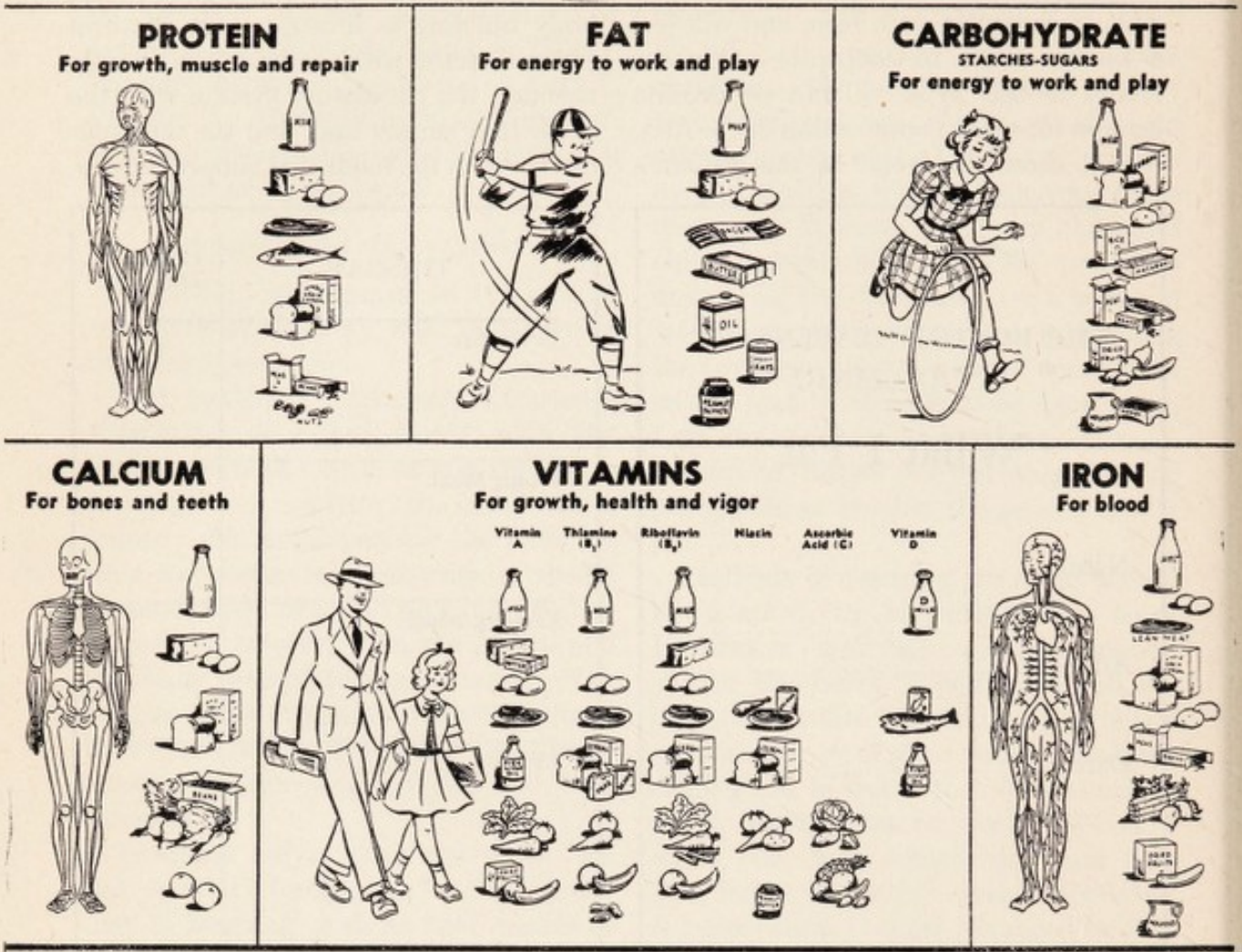
TUESDAY	Health Habits
Breakfast	
Noon Meal	
Evening Meal	
Extras	

The Food Diary (Actual dimensions, 5″ x 3¾″.)

CONFERENCE WITH THE PATIENT

The *relation of food to the body* is developed with the patient as the guiding consideration in planning and carrying out a diet. The patient is led to understand that food and the body are composed of like materials, and that the body builds itself by transference to itself of like materials from food. He learns the terms: carbohydrate, protein, fat, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid, and vitamin D. The need of food for body building is illustrated by pictures of the skeleton with the foods that supply calcium, the circulatory system with the foods that supply iron, and the muscular system with the foods that supply protein. The need of food to supply energy for activity is interpreted by pictures showing the body at work and play, and the foods that supply carbohydrate and fat. Likewise, a picture showing the healthy, vigorous body and the foods that supply the various vitamins illustrates the need of selecting foods that promote health, vigor, and growth (p. 46).

Such pictures or charts help the patient to realize also that certain foods—milk, for example—serve several body needs. He will see this more clearly if the foods are arranged in the same order in each picture rather than in the order of their



THE DAILY REQUIREMENTS OF THE BODY — ADULT AND CHILD*

1 ounce=30 grams — 1 milligram=1/1000 gram — 1 microgram=1/1000 milligram — 1 kilogram=1000 grams (2.2 lbs.)

	Protein Grams	Fat Grams	Carbohydrate Grams	Calcium Grams	Iron Milligrams	Vitamin A I. U.	Thiamine Micrograms	Riboflavin Micrograms	Niacin Milligrams	Ascorbic Acid Milligrams	Vitamin D I. U.
ADULTS: Moderate Activity											
Man (154 pounds) or 70 kilograms	70	135	375	.8	12	5000	1800	2700	18	75	—
Woman (134 pounds) or 60 kilograms	60	111	312	.8	12	5000	1500	2200	15	70	—
Pregnancy	85	101	312	1.5	15	6000	1800	2500	18	100	400-800
Lactation	100	122	375	2.0	15	8000	2300	3000	23	150	400-800
CHILDREN:											
Under 1 year				1.0	6	1500	400	600	4	30	400-800
1-3 years	40	49	150	1.0	7	2000	600	900	6	35	—
4-6 years	50	66	200	1.0	8	2500	800	1200	8	50	—
7-9 years	60	84	250	1.0	10	3500	1000	1500	10	60	—
10-12 years	70	107	312	1.0	12	4500	1200	1800	12	75	—
GIRLS:											
13-15 years	80	120	350	1.3	15	5000	1400	2000	14	80	—
16-20 years	75	100	300	1.0	15	5000	1200	1800	12	80	—
BOYS:											
13-15 years	85	140	400	1.4	15	5000	1600	2400	16	90	—
16-20 years	100	166	475	1.4	15	6000	2000	3000	20	100	—

* *Adapted from recommendations of the Food and Nutrition Board of the National Research Council*

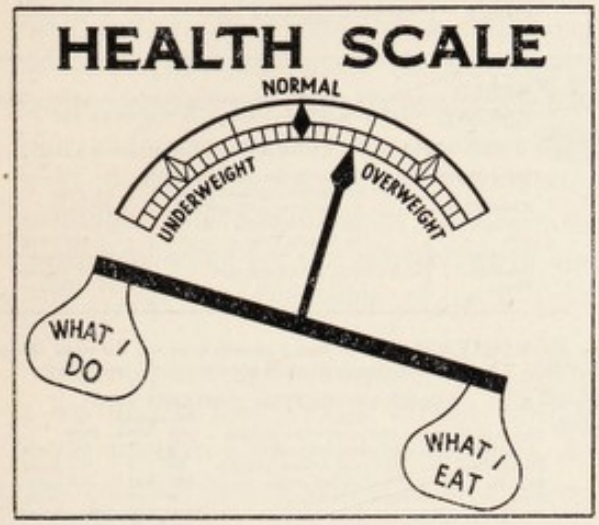
FOOD CONSTITUENTS	AMOUNTS PER DAY PER KILOGRAM OF BODY WEIGHT	
	ADULT	CHILD
Protein	⅔ to 1½ grams	2 to 3 grams
Fat	1 to 2 grams	2 to 3 grams
Carbohydrate	4 to 6 grams	6 to 10 grams

FEED YOUR BODY TO PROTECT YOUR HEALTH

Notice the relation between the body and food, the same substances are in both.

relative values as sources of the various food constituents. (See illustration, p. 46.)

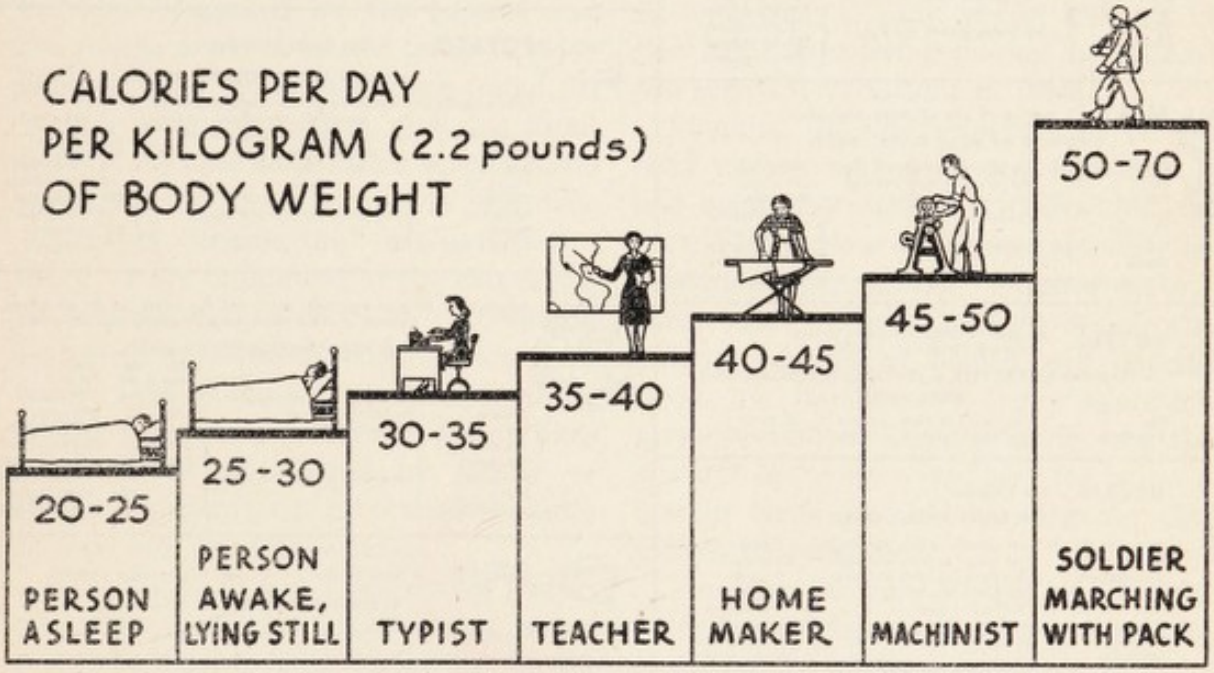
The *balance between the food intake and body needs for activity* is demonstrated.



THE BALANCE BETWEEN THE FOOD INTAKE AND BODY ACTIVITY

satisfy the greater energy requirement or the body will be forced to use its own substance; and on the other hand, that if the food intake is greater than is required for the energy output, the excess will be stored in the body. This relationship may be illustrated by a picture or a drawing of a balance showing on one side "What I Do," representing the body's activity and on the other side, "What I Eat," representing the foods to supply the needed energy (p. 47). A drawing of individuals engaged in graded types of activity—lying down, sitting, walking, running, at play, at work—and placed on ascending steps will make clear the increase in expenditure of energy (p. 47).

The *choice of foods to fulfill body needs* requires that the patient shall be able to



ENERGY OUTPUT CHANGES DUE TO INCREASING MUSCULAR ACTIVITIES

The patient is led to see that a certain balance must be maintained between the food required to fulfill the body's energy needs and the food intake. He sees that when the activity of the body is increased, the food intake must be increased to evaluate foods as to their various contributions to the body.

The protective diet, which has been described (Part I, Chapter 2), may be used as the basis for teaching the patient the foods that he should choose daily in



MILK

4 glasses every day for the child
2 glasses every day for the adult

1 GLASS OF MILK GIVES:

Protein (complete)	for growth, muscle and repair	8 grams
Fat	for energy to work and play	10 grams
Carbohydrate	for energy to work and play	12 grams
Calcium	for bones and teeth	.283 gram
Iron	for healthy blood	.5 milligram
Vitamin A	for health, growth and vigor	461 Intern'l Units
Thiamine	for health, growth and vigor	125 micrograms
Riboflavin	for health, growth and vigor	523 micrograms
Niacin	for health, growth and vigor	.22 milligram



CHEESE

American (Cheddar) Cheese

1 OUNCE OF AMERICAN CHEESE GIVES:

Protein (complete)	for growth, muscle and repair	7 grams
Fat	for energy to work and play	10 grams
Calcium	for bones and teeth	.279 gram
Iron	for healthy blood	.3 milligram
Vitamin A	for health, growth and vigor	450 Intern'l Units
Thiamine	for health, growth and vigor	7 micrograms
Riboflavin	for health, growth and vigor	165 micrograms
Niacin	for health, growth and vigor	.06 milligram



CHEESE

Cottage Cheese (skim milk)

1 OUNCE OF COTTAGE CHEESE GIVES:

Protein (complete)	for growth, muscle and repair	6 grams
Calcium	for bones and teeth	.025 gram
Iron	for healthy blood	.3 Milligram
Vitamin A	for health, growth and vigor	53 International Units
Riboflavin	for health, growth and vigor	84 micrograms



EGG

One, preferably, every day

1 EGG GIVES:

Protein (complete)	for growth, muscle and repair	7 grams
Fat	for energy to work and play	5 grams
Calcium	for bones and teeth	.027 gram
Iron	for healthy blood	1.5 milligram
Vitamin A	for health, growth and vigor	500 Intern'l Units
Thiamine	for health, growth and vigor	75 micrograms
Riboflavin	for health, growth and vigor	125 micrograms
Niacin	for health, growth and vigor	.03 milligram



MEAT

1 serving of one of these every day *

4 OUNCES OF MEAT GIVES ABOUT:

Protein (complete)	for growth, muscle and repair	20 grams
Fat	for energy to work and play	26 grams
Calcium	for bones and teeth	.012 gram
Iron	for healthy blood	2.8 milligrams
Thiamine	for health, growth and vigor	180 micrograms
Riboflavin	for health, growth and vigor	240 micrograms
Niacin	for health, growth and vigor	9.44 milligrams

* If non-fatty fish are used, extra fat can be added to the diet



BUTTER

At least 3 level teaspoons a day (about ¼ pound a week)

3 TEASPOONS OF BUTTER or FORTIFIED OLEOMARGARINE GIVES ABOUT:

Fat	for energy to work and play	12 grams
Vitamin A	for health, growth and vigor	405 Intern'l Units



CREAM

Light Cream

½ CUP LIGHT CREAM GIVES:

Protein (complete)	for growth, muscle and repair	4 grams
Fat	for energy to work and play	24 grams
Carbohydrate	for energy to work and play	6 grams
Calcium	for bones and teeth	.112 gram
Iron	for healthy blood	.2 milligram
Vitamin A	for health, growth and vigor	1416 Intern'l Units
Thiamine	for health, growth and vigor	40 micrograms
Riboflavin	for health, growth and vigor	200 micrograms



FATS—Other Sources

3 teaspoons a day for the child
6 teaspoons a day for the adult

6 TEASPOONS OF THESE FATS GIVE ABOUT:

Fat	for energy to work and play	15 grams



LEGUMES

Dried beans, peas, lentils, peanuts

2 TABLESPOONS LEGUMES, DRIED, GIVE ABOUT:

Protein (incomplete — supplement with a complete protein)	for growth, muscle and repair	7 grams
Carbohydrate	for energy to work and play	18 grams
Calcium	for bones and teeth	.004 gram
Iron	for healthy blood	3.1 milligrams
Thiamine	for health, growth and vigor	153 micrograms
Riboflavin	for health, growth and vigor	98 micrograms
Niacin	for health, growth and vigor	.85 milligram



BREAD CEREAL

At least 3 slices of whole grain or enriched bread every day
Whole grain or enriched cereal at least once a day

1 SLICE OF BREAD OR 1 SAUCE DISH OF CEREAL GIVES ABOUT:

Protein (incomplete — supplement with a complete protein)	for growth, muscle and repair	3 grams
Carbohydrate	for energy to work and play	15 grams
Calcium	for bones and teeth	.015 gram
Iron	for healthy blood	.6 milligram
Thiamine	for health, growth and vigor	96 micrograms
Riboflavin	for health, growth and vigor	54 micrograms
Niacin	for health, growth and vigor	.62 milligram



VEGETABLES

At least 2 servings every day. For safety include a green or yellow vegetable which contains vitamins and minerals

1 SAUCE DISH OF THESE VEGETABLES GIVES:

		Carrots	String Beans	Tomato	
Protein (incomplete—supplement with a complete protein)	for growth, muscle and repair	1	3	1	grams
Carbohydrate	for energy to work and play	10	8	4	grams
Calcium	for bones and teeth	.045	.065	.007	gram
Iron	for healthy blood	.6	1.4	.6	milligrams
Vitamin A	for health, growth and vigor	6000	1000	1000	Intern'l Units
Thiamine	for health, growth and vigor	100	75	75	micrograms
Riboflavin	for health, growth and vigor	90	110	45	micrograms
Niacin	for health, growth and vigor	1.47	.64	.58	milligrams
Ascorbic Acid	for health, growth and vigor	4	25	22	milligrams



POTATO

One Potato Every Day

1 LARGE WHITE POTATO GIVES:

Protein (incomplete — supplement with a complete protein)	for growth, muscle and repair	4 grams
Carbohydrate	for energy to work and play	38 grams
Calcium	for bones and teeth	.022 gram
Iron	for healthy blood	2.6 milligrams
Vitamin A	for health, growth and vigor	60 Intern'l Units
Thiamine	for health, growth and vigor	200 micrograms
Riboflavin	for health, growth and vigor	80 micrograms
Niacin	for health, growth and vigor	2.36 milligrams
Ascorbic Acid	for health, growth and vigor	20 milligrams



FRUIT

At least 2 servings every day. For safety include an orange, tomato or other citrus fruit supplying ascorbic acid

1 SERVING OF THESE FRUITS GIVES:

		Orange	Apple	Banana	
Carbohydrate	for energy to work and play	13	14	24	grams
Calcium	for bones and teeth	.024	.007	.008	gram
Iron	for healthy blood	.4	.4	.6	milligram
Vitamin A	for health, growth and vigor	225	72	350	Intern'l Units
Thiamine	for health, growth and vigor	110	40	50	micrograms
Riboflavin	for health, growth and vigor	50	30	76	micrograms
Niacin	for health, growth and vigor	.22	.50	.62	milligrams
Ascorbic Acid	for health, growth and vigor	54	6	5	milligrams



SUGAR

6 level teaspoons every day (½ pound a week)

3 TEASPOONS OF SUGAR GIVE:

Carbohydrate	for energy to work and play	15 grams



MOLASSES

3 TEASPOONS OF MOLASSES GIVE:

Carbohydrate	for energy to work and play	10 grams
Calcium	for bones and teeth	.007 gram
Iron	for healthy blood	2.8 milligrams

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his diet to insure adequacy. The patient may be given a written or printed list of the foods included in it,—milk, eggs, meat, butter, fruit, vegetables, whole grain or enriched bread and cereals, and sugars. It should state the food constituents each food contains, how each helps to protect the health of the body and the amounts of each necessary to help to insure protection. Or the foods may be illustrated with pictures accompanied with statements of the amounts of the various foods necessary for the protection of the body, and the functions of each food (p. 48).

Sometimes a patient is able, when given a list of the food values of the various foods in terms of average servings, to compute his diet in grams of food necessary to meet the food prescription (Table 15). However, in most cases the diet must be computed for the patient and the results given to him in terms of servings of food. It is sometimes found, in talking with the patient, that his usual food intake does not contain certain foods necessary for the adequacy of the diet, —perhaps because they are not customary, or are unfamiliar or too expensive, or because he dislikes them. He should be helped to realize the contribution these foods make to the diet so that he will be willing to include them. Food likes and dislikes as molded by family or religious customs also influence the choice of food and the food intake.

The *cost* of food is a restricting factor, and when food money is limited or seems not to be wisely spent, the patient should be helped to see how he can plan more judiciously his expenditures for food. To this end, he may be asked to keep a week's record of the kinds and amounts of food he purchases, with the costs. A special form for this purpose, arranged to show the patient what to record, is advisable and will impress him with the importance of keeping the record accurately (pp. 50–51).

The money that the patient's income will allow him to spend for food must be known; for upon this will depend to a certain extent the choice of food for the diet. The amount of money available must be considered in relation to the number of people for whom it must provide; for although in itself it may seem a large sum, when divided among the number in the family the allowance per person may be inadequate.

To help the patient to plan his food purchases in terms of the kinds and amounts of food that he needs, the various factors that influence the prices of food should be known, such as the quality of the food, the quantity to be purchased and whether to purchase in bulk or in package, the existing market prices and the seasonal variations in price.

Planning the best expenditure of the food money cannot be accomplished in one conference with the patient or the person who plans and purchases for the household, but usually requires several conferences. The extent to which the patient can be so helped will depend upon his intelligence, the coöperation given by himself and his family and the amount of money available—for below a certain level of cost an adequate diet cannot be purchased.

The chart on page 52 will be a helpful guide in ensuring the purchase of an adequate diet at minimum cost.

The *composition* of a food, or what it contains for body needs, should be considered along with its cost,—and that is the conception which the patient should learn to hold in order to secure the greatest value for money expended. Often,

FORM FOR PATIENT TO RECORD THE WEEK'S EXPENDITURES FOR FOOD AND FOR OTHER NECESSARIES OF LIFE

Name How many adults in family? How many children?

Amount and Cost of Food for the Family

Food	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Total Cost
Milk								
Cheese								
Egg								
Meat								
Fish								
Dried peas and beans								
Butter								
Other fats								
Peanut butter								
Fruit, citrus other fresh dried								
Vegetables, leafy root others								
Potatoes								
Bread, whole grain white (enriched) Flour Crackers, whole grain white Cereals, whole grain white (enriched)								
Sugar, brown white								
Molasses Other sweets								
Beverages, cocoa coffee tea								
Seasonings, Condiments, Yeast, Baking powder								

FORM FOR PATIENT TO RECORD THE WEEK'S EXPENDITURES—*Continued*

FOOD MONEY

Name _____ B. D. # _____

Address _____

Date

S. S. in B. D.

S. S. outside

Nationality

Family: Adults No. Sex Age Occupation Income

Children

INCOME:

EXPENDITURES	WKLY.
Rent	
Light and Heat	
Electricity	
Gas	
Coal	
Wood	
Clothing	
Insurance	
Carfare	
Laundry	
Ice	
Cleaning Materials	
Church	
Extras	
Total	
FOOD	
GRAND TOTAL	

FM #47

to this end, it is necessary to take time to discuss with him the various food groups and their food values.

Milk, on which so much emphasis is placed, is often considered expensive. But when the patient sees, from the pictures of the body systems with the foods necessary for their maintenance and health (p. 46), that milk provides more food constituents than any other single food, he realizes that for its cost he gets a very high return in food values. He

FOOD FOR YOUR FAMILY TO PROTECT HEALTH—ADEQUATE DIET AT MINIMUM COST

BASED ON THE DIETARY RECOMMENDATIONS OF THE BUREAU OF HOME ECONOMICS, U. S. DEPARTMENT OF AGRICULTURE, CIRCULAR 296

For One Week	Child Under 4 Years	Boy 4-6 Girl 4-7	Boy 7-8 Girl 8-10	Boy 9-10 Girl 11-13	Boy 11-12 Girl Over 13	Boy 13-15	Boy Over 15	Woman Moderately Active	Woman Very Active	Man Moderately Active	Man Very Active	Food for Your Family for One Week	Cost for One Week
Milk[1]	7 quarts	7 quarts	7 quarts	7 quarts	7 quarts	7 quarts	7 quarts	3½ quarts	3½ quarts	3½ quarts	3½ quarts		
Cheese	2 oz.†	2 oz.	2 oz.	2 oz.	2 oz.	4 oz.	4 oz.	4 oz.	4 oz.	4 oz.	4 oz.		
Eggs (number)	5	5	5	4	4	3	3	4	3	3	3		
Meat Fish		3 oz. 1 oz. } 4 oz.	10 oz. 2 oz. } 12 oz.	13 oz. 3 oz. } 1 lb.	1 lb. 4 oz. } 1 lb. 4 oz.	1 lb. 4 oz. } 1 lb. 4 oz.	20 oz. 4 oz. } 1 lb. 8 oz.	1 lb. 4 oz. } 1 lb. 4 oz.	1 lb. 4 oz. } 1 lb. 4 oz.	20 oz. 4 oz. } 1 lb. 8 oz.	26 oz. 6 oz. } 2 lbs.		
Dried peas, beans, etc.		2 oz.	5 oz.	5 oz.	6 oz.	7 oz.	7 oz.	6 oz.	7 oz.	11 oz.	14 oz.		
Butter Other fats Peanut butter	1½ oz. 1½ oz. ½ oz. } 3 oz.	3 oz. 2 oz. 1 oz. } 6 oz.	4 oz. 6 oz. 1 oz. } 11 oz.	4 oz. 8 oz. 1 oz. } 13 oz.	4 oz. 8 oz. 1 oz. } 13 oz.	4 oz. 15 oz. 1 oz. } 1 lb. 4 oz.	4 oz. 15 oz. 1 oz. } 1 lb. 4 oz.	4 oz. 8 oz. 1 oz. } 13 oz.	4 oz. 15 oz. 1 oz. } 1 lb. 4 oz.	4 oz. 15 oz. 1 oz. } 1 lb. 4 oz.	4 oz. 20 oz. 2 oz. } 1 lb. 10 oz.		
Fruit—Citrus Other fresh Dried	1 lb. 8 oz. 1 oz. } 1 lb.‡ 9 oz.	1 lb. 12 oz. 2 oz. } 1 lb. 14 oz.	1 lb. 18 oz. 3 oz. } 2 lbs. 5 oz.	1 lb. 1 lb. 5 oz. } 2 lbs. 5 oz.	1 lb. 14 oz. 6 oz. } 2 lbs. 4 oz.	1 lb. 12 oz. 8 oz. } 2 lbs. 4 oz.	1 lb. 1 lb. 6 oz. } 2 lbs. 6 oz.	1 lb. 14 oz. 6 oz. } 2 lbs. 4 oz.	1 lb. 12 oz. 8 oz. } 2 lbs. 4 oz.	1 lb. 1 lb. 8 oz. } 2 lbs. 8 oz.	1 lb. 1 lb. 6 oz. } 2 lbs. 6 oz.		
Vegetables—Leafy Root Others	6½ oz. 13½ oz. ..... } 1 lb. 4 oz.	7½ oz. 11½ oz. ..... } 1 lb. 3 oz.	14 oz. 30 oz. ..... } 2 lbs. 12 oz.	16½ oz. 27½ oz. ..... } 2 lbs. 12 oz.	15 oz. 31 oz ..... } 2 lbs. 14 oz.	24 oz. 20 oz. ..... } 2 lbs. 12 oz.	17 oz. 23 oz. ..... } 2 lbs. 8 oz.	15 oz. 31 oz. ..... } 2 lbs. 14 oz.	24 oz. 20 oz. ..... } 2 lbs. 12 oz.	11½ oz. 28½ oz. ..... } 2 lbs. 8 oz.	13½ oz. 18½ oz. ..... } 2 lbs.		
Potatoes	2 lbs.	2 lbs.	2 lbs. 8 oz.	2 lbs. 12 oz.	2 lbs. 12 oz.	3 lbs.	4 lbs. 4 oz.	2 lbs. 12 oz.	3 lbs.	3 lbs.	5 lbs. 12 oz.		
Bread—Whole grain§ White Flour Crackers—Whole grain White Cereal—Whole grain White	9 oz. 1 oz. 2 oz. .... 6 oz. 2 oz. } 1 lb. 4 oz.	13 oz. 1 oz. 3 oz. .... 7 oz. 4 oz. } 1 lb. 12 oz.	32 oz. 1 oz. 5 oz. .... 7 oz. 3 oz. } 3 lbs.	33 oz. 1 oz. 5 oz. .... 11 oz. 6 oz. } 3 lbs. 8 oz.	31 oz. 2 oz. 10 oz. .... 11 oz. 6 oz. } 3 lbs. 12 oz.	35 oz. 2 oz. 11 oz. .... 14 oz. 10 oz. } 4 lbs. 8 oz.	58 oz. 2 oz. 13 oz. .... 14 oz. 17 oz. } 6 lbs. 8 oz.	31 oz. 2 oz. 10 oz. .... 11 oz. 6 oz. } 3 lbs. 12 oz.	35 oz. 2 oz. 11 oz. .... 14 oz. 10 oz. } 4 lbs. 8 oz.	35 oz. 2 oz. 11 oz. .... 14 oz. 10 oz. } 4 lbs. 8 oz.	74 oz. 3 oz. 16 oz. .... 24 oz. 19 oz. } 8 lbs. 8 oz.		
Sugar—Brown White Molasses Jelly	..... ½ oz. 1 oz. ¼ oz. } 2 oz.	..... 1½ oz. 1½ oz. ½ oz. } 3 oz.	..... 4 oz. 5 oz. 1 oz. } 10 oz.	..... 6 oz. 5 oz. 1 oz. } 12 oz.	..... 6 oz. 5 oz. 1 oz. } 12 oz.	..... 8 oz. 6 oz. 2 oz. } 1 lb.	..... 8 oz. 6 oz. 2 oz. } 1 lb.	..... 6 oz. 5 oz. 1 oz. } 12 oz.	..... 8 oz. 6 oz. 2 oz. } 1 lb.	..... 10 oz. 6 oz. 2 oz. } 1 lb. 2 oz.	..... 10 oz. 8 oz. 2 oz. } 1 lb. 4 oz.		
Beverages—Cocoa	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.	½ oz.		
Coffee								8 oz.	8 oz.	8 oz.	8 oz.		
Tea								½ oz.	½ oz.	½ oz.	½ oz.		
Seasoning Condiments Yeast, baking powder													

[1] The following are about equal in food value:
1 qt. fluid whole milk.
17 oz. evaporated milk (1 tall can holds 14½ oz.)
5 oz. American cheese (Cheddar).

† oz.—ounce.
‡ lb.—pound.
16 ounces = 1 pound.
§ 1 average slice bread = 1 oz.

Directions:
- Find the ages and sex which are the same as the members of your family.
- Add together the same kinds of food for each member of your family.
- Place the total amount needed for your family in the space marked "Food for your Family for One Week."
- Figure the cost of this food for your family with *local present prices.*

can be shown also the amounts of other foods it would be necessary to use to secure the various food constituents in the amounts supplied by a cup of milk. As a source of calcium, for example, he is shown that except for cheese there is no practical substitute for milk; that to provide the amount of calcium that is contained in a cup of milk, 4½ pounds of meat would be required, or exceedingly large amounts of vegetables (Table 30). Similarly, milk is shown to be a good source of phosphorus, a cup giving as much as one ounce of cheese, or two eggs, or four ounces of meat (Table 32); but not so good a source of iron, since a pint of milk would be required to supply the amount of iron contained in an ounce of meat, and over a pint to supply the amount of iron in one egg (Table 35). Moreover, it is demonstrated that a cup of milk contains protein in an amount equal to that in one ounce of meat or fish, or poultry, or cheese, or in one egg, besides giving extra fat (Table 25); and in carbohydrate, one cup of milk approximates one medium orange, or two crackers or one thin slice of bread (Tables 21 and 24). Also, various foods are shown that contain the vitamins in about the same relative amounts as milk (Tables 41–45).

Thus the patient sees that even though a food is an expensive source of a particular food constituent, it may be economical as a source of another, and thereby justify its purchase. He recognizes that a food must be evaluated with reference to all of its food constituents; that milk, for example, is expensive if considered with reference only to its content of iron, yet has such liberal amounts of calcium, phosphorus, protein and vitamin A, thiamine, riboflavin, niacin, and increased vitamin D in vitamin D milk, and contributes to so many body needs that it is, in fact, an economical food. He is shown that when the bread and cereal he uses with milk are whole grain or enriched products, they will supply iron at a low cost.

In the following chart foods are listed that are approximately equivalent to milk in protein, and they can be compared to milk with respect also to their content of other food constituents.

Protein Foods	Household Measure	Protein	Fat	Carbohydrate	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
		Grams	Grams	Grams	Milligrams	Milligrams	Micrograms	Micrograms	Micrograms	Milligrams	Milligrams
Milk	1 glass	8	9.5	12	283	.5	461	125	523	.22	3
Cheese, American	1 ounce	7	10	1	279	.3	450	7	165	.06	
Egg	1	7	5		27	1.5	500	75	125	.03	
Meat	1 ounce	6.5	2.5		4	.9		48	69	2.23	
Fish (non-fatty)	1 ounce	5			5	.3		5	60	1.80	

Cheese is usually inexpensive, and can be used satisfactorily as a main dish because it can be so readily combined with cereals and other foods. The patient learns, by means of the chart, pp. 46, 48, that it is a rich source of calcium as well as of phosphorus, protein, fat and vitamin A, and that it can be combined, to the satisfaction of the appetite, with a food which will supply the carbohydrate it lacks.

The *egg* is shown under each food con-

stituent except carbohydrate, in the illustration, p. 46. In this way the patient appreciates its significance in the diet: it is a good source of protein, fat, phosphorus and iron, and supplies vitamins A, and D, thiamine and riboflavin. Here again the patient will learn to compare the egg with other foods equivalent in food value, and to consider the cost in terms of seasonal variation and the quality or grade of the product.

Meat and meat substitutes are almost always found to be included in the patient's food intake; for meat in particular is generally desired.

It is demonstrated to the patient, as in the preceding discussion of milk, that an ounce of meat, fish, poultry or cheese, or one egg contain approximately equivalent amounts of protein (p. 53). Thus he realizes, through visual presentation, that he has a goodly range of sources of protein from which to select, and that when his money for food requires the choice of one of the cheaper sources he is still satisfying body needs.

He learns that meat is also a good source of phosphorus and iron, and that it adds fat in varying amounts: that with respect to the vitamins it can be considered a source of thiamine, riboflavin and niacin. While the average serving of fish is equivalent in protein—and only slightly less so in phosphorus—to the average serving of meat, it is lower in fat and iron.

Butter is an important source of vitamin A, as well as of fat. The margarines that are now fortified with vitamin A make them of approximately equal food value. However, the vegetable oils, such as olive oil, do not carry vitamin A.

Vegetables and fruits are frequently used in minimum amounts and even omitted from the diet as the patient considers them expensive and of little food value. Again, the pictures of the body systems with the foods that supply their needs, in which vegetables and fruits appear so frequently, will show the patient that for their rich and various contributions to the body these foods are not expensive. He learns that they contain varying but appreciable amounts of carbohydrate, minerals and vitamins. When the cost of the diet must be kept low, the vegetables and fruits that are the cheaper sources of the food constituents are stressed. For example, to ensure adequate amounts of ascorbic acid in the diet, oranges or other citrus fruits, tomatoes, or raw or leafy vegetables must be taken daily, the choice being made according to the cost—oranges when they are cheap, fresh tomatoes and cabbage in season and canned tomatoes when fresh foods are expensive (Tables 28 to 45).

The discussion of fruit provides an excellent opportunity to demonstrate the place of candy in the diet, especially to the child. He is shown that the candy usually eaten can score only one point in its favor,—it provides energy for the body; whereas fruit scores several points in that it is not only a source of energy but in addition provides minerals and vitamins necessary for the protection of health. It is especially important to stress these facts to the patient whose diet is apt to be lacking in minerals and vitamins, either because of faulty food habits or for economic reasons. It often appeals to the child to show him in terms of food values what he receives for his pennies spent for candy and those spent for fruit—such as the orange, or banana or apple.

The more desirable types of candy, those made with dried fruits, nuts and molasses may be emphasized by giving the patient recipes for making them. The appeal of these, especially to the child, may be increased by putting the

recipes into booklets with attractive covers. Samples of such candies may be given; and this affords an excellent opportunity for stressing the time at which candy may best be eaten—after the meal so that it will not interfere with the appetite. The preparation and distribution of these "healthful sweets" in attractive containers at the holiday season adds to the festive spirit and helps to interest the child so that the recipes will be tried at home.[2]

Legumes or seed vegetables are so frequently used in the low cost diet that emphasis is placed on the importance of combining them with a food that is a source of complete protein, such as milk, cheese, egg or meat, to make a satisfactory meat substitute. It is demonstrated that they contain rich amounts of carbohydrate, phosphorus, iron, thiamine, and riboflavin, but only incomplete protein (except for the soy bean), and no fat,—which doubtless accounts for their being combined with a food of high fat content in many traditional dishes.

Bread, cereals, crackers, and flour are the forms in which the patient knows the grains. He is shown the different kinds of grains that are generally used—wheat, oats, rice, rye, barley and buckwheat—and their contributions to the body are explained and illustrated. Both adult and child are interested in a discussion of the seed of the grain. By means of diagrams and other devices, the patient is shown how the different layers of the seed may be removed in the process of milling (p. 56). The whole grain products represent more nearly the entire content of the seed and contribute minerals and vitamins that are lacking in the refined products. The white inner part of the seed is used for white flour and white breads and cereals—products which are mostly starch and lacking in vitamins and minerals. At the suggestion of the government, manufacturers now add iron, thiamine and niacin to these products so that they now approach the food value of the natural product. Thus the patient is led to see the advantage to the body of using the whole grain or enriched products.

When the price of *potatoes* is high, many people use macaroni or white rice instead. The patient is shown that these are not comparable in food value because macaroni and white rice lack the minerals and vitamins which the potato supplies unless they have been fortified as described above, although they contain approximately the same amount of carbohydrate.

The *protective diet* (Part I, Chapter 2, p. 6) is now better understood by the patient as to the completeness of its contribution to body needs. He realizes the significance of the word "protective," and that the prominence is given, rightly, to milk, eggs, meat, butter, vegetables, fruits, and whole grain or enriched products. That the normal diet is a protective diet can be impressed upon the patient's mind in the form of a game, by listing on graph paper, or on paper similarly ruled, the foods contained in the normal diet, with headings for the various food constituents, and checking, either with a mark or drawings or miniature pictures of the foods, the constituents that each food contributes.[3]

The patient sees that the protective diet is a guide to the selection of foods to fulfill the body's needs. If in following it he chooses the cheaper cuts of meats or the meat substitutes, and the cheaper fruits and vegetables when they provide

[2] How to Teach Nutrition to Children, Chapter IX—"Healthful Sweets."

[3] See booklet and chart prepared by the Boston Dispensary Food Clinic for the Maltex Co., Burlington, Vermont.

Diagram of Whole Grain

BRAN
The husk and brown layers rich in.....

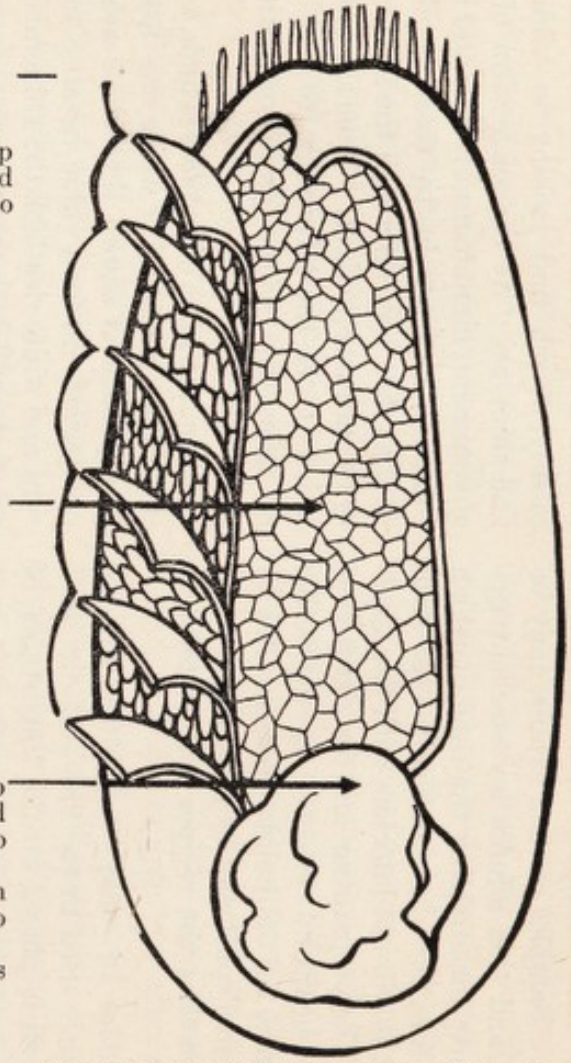
iron.....	for healthy blood
phosphorus.....	for bones and teeth
protein (incomplete)..	for growth, muscle and repair*
thiamine.....	to help keep the nerves healthy, help growth, stimulate the appetite, aid the regular bowel movement, help to burn carbohydrate

ENDOSPERM
The white center of the wheat berry composed of.....

carbohydrate (starch).....	for energy
protein (incomplete)..	for growth, muscle and repair*

GERM
The plant germ or embryo, the part which sprouts when the wheat berry is planted. A valuable source of.....

protein (incomplete)..	for growth, muscle and repair*
thiamine.....	to help keep the nerves healthy, help growth, stimulate the appetite, aid the regular bowel movement, help to burn carbohydrate
riboflavin.....	promotes growth, helps to keep skin healthy, helps eyesight, essential to functioning of every body cell
niacin.....	helps growth, prevents pellagra, keeps skin and other tissues healthy



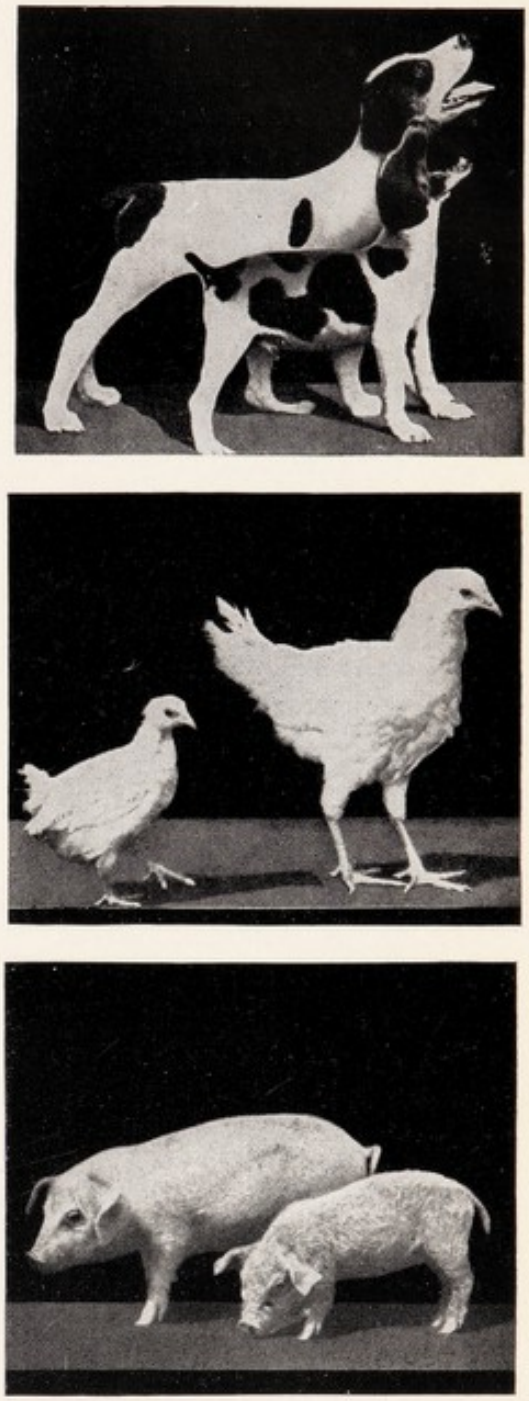
Courtesy of the Ralston Purina Company. (*Adapted*)

* When supplemented by a complete protein.

the desired food values, he will have an adequate diet at minimum cost.

Individual taste may lead the patient to omit certain foods from his diet because they are strange, or because he is not accustomed to them or dislikes them. If they are essential to the adequacy of the diet, the omission cannot be disregarded. The reason for the omission, whether due to a mental attitude, a physical condition or a social or economic factor, should be ascertained. If the food is unfamiliar or not customary a sample of it is shown, and frequently the patient tastes of it in the clinic or takes a sample to use at home, with suggestions for ways of preparing it and including it in his diet. If the name of the food is new to the patient, or difficult to spell or pronounce, it is written for him and pronounced repeatedly. Knowledge of the contribution that the food makes to the body's needs and pictures that illustrate the food constituents it contains, will help him to realize its value. Pictures of healthy animals on a satisfactory diet in contrast with others suffering from diets deficient in the necessary food constituents will illustrate for him the ill effects upon health when certain of these food constituents are not present in the diet (p. 57–58). Suggestions for new ways of preparing the food disliked are helpful, and the patient may gradually lose his distaste for a food if it is served at first in small amounts. If a food is disliked because of some unpleasant association with it, the patient is helped to overcome the effects of this association, and here much help can be given by the psychiatrist (Part I, Chapter 4).

Nationality, race and religion are important factors in determining food likes and dislikes, and the customs and food habits of the family. To work intelligently with people of foreign birth or their immediate descendants, and to win their confidence and coöperation, there must be an understanding of their racial backgrounds and the significance of their holiday observances and religious ceremonies, their social traditions, customs



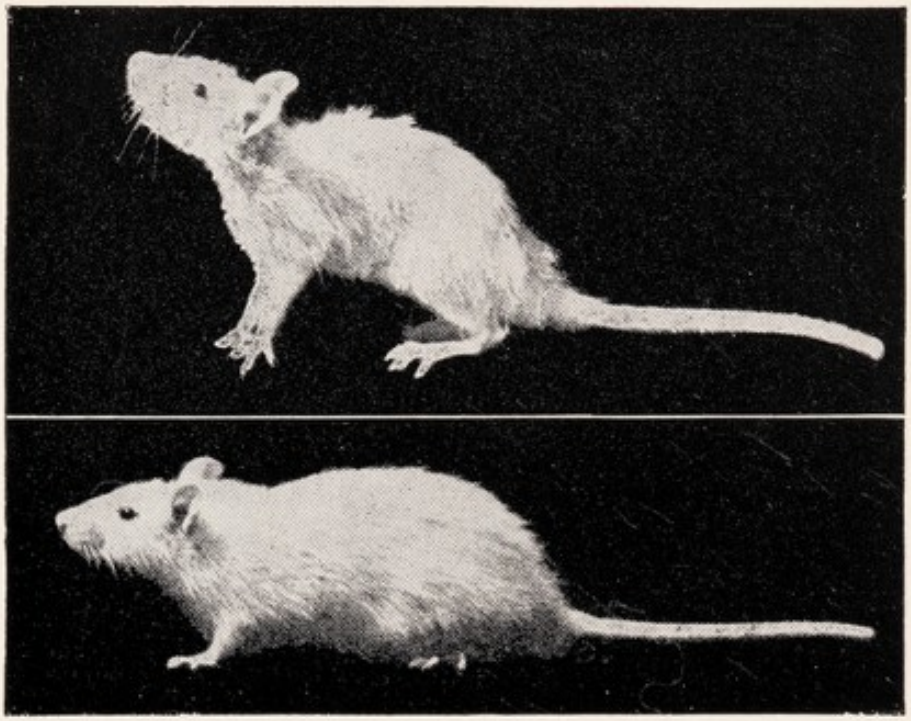
Courtesy of National Dairy Council, Chicago, Ill.

MILK MADE THE DIFFERENCE. "AND THIS LITTLE PIG HAD NONE!"

and beliefs. For example, the religious laws of the Jews place restrictions on certain foods, prohibit the use of others and dictate the methods of preparation of food. A knowledge of these laws is essential to success in planning a diet for the orthodox Jewish patient.

A study of the food habits of the different races will relate itself to the political and economic situations of a country, its geography, history, topography, and climate. The study will inevitably lead to a comparison of the means and methods of production, preservation, supply and distribution of food in countries of advanced civilization and in those of more primitive standards, and show how these factors determine the food practices of the various peoples.

A knowledge of racial backgrounds influencing habits and customs, the manner of life and ideals of peoples, their art, culture, literature and technological progress, cannot but result in a greater appreciation and understanding of the foreign-born patient, a clearer insight into his problems and greater success in teaching him and planning his diet with him. With such a point of view American ways will not be imposed upon the patient, but the better features of the native diet will be brought into harmonious adjustment with changes which under the new environment are necessary for the protection of health.



BEFORE AND AFTER ADMINISTRATION OF RIBOFLAVIN

How the little rat looked when he was having food that did not contain riboflavin; and how he looked when he was given different food that contained enough of the vitamin.

Yet diets the world over are made up of food materials that can be classified under a very few heads: dairy products, eggs, meat, fish, fats, fruits and vegetables, cereals and breads, and sweets. The difference lies chiefly in the specific foods used from each of these groups, and in the methods of preparation. An understanding of food usages, as well as of

dishes and their ingredients, typical of a people, is essential when teaching the foreign-born patient (Table 4).

The diet is computed in general terms in relation to information obtained through the nutritional history, the patient's usual food intake, his individual tastes and the food usually available in the home or eating place outside the home.

The *measurement of foods* to be used daily should be stated in definite amounts, and in terms that the patient will understand and find practical, so that he can estimate his servings with a fair degree of accuracy, thus helping to ensure his use of foods in prescribed amounts to fulfill body needs.

Household measures most frequently used are the tablespoon, teaspoon and measuring cup. These utensils are shown to the patient to make sure that he is familiar with them and visualizes them. In like manner the differences in level, rounded and heaping measurements are indicated (Table 14).

Other units of measurement familiar to the patient are the sauce dish and the cereal bowl, and these are practical units to use if the patient is accustomed to having food served in such dishes. He is shown a dish of the usual size and asked to compare it with the one he uses at home. The level to which the average serving fills the dish is also demonstrated.

The *ounce* is sometimes explained in terms of the tablespoon, one ounce being equal to two tablespoons of fluid, and an ounce of cottage or cream cheese equaling one rounded tablespoon. The terms cup, pound and other measurements should be written out, as abbreviations may be confusing to some patients.

The *inch* is used to describe the dimensions of the average serving of certain foods, such as bread, crackers and cake. The patient often finds this measurement particularly difficult to visualize, and therefore it is important to demonstrate it by means of real foods or food models, or by means of the ruler. In this way he retains a mental picture of it by which to estimate his servings.

The *gram* is frequently referred to when teaching the patient (p. 61, 62), and it is therefore necessary to explain and teach the metric system. A gram can be explained as the weight of the amount of water or like substance that would be contained in a cube with its three dimensions each measuring 1 centimeter (1/100 of a meter). Such a cube can be shown to the patient and also a meter stick if desired. The gram can further be related to the ounce, which is familiar to the patient, explaining that 30 grams equals 1 ounce. A gram weight which is commonly used in laboratories can be shown. The patient can also be taught that when the gram is divided into a thousand parts, each part is called a milligram; and when the gram is divided into a million parts, each part is called a microgram. Further, a gram multiplied by a thousand makes a kilogram, which is equal to 2.2 pounds.

A *demonstration of the servings of foods* will give the patient a definite picture of the sizes of the servings he is to use so that he can estimate them without having to resort to the use of the teaspoon, the tablespoon and the measuring cup in apportioning the amounts of food prescribed in the diet.

Food models especially are helpful in demonstrating certain foods which are irregular in shape or size, such as meat for stew, since the dimensions cannot be given in inches. Although real foods can be used, reproductions of the average servings of foods in wax are more convenient. The initial cost of wax models

is offset over a period of time by not having to replenish daily the fresh foods, and their use is far more economical in the end. They can be used where it would be impossible to renew the food daily. If wax models are not available, cardboard cut-outs or pictures of the actual sizes of the servings of the foods can be used. These are not so satisfactory, however, since they do not give all the dimensions.

Dietary directions should be written preferably on a special form. The patient will regard this as of the same nature as the prescription which he receives for medicine,—they are both orders or directions that should be carried out. Moreover, the fact that the diet is especially planned for him helps to restrain the patient from trying to apply it to other members of his family or to his friends. A printed diet list is not desirable, even when individualized to a certain extent by crossing out or encircling the foods not to be used.

"*Food for the Day*" (Part I, Chapter 2), which lists the kinds of food to be used, with amounts in household measures, gives the patient a general view of his dietary plan. He can see where it is like his usual diet, wherein it differs, and whether it provides enough food and food of the kind that he likes. Thus it does not seem altogether new and unfamiliar to him. It will show him whether he can fulfill it from the food usually available at home or in the place where he eats. Moreover, he can use the list as a guide in planning, purchasing and preparing foods for his diet.

Equivalents of the foods listed in "Food for the Day" should be known by the patient so that he may find the diet flexible and be able to vary it within the limitations it prescribes. For this he must learn the values of the different foods given, and how these foods may be exchanged for others approximately equivalent in food value. A means of helping him here is to state on the form, "Food for the Day," or on a separate list, the amounts of various foods that he may substitute for those prescribed in the diet (p. 18, 61, 62). Frequently it is expedient to demonstrate to him in what respect these foods are equivalent so that he will better understand and remember them.

The *carbohydrate* content of vegetables and fruits is usually expressed in terms of percentage,—"5 per cent," "10 per cent," "15 per cent," "20 per cent" vegetables and fruits being the classifications popularly used. But since it is not easy for the average patient to think in terms of percentage, a simpler method must be used to help him to visualize the carbohydrate content of foods. Fortunately the piece of loaf sugar weighs five grams. It is convenient, then, to visualize the approximate carbohydrate content of the average serving of vegetables and fruits with one, two, three, four or more lumps of sugar.

Moreover, the lump of sugar can be used to show how many servings of a fruit or vegetable the patient may take in terms of his diet, and how he can interchange them. For example, he understands that four servings of a "5 per cent" vegetable approximate four lumps of sugar, and that instead he may have two servings of a "5 per cent" vegetable and one serving of a "10 per cent" vegetable, or two servings of a "10 per cent" vegetable and none of a "5 per cent" vegetable (p. 61–62).

Wax models of foods and lumps of sugar are effective materials with which to demonstrate carbohydrate content. A rough sketch of a food with the lumps of sugar that indicate its carbohydrate

ONE OF A SERIES OF EQUIVALENTS OF FOOD CONSTITUENTS USED WITH AND DISTRIBUTED TO THE PATIENTS

FOOD EQUIVALENTS—CARBOHYDRATE

CARBOHYDRATE is the name given to the starches and sugars in foods. All vegetables, fruits, cereals and breads contain carbohydrate.

"5%" Vegetables

Each serving contains about 5 grams of carbohydrate, equal to the amount in 1 lump of sugar.

Asparagus	8 stalks	Cauliflower	1 saucedish	Radishes	10
Beans, string, canned	1 saucedish	Celery	4 stalks	Rhubarb	1 saucedish
Broccoli	1 branch or 1 saucedish	Chard	1 saucedish	Sauerkraut	1 saucedish
Cabbage, cooked	1 saucedish	Cucumber—medium	1	Spinach	1 saucedish
Cabbage, raw	1 heaping saucedish	Eggplant	4 slices	Squash, summer	1 saucedish
		Lettuce	10 leaves or ¼ head	Tomato, canned	½ cup
		Pepper, green	1 large	Tomato, fresh	1
				Tomato juice	½ cup

"10%" Vegetables

Each serving contains about 10 grams of carbohydrate, equal to the amount in 2 lumps of sugar.

Beans, string, fresh	1 saucedish	Carrots, cooked	1 saucedish	Peas, canned	1 saucedish
Beets	2 medium	Carrots, raw, large	1	Pumpkin	1 saucedish
Brussels sprouts	7 small	Onions	2 medium	Squash, Hubbard	1 saucedish
				Turnips	1 saucedish

SERVINGS OF FRUIT EQUIVALENT TO ONE ORANGE (Medium Size)

Each serving contains about 10 grams of carbohydrate, equal to the amount in 2 lumps of sugar.

Fresh Fruits

Apple—large	½	Grapefruit juice (unsweetened)	½ cup	Pineapple (½" thick)	1 slice
Apricots, fresh	2	Grapes	15	Pineapple juice (unsweetened)	½ cup, scant
Banana—medium	½	Lemons	1½	Plums	2
Berries	½ cup	Orange—medium	1	Strawberries	10 large
Cantaloupe	¼	Orange juice	½ cup	Tangerines	1 large
Cherries	15	Peach	1	Watermelon	1 small slice
Grapefruit	½	Pear—large	½		

Dried Fruits

Apricots, dried, halves	3	Dates, small	2	Figs	1
		Prunes—medium	2	Raisins	1 tablespoon

SERVINGS OF VEGETABLES AND CEREALS EQUIVALENT TO ONE SLICE OF BREAD

Each serving contains about 15 grams of carbohydrate, equal to the amount in 3 lumps of sugar

Beans, baked	2 rounded tablespoons	Parsnip	1 large
Beans, lima	2 rounded tablespoons	Potato, sweet	½ small
Corn, canned	3 rounded tablespoons	Potato, white	1 small
Corn, fresh	1 ear (small)		
Bread, rye	1 slice	Cornstarch	1½ tablespoons
Bread, white	1 slice	Flour	3 tablespoons
Bread, whole wheat	1 slice	Matzoh (square type)	⅔
Crackers, graham	2	Matzoh meal	2 tablespoons
Crackers, saltines	5	Ry-Krisps	3
Crackers, Uneedas	3½		
Macaroni, cooked	4 rounded tablespoons	Cornflakes	1 saucedish
Oatmeal, cooked	1 scant saucedish	Puffed rice	2 saucedishes
Rice, cooked	4 rounded tablespoons	Puffed wheat	2 saucedishes
Tapioca, uncooked	1 tablespoon	Shredded wheat	⅔ large or 1 small

FM 142 - 3/41 Boston Dispensary Food Clinic

ONE OF A SERIES OF PICTURE SHEETS FOR EACH OF THE FOOD CONSTITUENTS USED WITH AND DISTRIBUTED TO THE PATIENTS

CARBOHYDRATE (Starch and Sugar)

Carbohydrate (*Starch and Sugar*)
Provides energy for work and play.





Carbohydrate (*Starch and Sugar*) is found in —

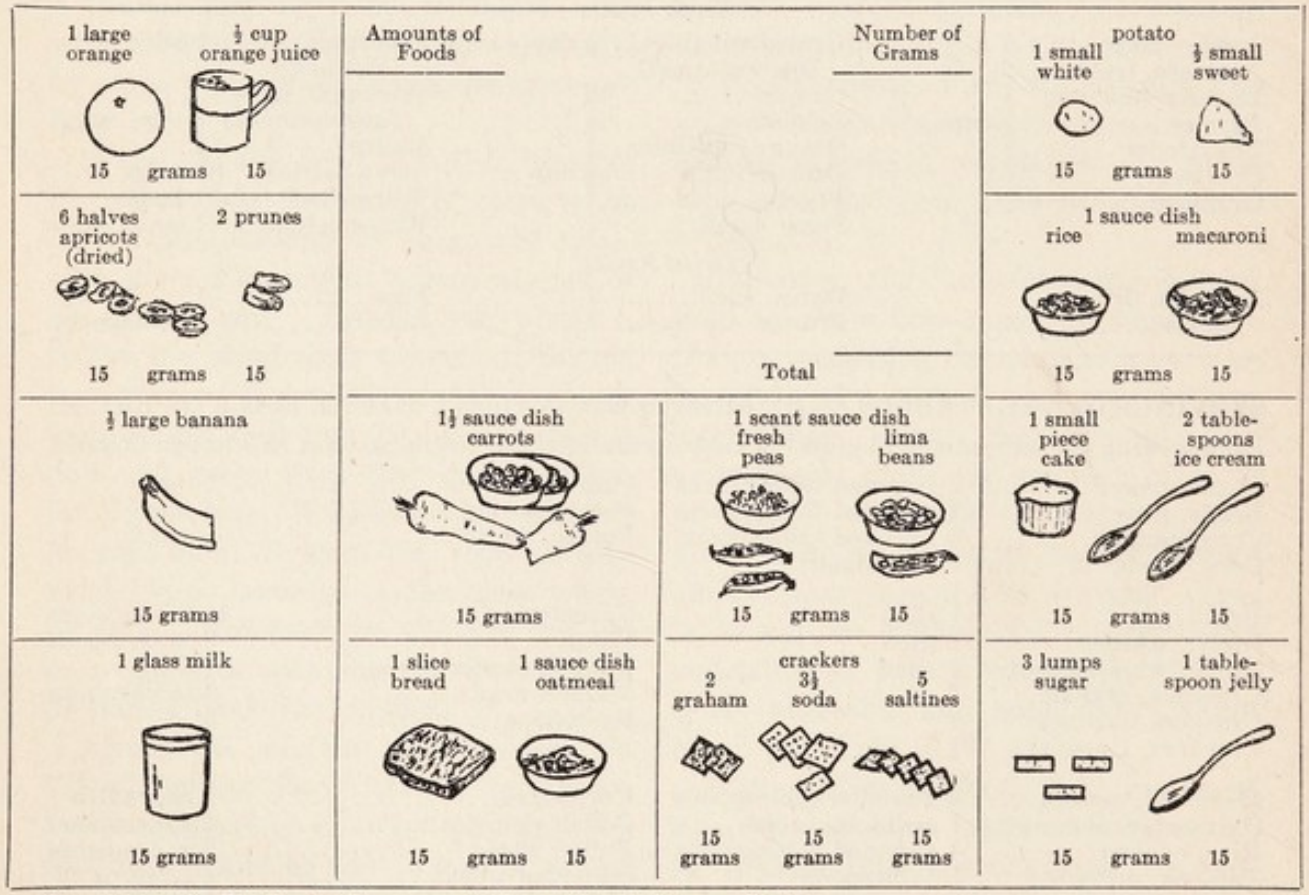
- Bread
- Cereals
- Macaroni
- Potatoes
- Dried peas and beans
- Flour
- Rice
- Vegetables
- Fruits
- Fruit juices
- "Sweets" such as sugar, candy, jelly, honey
- Desserts such as cake, pie
- Tonics

Carbohydrate is usually measured in grams (30 grams = 1 ounce)

Daily Requirements of Carbohydrate Measured in Grams

Adults.....4–6 grams for each kilogram (2.2 pounds) of body weight
Children....6–10 grams for each kilogram (2.2 pounds) of body weight

Below are pictures of servings of important food sources of carbohydrate. Each serving provides 15 *grams* of carbohydrate. Write in the blank space the amounts of these foods you eat in a day, with the number of grams of carbohydrate beside them. Add the figures and see if you get the number of grams you require.



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content is often sufficient for the purpose. Posters designed to show amounts of foods that are equivalent in their content of a particular food constituent are especially helpful in teaching a group.

The *protein* content of foods equivalent in protein is explained to the patient in terms of the amount present in one ounce of meat (p. 53). The protein foods most commonly used have been discussed in detail under meat substitutes (page 54). The patient is shown that although milk and cheese contain additional fat, he may substitute them for meat if he omits one teaspoon of butter from his diet for each cup of milk. He sees that if he uses as a substitute any of the legumes, all of which contain liberal amounts of carbohydrate, he must omit from his diet one small potato or its equivalent and add one teaspoon of butter to supply the fat in which legumes are lacking.

The *fat* in foods equivalent in fat is stated in terms of the amount present in one teaspoon of butter (Table 27). The importance of butter as a source of vitamin A, as well as of fat, is stressed to the patient. He is shown that since the other fats, except cream and fortified margarines, are not good sources of vitamin A, the use of many of these equivalents is dependent upon the presence in the diet of liberal amounts of milk or other foods which are excellent sources of this vitamin.

The *calcium* in various foods that are equivalent with respect to calcium is given in terms of the amount of it present in two tablespoons of milk (Table 29). The contrast of this small amount of milk with the large quantities of other foods, except cheese, that must be used to supply the same amount of calcium, helps to emphasize to the patient the importance of milk in the diet. This is further demonstrated with various combinations of foods necessary to supply a day's requirement of calcium for the adult and the child (Table 30), showing that when the amounts of milk and cheese are reduced to the minimum, larger quantities of other foods must be used. Vegetables and fruits vary so widely in calcium content that it is advisable to list them according to the relative value of the average serving (Table 28). This is also a convenience when making a selection of vegetables and fruits according to their calcium content.

The *phosphorus* content of various foods that are equivalent in respect to phosphorus is stated in terms of the amount of it present in four tablespoons of milk. As with calcium, various combinations of foods supplying the day's requirement of phosphorus are given, and the vegetables and fruits are arranged according to the relative value of the average servings as sources of phosphorus (Tables 31–33).

The *iron* in various foods that are equivalent in their content of iron is stated in terms of the amount of it present in one egg (Table 35).

The actual amounts of the various minerals needed daily should be demonstrated in terms of the foods necessary to obtain them, if the patient is to see how the requirements can be secured. This is particularly true in the case of iron. Because the amount of it contained in a single food is infinitesimal, the requirement has to be obtained from many foods; whereas the calcium requirement can be fulfilled with a single food,—milk. While the egg is an excellent source of iron, it can contribute but an eighth to a tenth of the day's need. A chart showing the egg, and foods that are equivalent to it in iron, will help the patient to visualize the sources from which he must obtain eight to ten times the amount of iron

supplied by the egg, to meet the day's requirement. For example, the chart will show that 2½ slices of whole grain bread will give another eighth of the amount of iron needed, and that meat and certain vegetables and fruit will make important contributions.

Various combinations of foods are given that may be used toward supplying the day's requirement of iron (Table 36). To help the patient further, vegetables and fruits are listed in terms of the relative values of average servings as sources of iron (Table 34).

Vitamin equivalents are taught the patient on the basis of the recommended allowances of the Committee on Food and Nutrition of the National Research Council (Table 2). The protective diet (Part I, Chapter 2) can be reviewed in terms of its vitamin content, and the chart (p. 46) with columns of foods arranged under the headings of the various vitamins, will help the patient to visualize the foods supplying each vitamin, and also the fact that certain foods supply several vitamins. The patient is also given both printed lists of vitamin equivalents and picture sheets (p. 62), that he may evaluate the vitamin content of his diet (Tables 41–45). Inasmuch as a great deal of consideration is given now to the conservation of vitamins and minerals, the patient also receives data on this subject in chart form which can easily be remembered (p. 65). The patient should understand that food sources of vitamin D are so limited they need to be supplemented by sunlight or the "sun lamp," by medication, or vitamin D milk.

A "*Meal Plan for the Day*" is given to patients who wish more definite directions for combining into meals the foods listed in "Food for the Day." Such a plan is helpful also to those who have difficulty in arranging meals of the kind to which they are accustomed from the amounts and kinds of foods allowed in the diet. It is given in skeletal form to show the patient how he can utilize all the foods, how he can vary his meals by the use of equivalents and recipes, and how the diet can be adapted to the usual routine of his meals—whether he has them with his family or group, or prepares them himself or eats in the restaurant.

The *selection of food in the restaurant* makes a knowledge of the ingredients of made dishes especially important, because so many of the dishes served are combinations of foods. Furthermore, in order to help the patient to make the necessary adaptations the amount of money he has to spend for food must be known, as well as the differences in the type of food served in the various restaurants in which he eats, and the difference in cost.

Recipes are given. With the list of foods for the day, and equivalents, many patients ask how they may combine these foods, or whether they may use the combinations or "made dishes" to which they are accustomed. One must have a knowledge of the ingredients of these typical dishes of the foreign-born groups to be able to show the patient how he may include them in his diet. The patients themselves will often furnish recipes, or these may be obtained from books on foreign cookery or from restaurants that serve these dishes, and much information can be gleaned from visits to the small grocery stores and bakeries in the neighborhood of the foreign born.

Nationality influences the method of teaching food equivalents to the foreign-born patient. With respect to the varied use of cereals by different nationalities, for example, it should be remembered that

CONSERVATION OF VITAMINS AND MINERALS IN THE STORAGE AND PREPARATION OF FOOD

Factors Affecting the Loss of Vitamins and Minerals	Ways to Prevent the Loss of Vitamins and Minerals	Foods Rich in Vitamins and Minerals					
		Vitamin A	Ascorbic Acid	Thiamine	Riboflavin	Calcium	Iron
STORAGE	Keep vegetables in cool, moist place to prevent wilting and drying.	Fruits Vegetables	Fruits Potato Vegetables	Fruits Meat Milk Potato Vegetables	Fruits Meat Milk Potato Vegetables	Fruits Potato Vegetables	Fruits Meat Potato Vegetables
OXIDATION	Avoid bruising fruits and vegetables to avoid exposure to air. Avoid stirring foods when hot. Cut fruits and vegetables when possible just before serving. Do not defrost frozen foods before cooking. Cook foods with skins on when possible.						
ALKALINITY	Do not add soda to water in which food is cooked.						
HEAT	Cook as short a time as possible. Have water boiling when food is added. Use lowest heat possible.						
SOLUBILITY IN WATER	Use small amount of water when cooking fruits and vegetables. Use this water. Wash foods but do not soak.						

while the American uses many kinds, with milk and sugar, chiefly as breakfast dishes, the Italian uses spaghetti with tomatoes and other vegetables, and with meat and cheese; the Jew has oatmeal or farina for breakfast, and noodles, barley or buckwheat in soups; while the Near Easterner uses cracked wheat or rice in combination with meat or nuts and vegetables. Bread is baked in such various shapes and sizes by the foreign peoples that it is difficult to visualize to the foreign-born patient a piece of bread equivalent to the average slice of American bread except by weighing it.

Exhibits: Exhibits are one of the most helpful educational tools to use as a means of guidance and interpretation of food treatment. They are valuable not only for patients who come to the Food Clinic, but for those who walk through the corridors or sit on the benches. Simple nutritional facts can be taught through the medium of the exhibit.

CHAPTER 6

THE EDUCATION OF THE PATIENT ON THE THERAPEUTIC DIET

THE THERAPEUTIC DIET

It is important that the patient on a therapeutic diet shall understand the modification of his diet from the normal and the reason for the modification.

The general procedure used in teaching the principles of the therapeutic diet is the same as that for the normal diet. As with the latter the patient must know the relation of food to the body, the body needs in terms of the food constituents and the foods that supply them. The therapeutic diet must fulfill the normal needs of the body, but with a modification of the food constituents or foods, or of both, that will help to compensate for the dysfunction of the body part affected.

THE MODIFICATION OF THE NORMAL DIET

It has been noted that the modification of the normal diet may consist in one or a combination of the following procedures:

Food constituents,—increase or decrease in amounts;

Foods,—increase or decrease in kinds and amounts,
the omission of certain foods,
a change in the consistency of foods,
a change in method of preparation of foods;

Meals,—a rearrangement of the number and frequency of meals and feedings.

Frequently such modifications and restrictions make more difficult the choice of food sufficient in kinds and amounts to provide an adequate diet, and the patient may need special help and direction in this respect.

PROCEDURE IN TEACHING THE PATIENT

The *physiology of the body part* affected is illustrated for the patient by charts and drawings or pictures, and its normal function in relation to food is demonstrated with simple analogies. Its *pathology* is shown by pictures when possible. With an understanding of both the normal function and the dysfunction in relation to food, the patient can be led to see how his diet must be modified.

Dietary directions follow the same procedure as for the normal diet, and the same educational materials are used.

A list of "*Food for the Day*" with equivalents is given the patient, the emphasis being placed on equivalents stated in terms of the food constituents that must be increased or decreased in amounts, according to the disease or condition.

A "*Meal Plan for the Day*" will help him to adapt the foods allowed in the diet to his usual routine of meals, with consideration given, if need be, to the consistency and method of preparation of food.

Recipes which use only the foods allowed and in the amounts prescribed by the diet are of great value to the patient.

Demonstrations are arranged for special occasions, such as holidays, to show the patient how he may participate in the family's celebration without exceeding the limits of his diet.

THE APPLICATION OF THIS PROCEDURE TO SPECIFIC DISEASES

The methods used in teaching the patient on a therapeutic diet are best illus-

trated by showing how they are applied to specific diseases.

Diabetes is usually a familiar term and the patient sometimes speaks of it as the "sugar sickness."

The *body part affected* is shown by means of a picture of the pancreas (the Islands of Langerhans), and from a manikin or diagrammatic chart the patient sees its location in the body.

Its *physiology* is explained in simple terms,—its function is to secrete a "juice" —insulin—which is necessary to utilize or "burn" the sugar from food.

The word "sugar" must be interpreted, for the patient usually thinks of the sugar in the sugar bowl and believes firmly that he takes but little. He knows, from household experience, that sugar can be dissolved in water, and starch cannot. He is led to understand, then, that before the starch in bread, cereals, potatoes, vegetables and some fruits can be utilized by the body, it must be changed to sugar by digestive processes. He is taught that carbohydrate is the name given to the starches and sugars in food. He learns, furthermore, that such foods as meat, eggs, cheese, and even fat, are also sources of some sugar when digested or used in the body.

The *pathology* of the pancreas is explained to the patient,—in a diabetic the pancreas secretes less insulin than is normal. Hence the sugar that the patient obtains from his food is not completely burned and the amount present in the body is in excess of normal. With a diagrammatic chart the patient can be shown that a part of the excess is stored in the blood, and that when the sugar in the blood goes above a certain amount it "spills over" and is excreted in the urine.

If the patient shows the classical symptoms of diabetes, such as thirst, frequent urination, itching, excessive appetite or loss of weight, these can be used to explain how diabetes is affecting the body. He is told that to be able to excrete the sugar the body must first dissolve it, and this requires large amounts of fluid. It is this need for fluid which causes his great thirst. He realizes that when he drinks large quantities of water he must urinate frequently. He is shown that the itching is due to the presence of excess sugar and when he has less sugar there will be little or no itching. His hunger and loss of weight, it is explained, are due to the fact that the body does not get the full value of the food taken, since part of it is lost as sugar in the urine.

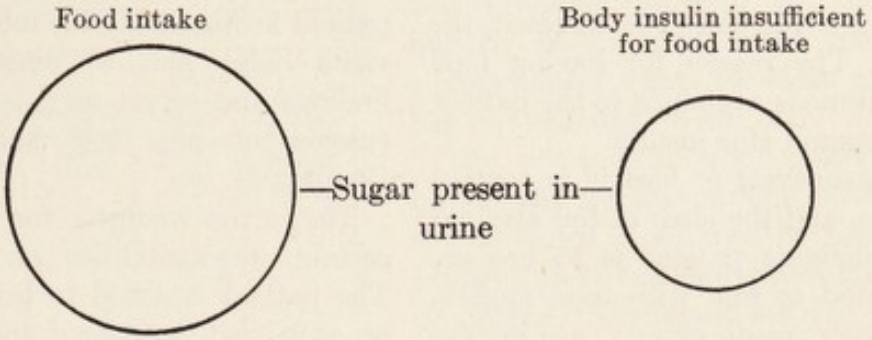
Laboratory tests are means of showing the patient that the amount of sugar in the blood and the amount excreted in the urine are indices of his condition, and that from these is determined his "sugar tolerance." Sugar tolerance is explained as being the amount of carbohydrate (sugar and starch) that he can use or tolerate without having sugar appear in the urine, or an increase of sugar in the blood. Realizing the significance of an examination of the blood, the patient's fear and aversion to the procedure is somewhat diminished.

The *terminology* used with the patient should be understood by him, and many expressions that are employed easily and fluently in teaching must be interpreted. "Sugar tolerance," just defined, is one of these, and another is "sugar free," which is explained by showing the patient several samples of tested urine that contain varying amounts of sugar and contrasting these with a sample that contains no sugar and is said to be "sugar free."

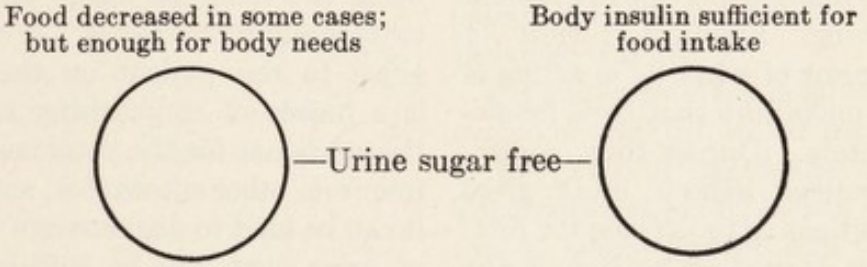
Patients often color diagrams or drawings of test tubes to illustrate the test for the presence of sugar in the urine. They learn that blue indicates no sugar; green, a slight trace of it; yellow or yel-

low-green, about 1 per cent sugar, orange, about 1.5 per cent sugar, and red or reddish-brown, about 2 per cent sugar—an excessive amount.

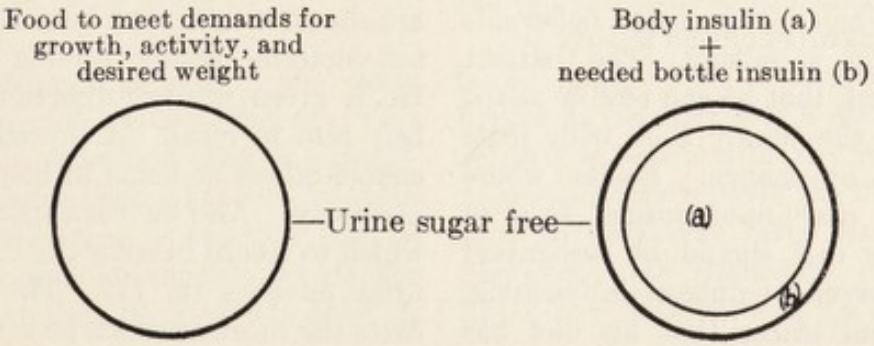
The *interdependence of diet and insulin* is illustrated by diagrams such as the following, showing that only as much food can be eaten as there is insulin to burn the sugar content of the diet. It is explained to the patient that he has not enough insulin in his body to burn the sugar content of his food intake, and that because of this condition there is an excess of sugar in the blood, a part of which is excreted in the urine.



He sees, therefore, that to be "sugar free" he must reduce his food intake, since he has only enough insulin to take care of a certain amount of food, and that he will remain "sugar free" as long as he maintains this balance between food and insulin.



He is shown, further, that if the amount of insulin in his body (a) is not sufficient to take care of the food required for body needs, he must supplement his body insulin with "bottle" insulin (b) to allow an adequate food intake and at the same time remain "sugar free."



Dietary directions are given to help the patient in the choice of foods he should make. The method of teaching is that used in the case of the normal diet; for the patient needs to know the normal body requirements in terms of food constituents, the foods that supply them, and in addition how, in diabetes, the food must be restricted or limited to meet the dysfunction of the body part affected, the pancreas. The reason for having food before bedtime is explained to the patient taking protamin zinc insulin.

The *measurement of food* is important in diabetes, and the sizes of the servings that the diabetic patient is to use are demonstrated to him with food models. These models, made of wax, are invaluable as a method of teaching amounts of foods by visual means to be sure that the patient will estimate his servings correctly. This method of teaching makes the use of scales unnecessary, and allows the patient to follow a more nearly normal regime of living. Frequent review of the diet in terms of what he is eating is necessary to make sure that he is following it accurately. During these conferences the patient himself often gives helpful suggestions as to varying the diet.

The *foods to be used* are written on the list, "Food for the Day," and equivalents are given, especially with respect to carbohydrate in which the diabetic diet must be restricted, and in terms of fat when that also is to be reduced. That the diet requires special foods and specially planned meals, as so many believe, is shown to be a fallacy. The patient learns, instead, that he can readily adapt his diet to the family life, with little modification or change. Points where the patient may need special help in adapting his diet should be recognized and should receive emphasis in teaching.

The patient learns that his diet has been prescribed on the basis of the amounts of food that his body can use without excreting sugar. It can be determined usually from his weight and by the urine analysis and the blood sugar test whether this diet is satisfactorily adjusted to his sugar tolerance and if he is following it correctly.

The *record of the food intake* that the patient keeps during the interval between visits helps him to understand these findings and serves as a basis for a discussion of his food habits (Part I, Chapter 5).

The *urine analysis* for sugar places certain responsibilities on the patient. The patient is asked to bring with him, on each visit, a 24-hour specimen of the urine. Printed instructions are given for this procedure, with necessary explanation. In some instances the meaning of the 24-hour period needs to be demonstrated, with a clock or picture of one, as being the time the hands take to move twice around the clock. A clean bottle given to the patient on the first visit is a means of emphasizing to him that the container for the specimen should be free from other substances; and moreover it can be used to demonstrate the amount of urine that will be sufficient for the analysis. This helps also to emphasize the importance of the procedure of collecting the 24-hour specimen.

If the patient is to test the urine at home, each step of the procedure is explained to him, pictures of the procedure are shown to him, and he performs a test satisfactorily before leaving the clinic. He is given printed directions, both to help him to recall the procedure and to enable others at home to help him when necessary. Also he has a special form on which to record in color the results of the urine analysis (p. 71). The form indicates the times at which he is to make the

test, and a space is provided for the results of all tests made during the interim between visits to the clinic. Also, he is given crayons with which to record as nearly as possible the color of the urine

FORM FOR RECORDING THE COLOR OF THE URINE TESTED AT HOME

COLORS OF URINE TESTS FOR SUGAR

Name B. D. No. Date

Insulin—U Dose

Days	Night Time to Before Breakfast	After Breakfast to Before Noon Meal	After Noon Meal to Before Night Meal	After Night Meal to Bedtime

reaction, having practiced in the clinic the selection of the correct colors. This record, being something that he can observe, indicates to him what his condition is. He is told that a reaction that is green-yellow in color touches the danger line, and that then he must not delay in consulting a doctor. It may indicate a maladjustment between diet and insulin. Such a record of the urine reactions between visits also visualizes to the physician the amount of sugar present in the urine during this period and is a guide to him in treatment. Moreover, the patient soon realizes that if he does not state his food intake correctly the urine analysis will probably indicate it, and consequently he discusses more frankly the circumstances when, for some reason, he has not adhered to his diet.

The *administration of insulin* should be learned by the patient, when conditions require it, so that he need be dependent on no one else except for unusual conditions. He should learn in the clinic to administer insulin to himself properly and with confidence, before he does it at home. In teaching the administration of insulin the patient is first shown a series of photographs illustrating each step in the procedure. When instructing the patient the pictures can be referred to as each step is taken.

It sometimes takes infinite patience to overcome aversion to the procedure, fear of the prick of the needle and self-consciousness concerning lack of skill. Great care is taken to teach him the necessity of sterilizing the syringe, the needle and the top of the insulin bottle, and of strict cleanliness of the hands, and of the flesh at the point of injection of the needle. Some other member of the household should be able to administer insulin to the patient, in case of emergency.

The type of insulin syringe used should be of simple construction, with as few figures as possible, and a diagram of the syringe on which is plainly indicated the amount of dosage, with the time at which it is to be taken, helps the patient to carry out the procedure correctly (p. 72). The symptoms of an insulin reac-

tion are explained to the patient in simple terms so that he will recognize them if they occur; and his fear of a reaction is allayed when he learns that he can easily counteract it by taking some sugar, bread or cereal, or preferably the juice of an orange. Emphasis is placed on the use of food before bedtime so that there will be sufficient food to balance the amount

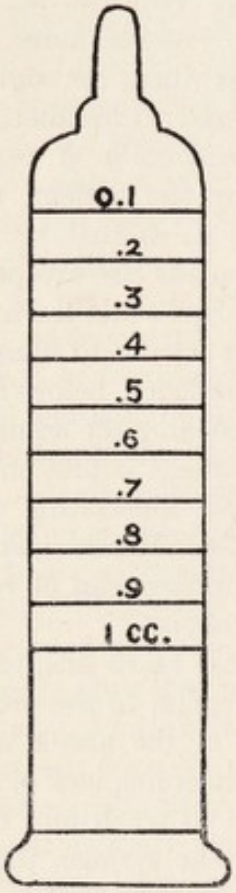


Diagram of Syringe, the Time and Dosage to be Written in for the Patient

of insulin in case of a delayed utilization of the insulin. As a further precaution, and as a means of reassuring him, he is given an identification card to carry. Besides his address, it states that he is a user of insulin, and from whom he is receiving medical treatment.

Environmental factors that affect the diet must be considered in the therapeutic diet as well as in the normal. Most important are those factors that influence the habits of hygiene, both physical and mental, and special emphasis should be placed on means and facilities for developing good habits of personal hygiene. A pamphlet on "The Care of the Feet," and pictures and exhibits can be used in teaching the patient.

Other aids in teaching will suggest themselves. The knowledge which the patient acquires will become more significant and vital to him if he restates it in a notebook in his own terminology and illustrates it with drawings and pictures. Some guidance will usually be necessary. Such practice will help the patient to apply more understandingly the principles taught him.

Peptic ulcer will be used to illustrate further the procedure in teaching the patient on a therapeutic diet, since this condition requires not only an increase above the normal in the amount of a food constituent,—in this case, fat,—but also a change in the consistency of foods.

The *body part affected* is illustrated by means of pictures and charts of the gastrointestinal tract, and the patient is helped to understand the normal condition of the lining of the stomach and how the presence of ulcer causes dysfunction of the stomach or intestine.

Dietary directions are given. To help the patient to realize the reason for his discomfort the ulcer may be likened to a sore. He is accustomed to treat a sore on his body, and knows that acid, touching it, causes it to sting, and he understands that the ulcer would be irritated by the same means. He is told that there are two sources of acid that may affect the ulcer: the accumulation of the gastric juice and the acid-tasting foods. It is clear to him that the latter should be generally avoided. However, orange juice, strained and diluted and taken after other food is usually tolerated. He is

shown that the irritation can be lessened by eating, at frequent and regular intervals, food with which the hydrochloric acid combines readily, such as milk; and further, that the secretion of hydrochloric acid can be decreased by the use of large amounts of fat, and by avoiding foods that stimulate its flow, such as meat, meat broths and gravies and other foods. This helps him to understand why milk and cream are so important and satisfactory in the treatment of ulcer.

Carrying further the analogy between the ulcer and a sore, the patient will understand that the consistency of the foods that come in contact with the ulcer should be like a salve—smooth and soothing. He is told that the stomach has certain movements for "churning" and "grinding" food, which are a part of the process of digestion. He readily sees that giving food of a soft, smooth consistency decreases the work of the stomach because the food preparation has been carried on outside the stomach. Further, he is led to see that meat contains fiber that requires "grinding" by the stomach, and that for this reason and because it stimulates the flow of the hydrochloric acid it must be omitted from the diet until the ulcer heals.

The strainer or sieve is at hand to show that only such foods as can go through the fine meshes should be used. Samples of strained foods—vegetables, cereals, and fruits,—especially those in glass containers in which the food can be seen, are valuable in helping to explain fiber, cellulose and roughage, and to visualize the right consistency. It is helpful to give the patient samples to take home to guide him in the preparation of the food, especially if another person, to whom he must explain the instructions, prepares the diet. The diagram of the whole grain (Part I, Chapter 5, p. 56) will show the patient why the refined cereals are used in this diet, and that enriched white bread is preferable to whole grain bread because it contains no roughage.

In this diet it is especially important to give the food in terms of the "Meal Plan for the Day," in order to stress the regularity of the meals and feedings and the amounts of food that should be taken at one time. Foods that should be avoided because of their harmful effect on the ulcer are listed for the patient, and recipes may be given him, especially for preparations of milk, eggs and cereals. Equivalents give variety to the diet, but the choice of foods should be made with great care as the treatment limits so greatly foods containing certain vitamins and minerals. The record which the patient keeps of his food intake will help him to evaluate the effects of the diet in the improvement of his condition and will demonstrate the importance of adhering to it strictly. It will serve also as a basis for discussion of the principles of the treatment (Part I, Chapter 5).

Food allergy has been chosen as another illustration of the procedure used in teaching the patient, since it requires the omission of certain foods from the diet, although the food constituents are given in normal amounts.

The *physiology and pathology* of the body part affected cannot be explained and visualized so easily in food allergy as in other diseases; for it is difficult for the patient to understand the antagonism existing between antibodies in the body cells and the allergens of foods.

Dietary directions: The word "allergy" is usually new to the patient and should be spoken frequently and written several times. As in the normal diet the patient is shown by pictures how the body builds its own substance by transference to itself of like materials from food. It is ex-

plained to him, further, that sometimes certain foods are resisted by the body cells, which act against them, and symptoms such as those of which he complains are evidence that this is happening. Frequently a patient has found from his own observations that eating certain foods produced certain symptoms. In this connection the words "sensitive" and "allergic" may be introduced, and the patient understands that he is sensitive or allergic to those foods and must omit them from his diet because they produce the symptoms with which he is familiar and which indicate a disturbance in the body. Usually he asks whether he will ever again be able to eat these foods. He is told that when he has been free from symptoms for a long period he may take the foods again, one at a time, and in small amounts at first, to see if the body can tolerate them; that if any of the symptoms reappear the foods must again be immediately omitted; and that if the foods are tolerated, the amounts taken may be increased gradually until they assume their usual place in the diet. It is explained that when he is able to take these foods freely without symptoms, he has become "desensitized."

The word "tolerance" needs explanation. When the patient can take the foods to which he has been sensitive and show no symptoms, he is said to have gained a tolerance for them.

The *foods used* by the patient must meet the requirements of an adequate diet. If certain foods have to be omitted from the diet, the patient understands that foods must be substituted to supply equal amounts of the food constituents, or medication must be prescribed.

Just as in the case of the normal diet, the patient must know the body needs and the values of different foods as sources of the food constituents required to fulfill these needs. If foods important to the adequacy of the diet must be omitted, the patient should know what food constituents they contribute to be able to select foods to replace them. Care must be taken in the choice of equivalents so that the patient will not make the error of choosing another food to which he is sensitive.

The patient is led to see, for example, that if he cannot take milk, the protein, calcium, phosphorus, vitamin A, thiamine and riboflavin that it contributes must be supplied by other foods, and that to ensure right amounts of vitamin D, sunlight and medication must be provided. He is then guided in the selection of equivalents for milk. He sees that cheese makes a good substitute, when allowed, since one ounce equals one cup of milk in all the food constituents except carbohydrate, thiamine, riboflavin, and niacin. He finds that there is no other practical substitute than cheese in terms of calcium and phosphorus, and it may be necessary, therefore, to have medication. The protein may be supplied by meat, fish or poultry of the kinds to which he is not sensitive. He may use eggs to provide protein and vitamin A, thiamine and riboflavin. Or vitamin A may be supplied by butter or fortified oleomargarine. In looking for other sources of the vitamins, he finds that whole grain bread and cereals are valuable for thiamine, riboflavin and niacin, and the enriched bread for thiamine and niacin, and by choosing the kinds to which he is not allergic he may use them. Otherwise, he will have to depend for these vitamins upon the legumes, vegetables and fruits to which he is not sensitive—and these will also help to supply carbohydrate and minerals.

Foods to avoid are remembered with the help of a list of the foods that the patient is "*Not to Eat.*" Special emphasis

is placed on the "hidden" foods; that is, foods to which the patient is sensitive but whose presence in a "made dish," or in certain foods purchased—as cereals, breads, oils, mayonnaise and others—is not evident and is not indicated by the trade name. Lists of these foods are given the patient,—for example, foods in which the egg is used, as certain sauces, breads, cakes, desserts and salad dressings. Samples of various foods should be available, especially samples of the "hidden" foods and foods less familiar to the average patient, to help to demonstrate to him what he may and may not eat.

"*Food for the Day*" is given in kinds and amounts of food that the patient can eat, with lists of equivalents and recipes to help him in choosing a diet sufficiently varied to satisfy his desires. Great care must be used, in giving equivalents, to be sure that when substitutions are made sufficient amounts of all the food constituents are present in the diet for the day. The patient is shown that to make the diet adequate he may have to eat larger than average servings of certain foods used as substitutes, because they contain the desired food constituents in smaller quantities.

Recipes using only the foods to which he is not sensitive are given to the patient to help him in the preparation of the diet and to gain his adherence to it. For example, when wheat is omitted, it is difficult to make a bread that is satisfactory to the patient because the flours from other cereals do not produce a good raised bread, and he does not easily become accustomed to bread made with baking powder or soda. Therefore, recipes are given for breads using flours and cereals to which he is not sensitive, and which usually must be prepared at home because they can rarely be purchased. Frequently a patient will omit bread from the flours that are allowed him because he lacks the facilities or the inclination to prepare it. Suggestions for ways of using and preparing cereals are given to encourage him to use them. Also recipes for foods unfamiliar to him will sometimes help to encourage him to include them in the diet.

The *cost of the diet* may have to be increased when several of the more commonly used and cheaper foods must be omitted and it then becomes necessary to use the more expensive foods. Under such circumstances, in order to ensure the diet, it must be known whether the income will permit the purchase of these foods, especially when the diet is inadequate without them.

A *record of the food intake* (Food Diary) should be kept by the patient, and he should note any symptoms and the time at which they appear. This helps him to realize the importance of following his diet exactly. It helps also to estimate more accurately how well he understands the diet and how faithful he is in adhering to it (Part I, Chapter 5, p. 45).

Contributing factors, other than food, with which the patient makes contact within or without the home, often cause or intensify symptoms. These must also be listed for him. The patient is asked, in his turn, to record with his food intake the circumstances under which symptoms occur. To assist him further to recognize environmental contacts to which he may be allergic, he is asked to make an inventory of the contents of the rooms or places in which he works, eats, sleeps, and plays, and this is closely studied in conference with him.

PART II

TABLES TO SIMPLIFY THE COMPUTATION OF THE DIET

FOREWORD

The tables assembled here will aid in the computation of diets. They can be used independently of the text, just as the engineer refers to tables of figures for help in solving his problems.

The first three of these tables furnish data fundamental in planning and computing diets. In Table 1 are listed the elements of which the body is composed, the substances that are present in food and the purpose of each of these food constituents in relation to body needs, and in the last column the foods that are sources of these food constituents. Reading from left to right on this page, one will see the composition of the body, the food constituents of like substances, and the foods that supply these substances. Or if one would wish to read from right to left in the evaluation of a food there would be found a list of foods supplying the various food constituents, the value of these foods in serving the body and the like substances in the body which they supply.

Table 2 gives the daily requirements of each food constituent, for adults and for children.

Tables 3 lists again the foods that are principal sources of the various food constituents, but in more complete form than in Table 1. Here the foods are grouped in columns under the names of the food constituents they contain, and arranged in such a way that a glance will show the values of particular foods in terms of the number of the food constituents they supply.

Throughout the world people use the same types of food, according to their availability,—breads and cereals, milk and milk products, eggs, meat and fish, vegetables and fruit. These foods differ in kind and in usage, in different countries, under the influence of geography, climate, history, transportation and technological progress of the country. But wherever physical and mental efficiency are maintained, it will be found that people have intuitively, through the ages, adopted a diet and dietary customs that provide sufficient amounts of the food constituents, in accordance with the standards given in these tables. Racial diets and food habits are described briefly in Table 4.

Sex, weight, height, age and activity need to be known to determine the dietary requirements. Therefore Tables 5–13 give weight-height-age measurements and energy requirements for the adult and for the child.

Table 14 gives abbreviations, and weights and measures of various units, to interpret data used throughout the book.

In the table of "Food Values and Measures in Terms of Average Servings of Food" (Table 15), average servings are given both in grams and household measures. The amounts given for household measures are approximate measurements. They have proved advisable as the patient

can easily comprehend them and they more nearly represent his practice in the purchase and serving of foods. The figures for the amounts of the food constituents have been secured from authoritative sources; but it is well understood that they represent proximate analyses. The food values stated may not represent the exact composition of foods, because of certain errors that are inevitable in the analytical methods commonly used.[1] It is to be remembered also that foods are subject to natural variations in composition, the causes and extent of which are only just beginning to be investigated with adequate thoroughness.[2]

Nevertheless the great value of these data has been successfully demonstrated in the experience of many years. For more than a quarter of a century the tables of Atwater and Bryant have been recognized as the great scientific contribution to dietetics.[3] In determining the figures for protein for practical use, these investigators accepted nitrogen as present in foods to the extent of 16 per cent of all proteins. On this authority the factor 6.25 has been used for the conversion of nitrogen to protein (N × 6.25). But it was recognized that this value, designated as "total protein," is subject to two types of error. In the first place, all foods contain varying amounts of nitrogenous bodies that are not protein, as Atwater and Bryant pointed out; and further it cannot be assumed at the present time that all proteins contain 16 per cent nitrogen. In experiments with a few foods, Jones determined the correct figures for the proteins and showed that the nitrogen present varied from 13 per cent to 19 per cent.[4] In regard to these findings, Newburgh writes:

"Since the magnitude of the first source of error, that is the per cent of nitrogen in non-protein forms, is known only for a few foods, these new factors cannot yet be successfully applied often enough to justify a change in the values for protein now in common use."[5]

"Many instances in which chemical studies of the amino-acid composition of a protein were correlated with nutritional studies of its effectiveness in meeting the body's protein requirement have shown clearly that the nutritive value of a protein depends primarily upon the kinds and relative proportions of the amino acids into which it is resolved by digestion."[6]

In the determination of the total fat in foods, both fat, and the fat-like substances extracted at the same time, are included. Newburgh makes allowance for this by using in his tables the inclusive term "lipids." In most analyses of foods the fat-like substances are usually insignificant. Until more exact estimates are reached the present analyses can be used and interpreted as total fat, and the error can be considered negligible.

The earlier tables stated the figures for carbohydrate obtained "by difference," —by adding the analytical data for water, fat, protein and ash and subtracting the sum from 100, assuming the remainder to be carbohydrate. This method is characterized by Newburgh as including

[1] This does not hold in the field of research, where accuracy of figures is demanded for satisfactory results, and the foods used in experimental amounts are carefully analyzed for their exact values.

[2] Sherman, Chemistry of Foods and Nutrition, 6th ed., p. 561, Macmillan Co., 1941.

[3] For a detailed description and discussion of the analytical methods on which these tables are based, see Bulletin No. 28, Office of Experiment Stations, U. S. Dept. of Agriculture.

[4] Circular 193, U. S. Dept. of Agriculture, 1931.

[5] Newburgh and Mackinnon, *The Practice of Dietetics*, p. 100, Macmillan Co., 1934.

[6] Sherman and Lanford, *Essentials of Nutrition*, p. 90, Macmillan Co., 1943.

"the sum of all the errors." More recent tables record the carbohydrate of foods as that which remains after subtraction of the fiber, and classify the results as "nitrogen-free extract," a designation which Mendel says merely cloaks our ignorance.[7] McCance and Lawrence, and Widdowson and McCance, of Great Britain have examined many vegetable foods to determine the percentage of available carbohydrate, and have published the results.[8] While recognizing that these values represent a distinct advance in the direction of greater accuracy in food analyses, yet because their averages are based on a limited number of samples of foods, and on foods not grown, for the most part, in the soil of this country (U. S. A.), it has seemed best not to incorporate them in the Table of Food Values and Measures. They will be found in part, however, in a separate table (Table 20).

It is well to be aware of these facts, and at the same time to realize that they do not detract from the usefulness of these figures in the construction of a diet. The range of error is slight in most cases and in many instances works out favorably to the patient. In certain therapeutic diets the patient will usually receive somewhat less protein, fat or carbohydrate than the tables predict. Where total quantity is important, as with underweight individuals, an extra allowance can be made.

Scientific research is constantly adding to the knowledge of the content of minerals and vitamins in foods, and the latest results of analyses are used. Only the vitamins that are concerned with food are given. One must follow the literature for information about pyridoxine, pantothenic acid and other vitamins.

"Suggestions for Ways of Using Foods in the Diet" are to be found in Tables 16 and 17. And in order to evaluate a combination of foods, such as in cake or pie, there is a table of directions for computing the food value of recipes (Table 18).

Because of the need for varying the diet, there are tables showing foods of equivalent value in terms of a food constituent—carbohydrate, protein, fat, calcium, phosphorus, iron and vitamins (Tables 21 to 45). Food equivalents should be known, in order to make the patient's diet flexible and give it variety within the limitations prescribed. In thinking of one food constituent it must be remembered that other food constituents should be considered (Chapter V).

Some of the tables have been given their particular form or content for special teaching purposes. In Table 30, for example, the purpose is to show that if sufficient milk, or its equivalent in cheese, is not supplied daily, the requirement of calcium cannot be met; for without milk or cheese the fulfillment of the calcium requirement would necessitate such large amounts of other foods containing calcium that the bulk in the diet would be abnormal and unsatisfactory. There are tables similarly planned with respect to fulfilling the day's requirement of iron and phosphorus (Tables 36 and 33).

In connection with other data, figures for acid ash-forming and alkaline ash-forming foods are given in separate tables, and the foods are listed in alpha-

[7] *The Challenge of Nutrition to the Chemist*, the Nucleus, Volume XI, No. 5, Northeastern Section of the American Chemical Society, Inc., February, 1934.

[8] McCance and Lawrence, *The Carbohydrate Content of Foods*, Med. Res. Council, Special Report Series 135, H. M. Stationery Office, London, 1929. Widdowson and McCance, *Available Carbohydrate of Fruits*, The Biochemical Journal, Vol. XXIX, p. 151, University Press, Cambridge, England, 1935.

betical order (Tables 46 and 47). To demonstrate that with the protective diet the acid-base balance need not be stressed, a table of average servings of some common foods has been arranged for comparison of their excess acid ash or excess alkaline ash. It can be clearly seen how the alkaline ash-forming foods, such as milk, potato, fruits and vegetables, neutralize the acid ash-forming foods such as meat, eggs and cereals; that is, a serving of meat will be balanced by a serving of vegetables such as carrots (Table 48).

No table for the content of fiber in foods has been included, as the figures of different analyses vary so widely. Authorities estimate that the requirement is approximately 6 grams per day. The fiber in foods,—seeds, skin, and pulp,—is so evident that the selection of foods without computing their fiber values has proven satisfactory in the practice of diet therapy.

The protective diet carries a margin of safety with respect to the normal requirement of fiber.

For the low residue diet, figures are not necessary, since its purpose is to eliminate as much of the fiber as possible. The needs of the low residue diet can be met with the use of strained foods, prepared commercially or at home (Table 56).

The high residue diet can be met by a liberal use of whole grain products, vegetables and fruits, especially dried fruits. If a diet higher in fiber than the protective diet is desired, two more servings of vegetables and of fruits than the protective diet supplies will increase the residue to approximately one-third above the normal requirement.

To survey a diet and evaluate it roughly as to its contribution of fiber, the following averages, compiled from various authorities, may be helpful:

Vegetables, fresh fruits:
1 gram of fiber per 100 grams (average serving)
Dried fruits:
1.5 grams per 30 grams (average serving)
Whole grain bread and cereals:
0.5 gram per 30 grams (average serving)
Nuts:
0.5 gram per 30 grams

No table for iodine is included here. "The difficulty of quantitative determination of iodine in the extremely minute amounts in which it occurs in most plant and animal tissues must be expected to render somewhat slow and uncertain the working out of satisfactory data on the iodine values of foods and the quantitative requirements of the body for iodine at different ages and under different conditions."[9] If the diet includes sea food, or foods grown in water or soil in which iodine is present, safety is assured. When conditions are such that the diet, including the drinking water, is deficient in iodine, medication is prescribed by the physician or public health authority.

The purin and cholesterol contents of average servings of food are included in Tables 49 to 51.

To relate the findings of the physical examination, laboratory analyses, and diagnosis to the therapeutic diet, a table on certain physiological data is listed in Table 52.

The consideration of allergy by some authorities gives importance to the placing of a food in its biologic group. Arrangement of foods according to this grouping is shown in Table 53. Some authorities use the elimination diet, and

[9] Sherman, *Chemistry of Food and Nutrition*, 4th ed., p. 339, Macmillan Co., 1932.

a table for this procedure is also included (Table 54).

There is a table for the ketogenic diet, for the relation of carbohydrate to fat (Table 55), and also a table of the Food Content of Diets Modified According to Consistency (Table 56). Another table shows the deviation from the normal diet for the overweight, underweight or normal weight diabetic patient, in grams of carbohydrate, protein and fat per kilogram of body weight (Table 57).

There are many variables that would militate against exactness in fulfilling the food requirement, even if accurate figures were available. For example, the outpatient is not under strict control, and there are chances for error in the possible waste of food or in inexact measurements, or in methods of preparation, that would alter the values of the food intake. The patient's condition in response to the diet must be the real test for adequacy, pointing to such adjustments in the amounts of food prescribed as may be needful to accomplish the desired results.

TABLE 1
THE RELATION OF FOOD TO THE BODY
(The Body as a Builder of Its Own Substance)

The Composition of the Body			Food Constituents that Supply the Body Needs for Building and Functioning	Foods that Supply Food Constituents for the Body Needs
Carbon	Carbohydrate and Fats	Protein	*Carbohydrate:* The primary source and most readily available form of energy. Stored in the body and may be transformed into fat.	*Carbohydrate:* Bread, cereals, fruits, milk, sugar, vegetables.
Hydrogen	Water; Carbohydrate and Fats	Protein		
Oxygen	Water; Carbohydrate and Fats	Protein		
		Protein	*Fat:* An additional source of energy; an essential constituent of body cells; chief form of food storage.	*Fat:* Butter, cheese, cream, egg yolk, fats, meats, milk, nuts, oil, vegetable fats.
Nitrogen		Protein	*Protein:* Primarily for growth and maintenance of body tissue and also a source of energy.	*Protein:* Cereals, cheese, eggs, fish, legumes, meat, milk, nuts.
Sulphur		Protein		*Sulphur:* Chiefly in protein foods.
Iron		Protein	*Iron:* The essential element in hemoglobin, the oxygen-carrying constituent of the blood.	*Iron:* Beans (dried), cereals (whole grain or enriched), egg yolk, fruits (dried), meat (especially liver and kidney), molasses, vegetables (green).
Calcium		Minerals	*Calcium and Phosphorus:* Essential for growth and maintenance of the skeletal structure (bones and teeth),	*Calcium* and *Phosphorus:* Cereals (whole grain), cheese, eggs, fruit, milk, nuts, vegetables.
Phosphorus		Minerals	*Calcium, Phosphorus, Iron* and *Other Minerals:* They maintain the proper fluid environment for cellular activity and are constituents of the body cells.	*Potassium:* Meat, potatoes, vegetables. *Sodium Chloride:* Salt. *Iodine:* Sea foods and foods from regions with an adequate supply of iodine in water and soil. *Manganese:* Beans (navy), beets, blueberries, peas (split), wheat bran, wheat (whole grain). *Copper:* Beef liver, calf liver, chocolate, currants, mushrooms, oysters. *Other Minerals:* Supplied by above foods.
Potassium Sodium Chlorine Iodine Copper Manganese Silicon, Mercury, Fluorine, Zinc, Aluminum and others		Minerals		
Vitamin A		Vitamins	*Vitamin A:* Essential for growth and health Maintains healthful condition of the skin and mucous membrane Helps to build teeth and bones Promotes normal vision Important for vision in dim light.	*Vitamin A:* Liver and fish liver oils. Dairy products in which the fat is retained Fortified oleomargarine Fruits—apricots, peaches, cantaloup Vegetables—green leafy and yellow.

Continued on next page.

TABLE 1—*Continued*

The Composition of the Body		Food Constituents that Supply the Body Needs for Building and Functioning	Foods that Supply Food Constituents for the Body Needs
Thiamine	Vitamins—*Continued*	*Thiamine:* Essential to metabolism of carbohydrate. Essential to nervous and muscular systems. Contributes to good muscle tone. Maintains and stimulates appetite. Aids the regular bowel movement. Essential for growth.	*Thiamine:* Meat, particularly pork. Milk. Enriched or whole grain breads and cereals. Vegetables—green leafy and legumes. Fruits. Nuts.
Riboflavin		*Riboflavin:* Promotes growth. Helps to keep the skin healthy. Essential to functioning of every body cell. Helps eyesight. Part of one of the essential enzyme systems.	*Riboflavin:* Milk. Cheese and eggs. Meat and fish. Fruits. Vegetables—green leafy. Whole grain breads and cereals.
Niacin		*Niacin:* Promotes growth. Necessary to keep skin and other tissues normal. Part of one of the essential enzyme systems.	*Niacin:* Meat and fish. Fruits. Vegetables. Whole grain and enriched breads and cereals. Peanut butter.
Ascorbic Acid		*Ascorbic Acid:* Helps to build and maintain strength of walls of capillaries. Essential for normal development of bones, teeth and gums. Essential for normal growth. Essential for maintaining integrity of connective tissue.	*Ascorbic Acid:* Citrus fruits. Raw vegetables. Tomato.
Vitamin D		*Vitamin D:* Helps the body to make the best use of calcium and phosphorus in building the bones and teeth. Helps to prevent rickets. Promotes growth.	*Vitamin D:* Fish liver oil. Milk, especially *irradiated milk*, *modified milk* and *metabolized milk*. Oily fish, such as salmon, herring, sardines. Egg yolk. Butter. Liver.
		Water: The fluid medium of the body necessary for its structure and functioning.	*Water:* Water and the water found in foods.

TABLE 2

APPROXIMATE AMOUNTS OF THE FOOD CONSTITUENTS NEEDED PER DAY FOR BODY BUILDING AND FUNCTIONING IN TERMS OF THE STANDARD OR OPTIMAL REQUIREMENTS[1,2]

	Protein	Fat	Carbohydrate	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D[3]
	Grams per kilogram of body weight			Grams	Grams	Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams	I.U.
Adults:	¾–1.5	1–2	4–6									
Man				0.8	1.32	12	5000	1800	2700	18	75	—
Woman				0.8	1.32	12	5000	1500	2200	15	70	—
Pregnancy				1.5	2.0	15	6000	1800	2500	18	100	400–800
Lactation				2.0	2.0	15	8000	2300	3000	23	150	400–800
Children:	2–3	2–3	6–10									
Under 1 year				1.0	1.0	6	1500	400	600	4	30	400–800
1–3 years				1.0	1.0	7	2000	600	900	6	35	—
4–6 years				1.0	1.0	8	2500	800	1200	8	50	—
7–9 years				1.0	1.0	10	3500	1000	1500	10	60	—
10–12 years				1.0	1.2	12	4500	1200	1800	12	75	—
Girls:	2–3	2–3	6–10									
13–15 years				1.3	1.2	15	5000	1400	2000	14	80	—
16–20 years				1.0	1.2	15	5000	1200	1800	12	80	—
Boys:	2–3	2–3	6–10									
13–15 years				1.4	1.32	15	5000	1600	2400	16	90	—
16–20 years				1.4	1.32	15	6000	2000	3000	20	100	—

Calories: To estimate the total calories multiply the grams of carbohydrate and the grams of protein by 4 and the grams of fat by 9, and total the results.

To secure the number of calories needed for light activity use the median figures for carbohydrate, protein and fat.

For moderate or greater activity increase either the carbohydrate or the fat or both (see Tables 11–13).

[1] The minimal or actual requirement is about 50 per cent below the standard given here. "The custom of allowing such a 50 per cent *margin of safety* in so-called dietary standards for body building material is now come into more general use in the teaching of dietetics."—Sherman, Henry C., *Chemistry of Food and Nutrition*, p. 511, Macmillan Co., 1932.

[2] Minerals and vitamins recommended by Committee on Food and Nutrition of National Research Council—1941.

[3] The amount of Vitamin D needed has not been determined for adults and older children, but should be provided probably up to the minimum amount recommended for infants.

FOODS THAT ARE THE PRINCIPAL

Protein	Fat	Carbohydrate	Minerals			
			Calcium	Phosphorus	Iron	Manganese
*Milk	Milk	Milk	Milk	Milk	Milk	.....
*Cheese	Cheese	.....	Cheese	Cheese	.....	.....
*Egg	Egg yolk	.....	Egg	Egg yolk	Egg yolk	.....
*Fish	Fish, fat	.....	.....	Fish	Shell fish	.....
*Meat	Meat, fat	.....	.....	Meat	Meat	Liver
*Poultry	.....	.....	.....	Poultry	Poultry	.....
.....	Butter	.....	.....	.....	.....	.....
.....	Cream	.....	Cream	Cream	.....	.....
.....	Lard, oil	.....	.....	.....	.....	.....
.....	Margarine, fortified	.....	.....	.....	.....	.....
.....	.....	Fruits	Fruits Berries Citrus fruits Figs, dried fruits	Fruits Berries Dried fruits	Fruits Banana Berries Dried fruits Grapes	Fruits Banana Prunes
Vegetables †Beans, dried *soy †Peas, dried	.....	Vegetables Beans, dried soy Peas, dried Other vegetables	Vegetables Beans, dried snap soy Green, leafy vegetables	Vegetables Beans, dried fresh soy Cabbage Carrots Green, leafy vegetables Peas, fresh dried	Vegetables Beans, dried fresh soy Green, leafy vegetables Peas, dried fresh	Vegetables Beans, dried fresh Green, leafy vegetables Peas, dried
†Potato	.....	Potato	.....	Potato	Potato	Potato
†Bread	.....	Bread, whole grain or enriched	.....	Bread, whole grain	Bread, whole grain or enriched	.....
†Cereal	.....	Cereal, whole grain or enriched	.....	Cereal, whole grain	Cereal, whole grain or enriched	Cereal
.....	.....	Cornmeal	.....	.....	.....	.....
.....	.....	Crackers	.....	.....	.....	.....
.....	.....	Flour	.....	.....	.....	.....
.....	.....	Honey	.....	.....	.....	.....
.....	.....	Macaroni	.....	.....	.....	.....
.....	.....	Rice, polished	.....	.....	.....	.....
.....	.....	Sugar	.....	.....	.....	.....
.....	.....	Tapioca	.....	.....	.....	.....
.....	.....	Molasses	Molasses	.....	Molasses	.....
†Nuts	Nuts	.....	.....	Nuts	.....	.....

* Complete protein.
† Incomplete protein.
‡ For Table of Food Values and Measures, see Table 15.

E 3
RCES OF THE FOOD CONSTITUENTS‡

	Vitamins					
Copper	A	Thiamine (B_1)	Riboflavin (B_2)	Niacin	Ascorbic Acid (C)	D
.....	Milk	Milk	Milk	Milk	.....	Milk, Vitamin D added
.....	Cheese	.....	Cheese	.....	.....	.....
gg	Egg	Egg	Egg	Egg	.....	Egg yolk
yster	.....	.....	Fish	Fish	.....	Fish, fat
iver	Liver	Meat	Meat	Meat	.....	Liver
.....	.....	Poultry	Poultry	Poultry	.....	.....
.....	Butter	.....	.....	.....	.....	Butter
.....	Cream	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	Fish liver oil
.....	Margarine, fortified	.....	.....	.....	.....	.....
ruits	Fruits	Fruits	Fruits	Fruits	Fruits	.....
Avocado	Apricots	Banana			Orange, other citrus fruits	
Banana	Cantaloup	Orange, citrus fruits			Berries	
Grapes	Peaches	Pineapple				
Pear	Prunes	Plums				
		Prunes				
egetables	Vegetables	Vegetables	Vegetables	Vegetables	Vegetables	.....
Beans, dried	Beans, snap	Asparagus	Beans, lima	Beans, soy	Cabbage, raw	
snap	Green, leafy vegetables	Beans, dried soy	soy	Carrots	Carrot, raw	
Carrots	Peas, fresh	Cabbage	Green, leafy vegetables	Green, leafy vegetables	Green, leafy vegetables	
Corn	Tomato	Carrots	Peas, fresh	Peas, fresh	Green pepper	
Green, leafy vegetables	Yellow vegetables	Green, leafy vegetables			Tomato	
Peas, dried		Peas, fresh				
Tomato						
otato	Potato, sweet	Potato	Potato	Potato	Potato	.....
read	.....	Bread, whole grain or enriched	Bread, whole grain or enriched	Bread, whole grain or enriched	.....	.....
ereal	.....	Cereal, whole grain or enriched	Cereal, whole grain or enriched	Cereal, whole grain or enriched	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	Nuts	Nuts	Peanut butter	.....	.....

TABLE 4

SUMMARY: NATIVE BACKGROUND AND FOOD HABITS OF SOME OF THE FOREIGN-BORN AND THEIR AMERICAN ADJUSTMENTS[1]

ITALIANS

BACKGROUND		FOOD HABITS	
		NATIVE	IN AMERICA
GEOGRAPHY AND CLIMATE. (Refrigeration and preservation of food, aside from some drying and pickling, are almost unknown, due to geographical factors which make transportation, etc., difficult.)	1. Three sections, northern, central, and southern or Sicilian. 2. Good farming land; vineyards. 3. Warm climate, similar to California. 4. 75 per cent of population work out of doors in fields and in vineyards. 5. Many fishermen in southern section	I. CEREALS, BREADS, STARCHES	
		1. Macaroni and spaghetti. 2. Corn meal, known as polenta, a main dish. 3. Bread; flour for bread and macaroni is not refined, ground whole grain being used. Chestnut flour used in northern part.	1. Corn meal, polenta, used as main dish. Do not care for or use cereals such as oatmeal, Wheatena, farina, etc. 2. Macaroni and spaghetti in many shapes and forms. Use quantities with various sauces and cheese. 3. White bread, very crusty. Are using more Italian whole-wheat bread than formerly.
REASONS FOR COMING TO THE UNITED STATES. (Emigrants from all countries are almost entirely from the peasant or land-working class. This is the group we are discussing here.)	1. Heavy taxes. 2. No educational opportunities. 3. Overpopulation. 4. Lure of America, the land of golden opportunity. 5. Report of relatives or friends already in in the United States.	II. MILK, CREAM, CHEESE, BUTTER, EGGS	
		1. Milk is used mainly as cheese. Children drink goat's milk. 2. Cheese in abundance, especially hard cheese. 3. No cream. 4. No butter. 5. Eggs fried or in soups.	1. Are learning to use more milk for children to drink, but not enough is used. 2. Do not like American cheese and as imported cheese is expensive, they do not use it as freely as in Italy. 3. No cream. 4. Will give butter to children. 5. Eggs, fried, plain or with peppers, spinach, etc.
CHARACTER OF PEOPLE AND HOME LIFE.	1. Hot-blooded, temperamental, especially in the South. Feuds flourish. 2. Emotional; eager to please. 3. Artistic; fond of good music, art, and color. 4. Father is head of family, getting first of everything. 5. Mother's chief place in life is to cook and care for family and have as many children as possible. 6. Charming, superstitious, and often poor disciplinarians. 7. Women good cooks and spend much time getting meals. 8. Roman Catholics.		

Factors Influencing Conditions in the United States.		
	1. Accustomed to out-of-door work at home, in United States they collect in cities, become laborers, fishermen, etc. 2. Although they handle more money, it costs more to live. Food is expensive. At home they had their own gardens, fruit trees, and milk supply, and they are amazed at cost of things here. 3. Financial circumstances force them into crowded living quarters. 4. Incomes are often irregular and usually inadequate for the needs of large families, although people are industrious and thrifty. 5. Language difficulty. 6. Results are poor living conditions and poorly balanced food intake, predominating in cheap starches (macaroni, white bread), oil, and some meat and eggs to the exclusion of milk, fruits, and vegetables. Results—constipation, overweight, malnutrition. 7. If they can have own home and land, they manage nicely.	
	III. Vegetables and Fruits	
	1. Green leafy vegetables used in quantities, especially in southern portion; broccoli, escarole, salata, spinach, etc. 2. Fresh fruits used in abundance, especially in southern portion; grapes, oranges, persimmons, etc.	1. Decreased use of green vegetables and fruits, due to expense and fact that quantities must be consumed to satisfy. Have no gardens in cities. 2. Use potatoes occasionally, fried. 3. Do not like to use canned goods, except tomato paste. 4. Vegetables poorly cooked, as a rule.
	IV. Meats and Meat Substitutes	
	1. Use very little meat, except occasionally for feast days; then more for flavor and as an extender. Salami, bologna, sausages, etc. 2. Fish used freely along east coast and in southern section; snails, squid, octopus, clams, as well as fish. 3. Quantities of dried peas and beans used in soups and main dishes. 4. Chickens; they raise their own.	1. Very often meat, because of its greater availability, is used more extensively than in Italy to the exclusion of vegetables. Veal, salami, sausage, bologna, etc. 2. Fish is used by some, especially families of fishermen. Also use squid, octopus, snails, etc. 3. Many varieties of dried beans are used in soups and main dishes.
	V. Sweets	
	1. Very few sweet desserts, except on feast days. 2. Marzipan (almond paste) made into fancy shapes and small cakes. 3. Chestnuts. 4. Fruit as dessert.	1. Very few desserts, although they make cake. 2. Do not like milk puddings, but acquire a taste for sweets, candy, etc., here in United States. 3. Marzipan and fancy cakes used on special occasions. 4. Chestnuts. 5. Often use fruit for dessert. 6. Spumoni (a rich ice cream which can be had at Italian restaurants).
	VI. Miscellaneous—Oils, Spices	
	1. Olive oil in quantities. 2. Some salt pork. 3. Garlic, peppers, etc., for flavor.	1. Olive oil in quantities for frying and cooking. 2. Salt pork in cooking. 3. Garlic, peppers, etc., for flavoring.

[1] Tables compiled and arranged by Miss Charlotte Raymond, nutritionist, American Red Cross, Newtonville, Mass., and Miss Frances Stern, director of the Food Clinic of the Boston Dispensary. Taken From Fairfax Proudfit, *Nutrition and Diet Therapy*, 8th ed., 1942. By permission of the Macmillan Company, publishers.

SUMMARY

NATIVE BACKGROUND AND FOOD HABITS (*Continued*)

Near East—Armenia, Syria, Turkey, Greece

Background		Food Habits	
		Native	In America
Geography and Climate. (Refrigeration and preservation of food, aside from some drying and pickling, are almost unknown due to geographical factors which make transportation, etc., difficult.)	1. Fairly elevated countries with many mountains, tablelands, and foothills, making communication and transportation difficult. No railroads. Use caravans. 2. Fine grazing and fertile farming land. Rich in minerals. 3. Mild climate. People live out of doors in tents March to November, raising own food.	**I. Cereals, Breads, Starches**	
		1. Cracked whole wheat (bourglour) and rice used plain or with meat or nuts and vegetables. Sometimes as a cereal. 2. Bread is same as that used in time of Christ, baked on griddles in round, flat loaves; also in coarse loaves, oven-baked (Greece). Finely ground whole wheat is used.	1. Cracked wheat and rice used with meat or nuts and vegetables. 2. Will give children cereal for breakfast. 3. White bread of refined flour baked on griddles same as in old country.
Reasons for Coming to the United States. (Emigrants from all countries are almost entirely from the peasant or land-working class. This is the group we are discussing here.)	1. Persecution by the Turks in the name of Mohammed. Parts of Armenia and Syria are Christianized; hence the Turkish massacres. 2. Few women have come in, except as men already here have returned home to marry.	**II. Milk, Cream, Cheese, Butter, Eggs**	
		1. Milk in form of a thick sour milk (goat's milk). Leban (Syrian). Matzoon (Armenian). 2. Sour milk and hard cheeses. 3. No cream. 4. Butter made of sheep's milk.	1. Do not use enough milk. Are suspicious of bottled milk. Pasteurized milk does not make such good Matzoon. 2. Sour milk and hard cheese used somewhat. 3. No cream. 4. No butter—will give both milk and butter to children when urged.
Character of People and Homelife.	1. Friendly, neighborly races. 2. Makers of exquisite rugs and etched and tooled copper and brass. Rugs assume importance, because people live out so much and have little use for furniture. Use rugs a great deal. 3. Women good cooks. 4. United family life.	**III. Vegetables and Fruits**	
		1. Abundance of vegetables stuffed with wheat or rice and meats or nuts, and cooked with oil and lamb broth (squash, peppers, grape leaves, cucumbers, tomatoes, eggplant, etc.) 2. Salads with olive oil and vinegar, and free use of olives. 3. Semitropical fruits in abundance (grapes, dates, figs, oranges, etc.).	1. Plenty of vegetables used, if money permits. These are stuffed with wheat or rice, with meat, nuts, beans, etc., then cooked with oil and lamb broth (peppers, tomatoes, cabbage, and grape leaves, cucumbers, squash, etc.). 2. Few potatoes. 3. Few fruits except dried apricots, raisins, etc.

FACTORS INFLUENCING CONDITIONS IN UNITED STATES.	These people do not become laborers to any great extent. They have pushcarts, fruit stores, antique-rug shops, are waiters, rug repairers, etc. Because of arts-and-crafts work at home, they are not so lost without out-of-door work here. Under ordinary circumstances these people are usually independent, although high cost of living often results in poorly balanced diet, high in fats and starches and low in fresh vegetables, fruits, and milk. Have been hard hit by the depression. Results: overweight, some malnutrition, and some constipation.		
		IV. MEATS AND MEAT SUBSTITUTES	
		1. Lamb (Kebab) is only meat used to any extent. It is usually barbecued over fire out of doors. Or is combined with cracked wheat or rice and stuffed into vegetables. 2. Nuts are used with cracked wheat or rice in place of meat (pignolias, pistachios, etc.). 3. Dried beans, peas, and lentils used somewhat.	1. Lamb (Kebab) is only meat used to any extent. Is cooked on skewers or with wheat or rice. Sometimes is ground and eaten raw with cracked wheat. (Some chops; no roasts, etc.). 2. Combined with cracked wheat or rice served instead of potato, stuffed into vegetables, etc. 3. Nuts are used in place of meat with cracked wheat and rice. 4. Dried peas, beans, lentils used somewhat.
		V. SWEETS	
		1. Honey used for sweetening. Molasses made from grapes. 2. Few desserts except on special occasions. 3. Paklava (pastry with nuts and honey). 4. Fruit compotes. 5. Fruit candies and Turkish paste.	1. Both honey and sugar used for sweetening. Molasses made from grapes. 2. Use few desserts. 3. Fruit compotes. 4. Paklava (pastry with nuts and honey) or shredded wheat with nuts and honey-bread and honey with cream can be bought at restaurants and bakeries. 5. Apricot candy, Turkish paste.
		VI. MISCELLANEOUS—OILS, SPICES	
		1. Sheep's butter. 2. Olive oil. 3. Many and varied spices. 4. Turkish coffee.	1. Olive oil used a great deal. 2. Many and varied spices in combination. 3. Turkish coffee.

SUMMARY

NATIVE BACKGROUND AND FOOD HABITS (*Continued*)

JEWISH PEOPLE—FROM RUSSIA, POLAND, GERMANY

BACKGROUND		FOOD HABITS	
		NATIVE	IN AMERICA
GEOGRAPHY AND CLIMATE. (Refrigeration and preservation of food, aside from some drying and pickling, are almost unknown, due to geographical factors, making transportation, etc. difficult.)	1. Russia, Poland, Germany. 2. The Jewish race originated in Palestine, and after the fall of the Temple they went all over the world, driven from one country to another. Jews are loyal to the country of their adoption.	I. CEREALS, BREADS, STARCHES	
		1. Barley, Kasha (buckwheat) in soups. Corn meal, oats (Polish). 2. Noodles and other egg and flour mixtures. 3. Dark rye bread (Russian and German). Pumpernickel (German and Russian). 4. Unleavened bread (matzoth) at Passover.	1. Oatmeal and farina used as breakfast food. 2. Barley, Kasha (buckwheat) in soups. 3. Noodles and other egg and flour mixtures. 4. Rye bread and white seed rolls. 5. Matzoth — unleavened bread — at the Passover.
REASONS FOR COMING TO THE UNITED STATES. (Emigrants from all countries are almost entirely from the peasant or land-working class. This is the group we are discussing here.)	1. Depending upon country from which they come. Since 1890 large percentage of Jews came from Russia and Poland. Before that many came from from Germany. 2. Persecution (note present conditions in (Germany). 3. Lack of educational opportunities, etc. 4. Lure of America, land of liberty and opportunity.	II. MILK, CREAM, CHEESE, BUTTER, EGGS	
		1. Use of milk dependent on country; land-workers usually have abundance of milk. 2. Cream cheese and cottage or pot cheese. 3. Sour cream on vegetables, berries, and in soups. 4. Sweet butter. 5. Eggs in soups, noodles, etc.	1. Use milk plentifully if they can afford it. 2. Cream cheese and cottage cheese. 3. Sour cream if able to buy it. 4. Sweet butter preferred. 5. Eggs, plain, in soups, noodles, etc.
CHARACTER OF PEOPLE AND HOME LIFE.	1. Although scattered over the earth, the Jews are very race-conscious. 2. Very close and beautiful home life. Emphasis on spiritual things. 3. Unusually bright and intelligent, as a whole. 4. Ambitious, somewhat emotional people, especially the Russian Jew. 5. Characteristics moulded by religious precepts and difficulties of generations driven from one place to another.	III. VEGETABLES AND FRUITS	
		1. Root vegetables (onions, beets, turnips), cabbage, etc., cooked with meats and in soups (Borsch). 2. Some raw vegetables, as lettuce, tomatoes, cucumbers, eaten with sour cream when available. 3. Dried fruits (prunes, apricots, peaches, pears, cherries, and apples). 4. Pickled and salted vegetables (cucumbers, tomatoes, sauerkraut, etc.).	1. Root vegetables used in soups (Borsch) and with meats. 2. Raw vegetables (lettuce, cucumbers, tomatoes, etc.) used frequently. 3. Use potatoes with meat. 4. Dried fruits, oranges, apples, pears, grapes, plums, etc. 5. Pickled and salted cucumbers, tomatoes, relishes, etc.

FACTORS INFLUENCING CONDITIONS IN THE UNITED STATES.	1. Thrifty, industrious, ambitious as a whole. 2. Very few work in laboring jobs. Have own stores, pushcarts, business such as tailoring, clothes-making, etc. 3. Financial problems not generally as acute with these people as in the case of Italians. Have increased with the depression. 4. Inadequate income results in poorly balanced diet, high in starches and fat and very deficient in fresh fruits and vegetables. Many Jewish people are overweight and constipated, and there is a higher incidence of diabetes than in any other race. 5. Influence of religion must always be considered, as it affects food habits and life as a whole. There are many religious holidays and fast days. Jewish people grew up leaning on the Old Testament, their religious laws and compilations. Their laws were based upon interpretation of the Bible. There are precepts in the Bible for all Orthodox dietary laws.	IV. MEATS AND MEAT SUBSTITUTES	
		1. Meat and poultry in any country, killed and prepared according to religious laws. (Can use only clean or Kosher meat (animals that chew the cud and divideth the hoof). Beef, veal. Non-Jewish people from these countries also use pork. 2. Cheaper cuts only used. (Jews cannot use hind quarter of animal.) Meat cooked with vegetables. 3. Jews cannot use meat and dairy products at same meal. 4. Jews use a great deal of chicken, always on Sabbath eve (Friday). 5. Use meat soups. 6. Use internal organs (chopped liver). 7. Fresh-water, smoked, salted, and pickled fish, herring, salmon, pickerel, carp, whitefish. 8. Dried beans, split peas, and lentils, especially in soups.	1. Meat and poultry chosen, killed, and prepared according to religious law (Kosher). 2. Cheaper cuts used (hind quarters not used). Meat is boiled or cooked with vegetables. 3. Cannot use meat and dairy products at same meal. 4. Use chicken, especially on Sabbath eve. 5. Use meat soups. 6. Use internal organs. 7. Fresh-water fish, cod, haddock, smoked and salt fish, salmon. 8. Dried peas and beans and lentils, used especially in soups, etc.
		V. SWEETS	
		1. Rich pastry rolled with nuts and fruits (Streudel—German). 2. Dried fruits (prunes, pears, cherries, etc.). 3. Pancakes (Blintzen—Russian). 4. Cheese cake. 5. Sponge cakes and macaroons (at Passover without wheat flour).	1. Rich pastry rolled with nuts and fruits (Streudel). 2. Dried fruits. 3. Cheese cake. 4. Sponge cakes and macaroons at Passover.
FACTORS INFLUENCING CONDITIONS IN THE UNITED STATES. RELIGIOUS LAWS	1. *Genesis:* Noah taking animals from the ark clean (Kosher), unclean (trafa). All animals eaten must be Kosher or clean (animals that chew the cud and divide the hoof), and they must be killed and prepared in a prescribed manner. 2. *Exodus and Deuteronomy:* Must not seethe the kid in its mother's milk. Orthodox Jewish people cannot use meat and dairy products at the same meal. Separate utensils must be used in the preparation and serving of meat meals and milk meals. 3. Cannot eat hind quarter of animal, for Jacob had his thigh injured when wrestling with the angels. 4. No milk or dairy products can be eaten until 6 hours after meat. 5. Must rinse mouth after eating fish before eating meat. 6. No wild food can be eaten. 7. No fish without scales can be eaten (no lobsters, clams, oysters, eels, etc.).	VI. MISCELLANEOUS—OILS, SPICES	
		1. Chicken fat used extensively. 2. Oil used some. Flaxseed oil (Polish). 3. Seasonings and many relishes. (Horseradish used somewhat.)	1. Chicken fat, vegetable oil, Crisco. 2. Highly seasoned food. 3. Many relishes, as horseradish.

TABLE 5

WEIGHT-HEIGHT-AGE TABLES FOR MEN AND WOMEN*

Men

Height		Weights according to Age Period in Pounds								
Ft.	In.	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59
5	0	113	119	124	127	129	132	134	135	136
5	1	115	121	126	129	131	134	136	137	138
5	2	118	124	128	131	133	136	138	139	140
5	3	121	127	131	134	136	139	141	142	143
5	4	124	131	134	137	140	142	144	145	146
5	5	128	135	138	141	144	146	148	149	150
5	6	132	139	142	145	148	150	152	153	154
5	7	136	142	146	149	152	154	156	157	158
5	8	140	146	150	154	157	159	161	162	163
5	9	144	150	154	158	162	164	166	167	168
5	10	148	154	158	163	167	169	171	172	173
5	11	153	158	163	168	172	175	177	178	179
6	0	158	163	169	174	178	181	183	184	185
6	1	163	168	175	180	184	187	190	191	192
6	2	168	173	181	186	191	194	197	198	199

Women

Height		Weights according to Age Period in Pounds							
Ft.	In.	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59
5	0	115	118	121	124	128	131	133	134
5	1	117	120	123	126	130	133	135	137
5	2	120	122	125	129	133	136	138	140
5	3	123	125	128	132	136	139	141	143
5	4	126	129	132	136	139	142	144	146
5	5	129	132	136	140	143	146	148	150
5	6	133	136	140	144	147	151	152	153
5	7	137	140	144	148	151	155	157	158
5	8	141	144	148	152	155	159	162	163
5	9	145	148	152	156	159	163	166	167
5	10	149	152	155	159	162	166	170	173
5	11	153	155	158	162	166	170	174	177
6	0	157	159	162	165	169	173	177	182

The height includes ordinary shoes and the weight includes ordinary indoor clothing.
* From the publications of the Metropolitan Life Insurance Company.

TABLE 6

CONVERSION OF POUNDS TO KILOGRAMS

Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms	Pounds	Kilograms
22	10	55	25	105	48	140	64	175	79
25	11	60	27	110	50	145	66	180	82
30	13	65	29	115	52	150	68	185	84
35	16	70	32	120	55	155	70	190	86
40	18	75	34	125	57	160	73	195	89
45	20	85	39	130	59	165	75	200	91
50	22	95	43	135	61	170	77		

1 kilogram = 2.2 pounds.
To convert pounds to kilograms, divide the pounds by 2.2.

TABLE 7

WEIGHT-HEIGHT-AGE TABLE FOR BOYS OF SCHOOL AGE†

Height (Inches)	Average Weight for Height (Pounds)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years
38	34	34	34*													
39	35	35	35													
40	36	36	36*													
41	38	38	38	38*												
42	39	39	39	39*	39*											
43	41	41	41	41*	41*											
44	44	44	44	44	44*											
45	46	46	46	46	46*	46*										
46	48	47*	48	48	48	48*										
47	50	49*	50	50	50	50*	50*									
48	53		52	53	53	53	53*									
49	55		55	55	55	55	55	55*								
50	58		57*	58	58	58	58	58*	58*							
51	61			61	61	61	61	61	61*							
52	64			63	64	64	64	64	64	64*						
53	68			66*	67	67	67	67	68	68*						
54	71				70	70	70	70	71	71	72*					
55	74				72*	72	73	73	74	74	74*					
56	78				75*	76	77	77	77	78	78	80*				
57	82					79*	80	81	81	82	83	83*				
58	85					83*	84	84	85	85	86	87				
59	89						87	88	89	89	90	90	90			
60	94						91*	92	92	93	94	95	96			
61	99							95	96	97	99	100	103	106*		
62	104							100*	101	102	103	104	107	111	116*	
63	111							105*	106	107	108	110	113	118	123	127*
64	117								109	111	113	115	117	121	126	130*
65	123								114*	117	118	120	122	127	131	134
66	129									119	122	125	128	132	136	139
67	133									124*	128	130	134	136	139	142
68	139										134	134	137	141	143	147
69	144										137	139	143	146	149	152
70	147										143	144	145	148	151	155
71	152										148*	150	151	152	154	159
72	157											153	155	156	158	163
73	163											157*	160	162	164	167
74	169											160*	164	168	170	171

Age, Years	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Average height, inches:														
Short	43	45	47	49	51	53	54	56	58	60	62	64	65	65
Medium	46	48	50	52	54	56	58	60	63	65	67	68	69	69
Tall	49	51	53	55	57	59	61	64	67	70	72	72	73	73
Average annual gain, pounds:														
Short	3	4	5	5	5	4	8	9	11	14	13	7	3	
Medium	4	5	6	6	6	7	9	11	15	11	8	4	3	
Tall	5	7	7	7	7	8	12	16	11	9	7	3	4	

* *Note.*—In order to extend the range of the tables so as to include weights of children who are taller or shorter than those in these groups there have been added as starred figures estimated weights. All the other weights represent averages for each inch in height and age of the children observed in this study.

† Prepared by Bird T. Baldwin, Ph.D. and Thomas D. Wood, M.D. Reprinted by permission of the American Child Health Association.

TABLE 8

WEIGHT-HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE†

Height (Inches)	Average Weight for Height (Pounds)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years
38	33	33	33												
39	34	34	34												
40	36	36	36	36*											
41	37	37	37	37*											
42	39	39	39	39*											
43	41	41	41	41	41*										
44	42	42	42	42	42*										
45	45	45	45	45	45	45*									
46	47	47*	47	47	48	48*									
47	50	49*	50	50	50	50	50*								
48	52		52	52	52	52	53*	53*							
49	55		54	54	55	55	56	56*							
50	58		56*	57	58	58	59	61	62*						
51	61			59	60	61	61	63	65						
52	64			63*	64	64	64	65	67						
53	68			66*	67	67	68	68	69	71*					
54	71				69	70	70	71	71	73*					
55	75				72*	74	74	74	75	77	78*				
56	79					76	78	78	79	81	83*				
57	84					80*	82	82	82	84	88	92*			
58	89						84	86	86	88	93	96*	101*		
59	95						87	90	90	92	96	100	103*	104*	
60	101						91*	95	95	97	101	105	108	109	111*
61	108							99	100	101	105	108	112	113	116
62	114							104*	105	106	109	113	115	117	118
63	118								110	110	112	116	117	119	120
64	121								114*	115	117	119	120	122	123
65	125								118*	120	121	122	123	125	126
66	129									124	124	125	128	129	130
67	133									128*	130	131	133	133	135
68	138									131*	133	135	136	138	138
69	142										135*	137*	138*	140*	142*
70	144										136*	138*	140*	142*	144*
71	145										138*	140*	142*	144*	145*

Age, years	6	7	8	9	10	11	12	13	14	15	16	17	18
Average height, inches:													
Short	43	45	47	49	50	52	54	57	59	60	61	61	61
Medium	45	47	50	52	54	56	58	60	62	63	64	64	64
Tall	47	50	53	55	57	59	62	64	66	66	67	67	67
Average annual gain, pounds:													
Short	4	4	4	5	6	6	10	13	10	7	2	1	
Medium	5	5	6	7	8	10	13	10	6	4	3	1	
Tall	6	8	8	9	11	13	9	8	4	4	1	1	

† Prepared by Bird T. Baldwin, Ph.D., and Thomas D. Wood, M.D. Reprinted by permission of the American Child Health Association.

TABLE 9

DETERMINATION OF BASAL ENERGY REQUIREMENT

DuBois Body Surface Chart

(As prepared by Boothby and Sandiford of the Mayo Clinic)

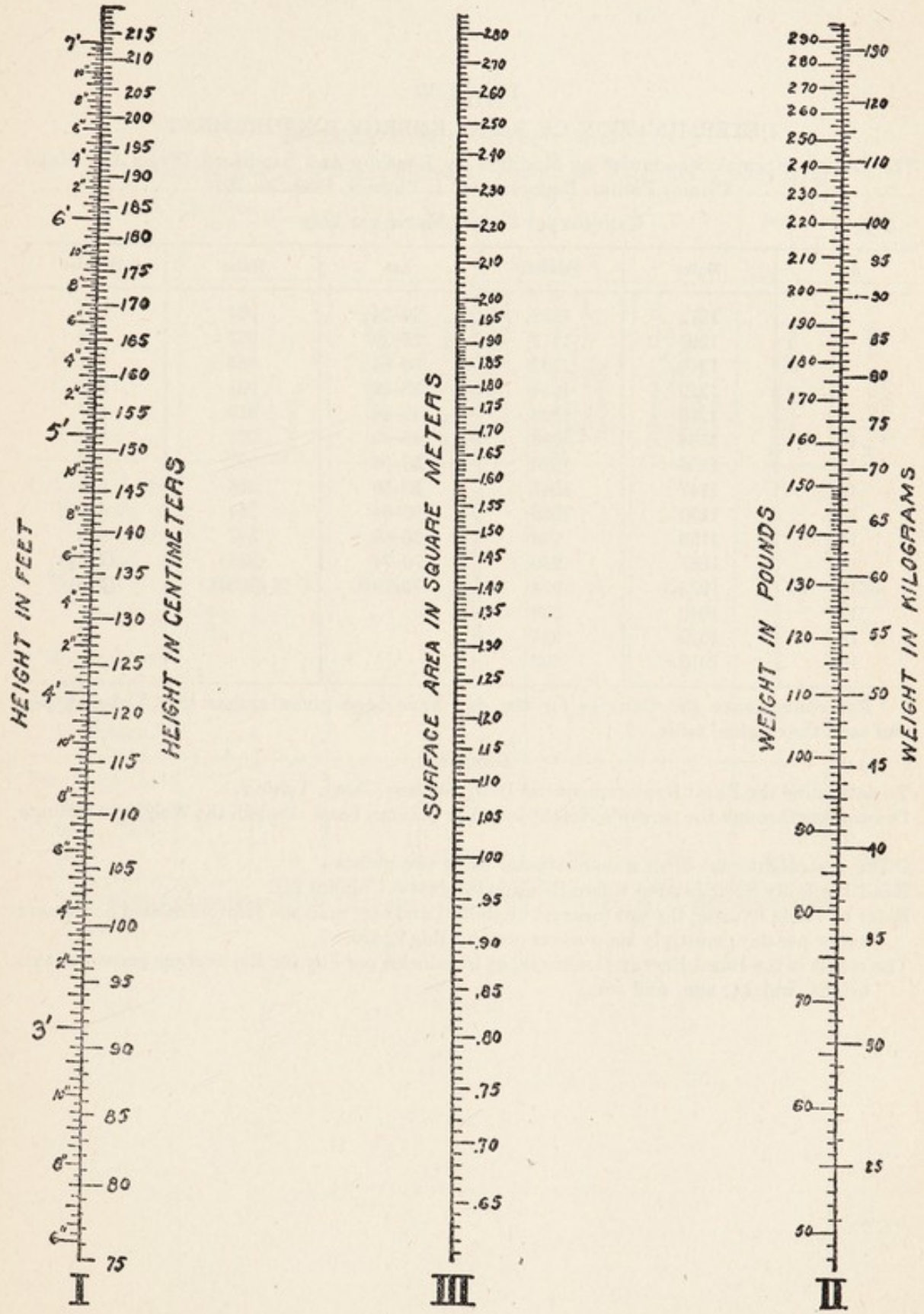


TABLE 10

DETERMINATION OF BASAL ENERGY REQUIREMENT

The Dubois Normal Standards* as Modified by Boothby and Sandiford (From the Mayo Clinic) Prelim. Report: Am. J. Physiol. 1929, 90: 291

Calories per Square Meter per Day

Age	Males	Females	Age	Males	Females
5	1272	1238	20–24	984	886
6	1265	1217	25–29	967	878
7	1248	1162	30–34	955	869
8	1229	1154	35–39	931	859
9	1210	1126	40–44	919	847
10	1188	1099	45–49	907	840
11	1166	1070	50–54	893	828
12	1147	1042	55–59	878	818
13	1130	1028	60–64	864	811
14	1109	984	65–69	847	802
15	1087	950	70–74	(835)	(787)
16	1073	924	75–79	(820)	(775)
17	1049	898			
18	1030	895			
19	1010	892			

* For convenience the Calories for the day have been given rather than Calories per hour as in the original table.

Directions

To determine the Basal Requirement use Body Surface Chart, Table 9.

Draw a line through the person's Height found in Column I and through the Weight in Column II.

Using a straight edge draw a line between these two points.

Read the Body Surface Area where this line intersects Column III.

Refer to Table 10 using the age (nearest birthday) and sex; read the calories needed per square meter per day; multiply the surface area by this figure.

The result is the Basal Energy Requirement in calories per day for the average person of this height, weight, age, and sex.

TABLE 11

ENERGY REQUIREMENT—ADULTS

Calories per Day for Various Grades of Activity per Kilogram of Body Weight

	Basal or Rest	Minimal	Very Light	Light	Moderate	Hard	Severe	Very Severe
	Occupation							
		Bedrest	Seamstress* (hand), Typist*, Tailor*	Seamstress* (machine) Bookbinder*, Shoemaker*, Garment Worker, Salesman, Office Clerk, Teacher	Laundress* (moderate), Metal worker,* Furniture painter* Housewife	Housemaid*, Carpenter*, Laundress* (hard), Mechanic, Truckman, House worker	Stonemason*, Laborer, Mason	Man sawing wood, Fireman
Calories per kilogram of body weight per day:								
Range.....	20 to 25	27.5	30–35	35–40	40–45	45–50	50–70	70–
Typical average weight:								
M. 70 kgm...			32.5	37.5	42.5	47.5	60–	
F. 60 kgm....								
Per cent increase over basal Calories*.....		10	25	50	75	100	150	200

* Based on figures from Lusk, Graham. *Science of Nutrition*, W. B. Saunders, 1928.

TABLE 12

ENERGY REQUIREMENT OF CHILDREN

TOTAL CALORIES FOR CHILDREN IN TERMS OF BODY WEIGHT*

Age in Years	Calories per kilogram		Calories per Pound	
1–2	100–90		45–50	
3–5	90–80		40–36	
6–9	80–70		36–32	
10–13	70–60		32–27	
	Boys	Girls	Boys	Girls
14–15	60–55	50–45	27–25	23–20
16–17	60–55	45–40	27–25	20–18
18–19	55–50	40–35	25–23	18–16

* Rose, *Foundations of Nutrition*, Macmillan Co., 1938.

TABLE 13

ENERGY REQUIREMENT OF CHILDREN

DAILY ENERGY ALLOWANCES DURING PERIOD OF GROWTH

Age of Individual (nearest birthday)	Boys		Girls	
	Average Caloric Intake of Moderately Active Boys*	Range in Requirement Based on Average Weight†	Average Caloric Intake of Moderately Active Girls*	Range in Requirement Based on Average Weight†
1 year		900–1200		800–1000
2 years		1100–1300		1000–1250
3 years	1270	1100–1400	1245	1050–1350
4 years	1429	1200–1500	1362	1150–1400
5 years	1599	1300–1600	1532	1200–1500
6 years	1771	1500–1900	1641	1450–1800
7 years	1918	1600–2100	1757	1500–1900
8 years	2092	1700–2300	1867	1600–2200
9 years	2287	1900–2500	1932	1800–2500
10 years	2333	2100–2700	2001	1900–2600
11 years	2406	2100–2800	2096	2000–2800
12 years	2417	2300–3000	2185	2100–3000
13 years	2522	2500–3500	2381	2300–3400
14 years	2786	2600–3800	2409	2400–3000
15 years	3068	2700–4000	2337	2400–2800
16 years	3330	2700–4000	2285	2200–2800
17 years	3524	2700–3800	2122	2100–2800
18 years	3613			

* White House Conference on Child Health and Protection, *Growth and Development of the Child*, Part III, Nutrition, The Century Co., 1932.

† Rose, *A Laboratory Handbook for Dietetics*, 4th Ed., Macmillan Co., 1937.

TABLE 14

TABLE OF HOUSEHOLD WEIGHTS AND MEASURES*

1 quart	=	4 cups and weighs about 960 grams
1 cup	=	½ pint = 240 grams = 8 fluid ounces
2 cups	=	1 pint
2 pints	=	1 quart
1 teaspoon	=	5 grams
1 dessert spoon	=	10 grams
1 tablespoon	=	15 grams
3 teaspoons	=	1 tablespoon
16 tablespoons	=	1 cup (standard measurement)

* All measurements are level.

A rounded spoonful approximates usually 2 level spoonfuls
A heaping spoonful approximates usually 3 level spoonfuls

TABLE OF METRIC WEIGHTS

1 gram	= $\frac{1}{28}$ ounce (28.35 exact measurement)
$\frac{1}{1000}$ gram (0.001)	= 1 milligram
1 milligram	= 1000 micrograms
$\frac{1}{1,000,000}$ gram	= 1 microgram (1 gamma)
1 kilogram	= 1000 grams

To convert ounces to grams, multiply the ounces by 30 (28.35 grams = 1 ounce)
To convert pounds to kilograms, divide the pounds by 2.2
To convert kilograms to pounds, multiply the kilograms by 2.2

APPROXIMATE WEIGHTS AND MEASURES OF FOODS

30 grams = 1 ounce = 2 tablespoons of the following:

Barley, pearl, dry	Lemon juice	Orange juice
Beans, lima, dried	Milk, skim	Peas, dried
Beans, navy, dried	Milk, whole	Rice
Butter	Molasses	Sugar, granulated
Buttermilk	Oil	Tapioca, minute or pearl
Cream		

30 grams = 1 ounce = 3 tablespoons of the following:

Cornmeal, dry	Cornstarch	Wheat, cream of, dry

30 grams = 1 ounce = 4 tablespoons of the following:

Flour, white, sifted	Cocoa	Oats, rolled, dry

30 grams = 1 ounce = 5 tablespoons of the following:
Cocoanut, dried

TABLE 14—*Continued*

ALCOHOLIC EQUIVALENTS

1 Cordial glass (fluid)	= 20 c.c.
1 Brandy glass (fluid)	= 30 c.c.
1 Sherry glass (fluid)	= 30 c.c.
1 Wine glass (fluid)	= 100 c.c.
1 Cup	= 240 c.c.

VITAMIN UNITS

1 International Unit of Vitamins A or D	= 1 United States Pharmacopeia Unit
1 Milligram of Thiamine	= 333 International Units
1 Milligram of Ascorbic Acid	= 20 International Units

Key: United States Pharmacopeia—U.S.P.
International Units—I.U.
Milligram—mg.
Microgram—γ (gamma)

International Unit: The content of vitamin in foods in terms of the activity of a definite quantity of a substance, as a standard of reference, established by the Health Organization of the League of Nations.

ABBREVIATIONS

av.	average	hp.	heaping	s.d.	sauce dish
b.	biscuit	J.	juice		5¼″ over all
c.	cup	L.	large		3¼″ across the bottom
(C)	canned	lvs.	leaves		1¼″ deep
ck.	cooked	m.	medium	sl.	slice
cu.	cube	oz.	ounce	sm.	small
d.	diameter	p.	piece	sq.	square
enr.	enriched	pt.	pat	st.	stalk
g.	grams	r.	rounded	str.	strained
gl.	glass	s.	serving	t.	teaspoon (level)
gr.	grated	sc.	scant	T.	tablespoon (level)
H.	half			wh.	whole

AVERAGE SERVINGS*

	Household measure	Grams
Bread	1 slice	30
Cereals, dry	¼ cup	30
Cheese	2 tablespoons	30
Fruits, dried		30
Fruits, fresh		100
Milk	1 glass or cup	240
Meat, fish or poultry	3 ounces	90
Vegetables, fresh	1 sauce dish	100
Vegetables, dried (legumes)		30

* These amounts of food are the "average servings" referred to throughout the Tables and the Typical Diets and Menus.

TABLE 15

FOOD VALUES AND MEASURES IN TERMS OF AVERAGE SERVINGS OF FOOD

The values for carbohydrate, protein and fat were computed to the second decimal place and then rounded to the nearest whole or half gram; if desired, the half gram may be disregarded. The calories were taken from these sources and rounded to the nearest whole number. The vitamins from all sources varied so much an attempt was made to take figures that were most conservative and consistent. When a range was given, the median was used. See p. 109 for references.

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micro-grams		Milli-grams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Beverages															
240	Cider, Sweet	1 gl.	30.0			120	0.010		0.6	132	50	70		12	
180	Coca-Cola	1 bottle, 6 oz.	21.5			86									
24	Coffee	2 T.													
240	Ginger ale	1 gl.	21.5			86									
120	Grape Juice	½ gl.	22.0	0.5		90	0.012	0.012	0.4		24	12		2	
4	Tea	1 t.													
					Al-co-hol										
Beverages, Alcoholic															
230	Ale, American	1 gl. 8 oz.	8.0	1.0	9.0	99									
230	Beer, average	1 gl. 8 oz.	9.0	1.5	10.0	112									
30	Brandy, average	1 brandy gl.			10.5	74									
20	Creme de Menthe	1 cordial gl.	7.0		6.0	70									
20	Curacao	1 cordial gl.	4.0		6.0	58									
30	Gin	1 brandy gl.			10.5	74									
30	Rum	1 brandy gl.			10.5	74									
30	Whiskey, Scotch	1 brandy gl.			10.5	74									
100	Wine, California red	1 wine gl.	0.5		10.0	72	0.009	0.015	0.3						
100	Wine, California white	1 wine gl.	4.0		10.5	90	0.009	0.015	0.3						
100	Wine, champagne	1 wine gl.	3.0		11.0	89									
30	Wine, port	1 sherry gl.	4.0		4.5	48									
30	Wine, sherry	1 sherry gl.	2.5		4.5	42									
Bread and Flour Products					Fat										
—	Biscuits, baking powder	1, 2¼″ d.	12.5	2.0	4.0	94	0.016	0.027	0.2	22	65	66	0.22		
44	Bread, Boston Brown	1 sl.	18.0	2.5	2.0	100	0.057	0.083	1.3		44	21			
30	Bread, cracked wheat	1 sl.	12.5	2.5	1.0	69	0.013	0.038	0.4		90	42			
30	Bread, rye, dark	1 sl.	15.0	2.0	0.5	73	0.005		0.5		58	18			
30	Bread, rye, light	1 sl.	16.0	2.5	0.5	79	0.007	0.044	0.5		40	10			
30	Bread, white, enriched (min.)	1 sl.	16.0	2.5	0.5	79	0.020	0.030	0.3		66	52	0.27		
30	Bread, whole wheat	1 sl.	15.0	3.0	0.5	77	0.015	0.045	0.6		96	54	0.62		
50	Doughnuts	1 L.	26.5	3.5	10.5	215									
50	Griddle cakes, white	1, 4″	13.5	2.5	1.5	78	0.026	0.036	0.2	85	19	51			2
—	Muffins, cornmeal	1, 2½″ d.	19.0	3.0	5.5	142	0.030	0.053	0.4	290	96	91	0.24		
50	Muffins, English	½, 3½″	23.0	3.0	4.0	140									
—	Muffins, plain	1, 2½″ d.	19.0	3.0	5.5	142	0.030	0.047	0.4	215	86	103	0.27		
—	Rolls, white	1, 2″ d.	16.5	2.5	2.5	99	0.021	0.032	0.3	29	77	94	0.24		
7	Ry-Krisp	1	5.0	1.0		24	0.004	0.028	1.2		23	6	0.11		
5	Toast, melba	1 sl.	4.0	1.0		20	0.004	0.008	0.1			5			
60	Waffles	1, 6″	19.0	5.0	13.0	213	0.059	0.084	0.6	217	46	128			8
Cereals															
30	Barley, pearl, dry	2 T. (⅛ c. ck.)	22.0	2.5		98	0.005	0.057	0.6		150	36	0.45		
30	Bran flakes	½ c.	22.0	3.0	0.5	105	0.018	0.018	1.4		30	42			
15	Corn, popped	1 c.	12.0	2.0	0.5	61									
30	Cornflakes	1½ c.	25.0	2.5		110	0.002	0.015	0.3			21	0.30		
30	Cornmeal, yellow, dry	3 T. (¼ c. ck.)	22.0	2.5	1.0	107	0.005	0.046	0.3	225	135	39	0.30		
30	Cream of wheat, dry, enr.	3 T. (⅛ c. ck.)	20.5	3.5	0.5	101	0.143	0.168	12.0		150				
30	Macaroni, dry	¼ c. (¾ c. ck.)	22.0	4.0	0.5	109	0.006	0.044	0.4		15		0.11		

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micro-grams		Milli-grams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Cereals—Continued															
30	Maltex, dry	2 T. (¼ c. ck.)	23.0	5.0	0.5	117	0.016	0.081	1.1		50	46	1.42		
30	Noodles, dry	¼ c. (¾ c. ck.)	21.0	4.0	1.5	114	0.007	0.043	0.4		4		0.12		
30	Oats, rolled, dry, Quaker	¼ c. (¾ c. ck.)	18.0	5.0	2.0	110	0.016	0.126	1.5		219	65	0.40		
10	Pablum	4 T.	7.0	1.5	0.5	39	0.078	0.062	3.0		100	33			
30	Ralston, dry	2 T. (¼ c. ck.)	21.0	4.5	0.5	107	0.015	0.105	1.2		195	30	1.35		
30	Rice, brown, dry	2 T. (¼ c. ck.)	23.0	2.5	0.5	107	0.020	0.101	0.6		68	24	2.07		
30	Rice, puffed	2 c.	25.0	2.0		108	0.003	0.030	0.3						
30	Rice, white, dry	2 T. (¼ c. ck.)	24.0	2.5	1.0	115	0.003	0.028	0.3		9				
30	Spaghetti, dry	¼ c. (¾ c. ck.)	18.5	3.0	0.5	91	0.006	0.036	0.3				0.11		
15	Tapioca, minute or pearl	1 T.	13.0			52	0.002	0.001	0.2			15			
10	Wheat germ	1 T.	5.0	2.5	1.0	39	0.007	0.105	0.7	40	300	70	0.30		
15	Wheat, puffed	1 c.	10.5	2.0		50	0.006	0.059	0.6			12			
30	Wheat, shredded	1 b.	24.0	3.5		110	0.014	0.125	1.0		81	55	1.50		
Crackers															
3	Crax (butter cracker)	1	3.5	0.5	1.0	25			0.1						
10	Graham	1, 2½″ sq.	7.5	1.0	1.0	43	0.002	0.020	0.2		10				
10	Oysterettes	10	7.0	1.0	1.0	41									
4	Saltines	1, 2″ sq.	3.0	0.5	0.5	19	0.001	0.004	0.1						
6	Uneeda	1, 2½″ sq.	4.5	0.5	0.5	25	0.001	0.006	0.1						
8	Zwieback	1	6.5	1.0	0.5	35	0.008	0.012	0.1						
Flour															
10	Cornstarch	1 T.	9.0			36									
120	Rye flour, medium	1 c.	91.0	13.0	1.5	430	0.022	0.347	1.6		230	72	1.20		
100	Soy bean flour	1 c.	12.0	37.5	20.0	378	0.216	0.583	2.7	250	900	600	4.80		
112	White flour, sifted	1 c.	85.0	12.0	1.0	397	0.020	0.113	1.2		90	45	0.77		
112	White flour, sifted, enr. max.	1 c.	85.0	12.0	1.0	397	0.020	0.113	5.9		616	448	2.24		246
112	White flour, sifted, enr. min.	1 c.	85.0	12.0	1.0	397	0.020	0.113	1.5		414	291	1.46		62
7	White flour, sifted, enr. min.	1 T.	5.0	0.5		22	0.001	0.007	0.1		26	18	0.09		4
130	Whole wheat flour, unsifted	1 c.	93.5	18.0	2.5	469	0.046	0.398	4.6	13	585	325	3.50		
Dairy Products															
5	Butter	1 t.			4.0	36	0.001	0.001		135[1]					5
15	Butter	1 T.			12.0	108	0.002	0.002		405[1]					15
30	Cheese, American (cheddar)	2 T. or 1 oz.	1.0	7.0	10.0	122	0.279	0.210	0.3	450	7	165	0.06		
30	Cheese, cottage (skim milk)	2 T.	1.0	6.0		28	0.025	0.079	0.3	53		84			
30	Cheese, cream	2 T.		5.0	13.0	137	0.108	0.078	0.2	648	5	30	0.06		
30	Cream, heavy, 40%	2 T. or 3½ T. whip.	1.0	1.0	11.5	112	0.024	0.019		638	9	42			
120	Cream, heavy, 40%	½ c.	4.0	4.0	46.0	446	0.096	0.076	0.2	2,552	36	168			
240	Cream, heavy, 40%	1 c.	8.0	8.0	92.0	892	0.192	0.152	0.4	5,404	72	336			
15	Cream, light, 20%	1 T.	0.5	0.5	3.0	31	0.014	0.012		177	5	25			
30	Cream, light, 20%	2 T.	1.5	1.0	6.0	64	0.028	0.024		354	10	50			
120	Cream, light, 20%	½ c.	6.0	4.0	24.0	256	0.112	0.096	0.2	1,416	40	200			
30	Egg, white	1		3.0		12	0.004	0.005				69	0.02		
50	Egg, whole	1		7.0	5.0	73	0.027	0.112	1.5	500	75	125	0.03		30
18	Egg, yolk	1		3.0	5.0	57	0.024	0.106	1.5	500	75	52	0.01		
240	Milk, buttermilk	1 c.	12.0	9.0	0.5	89	0.252	0.233	0.7	3	78	192	0.19	3.0	
15	Milk, condensed	1 T.	8.0	1.0	1.5	49	0.045	0.035	0.1	42	12	53	0.03		

[1] The vitamin A content of butter varies according to the season or the type of feed for the animals.

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micrograms		Milligrams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Dairy Products—Continued															
30	Milk, dried, whole (powdered)	1 oz.	11.0	8.0	7.5	144	0.282	0.212	0.5	288	75	450	0.33		
30	Milk, evaporated	2 T.	3.0	2.0	2.5	43	0.072	0.060	0.1	113	19	99		0.5	2[2]
120	Milk, evaporated	½ c.	12.5	9.0	10.0	176	0.288	0.240	0.5	450	78	396		1.5	6[2]
9	Milk, malted	1 T.	6.5	1.5	1.0	41	0.032	0.031	0.2	38	31	45			
30	Milk, skim	2 T.	1.5	1.0		10	0.036	0.028	0.1	3	13	60	0.03		
240	Milk, skim	1 c.	12.0	8.0	1.0	89	0.293	0.230	0.7	24	108	480	0.22	3.0	
30	Milk, whole	2 T.	1.5	1.0	1.0	19	0.036	0.028		58	16	65	0.03		
120	Milk, whole	½ c.	6.0	4.0	5.0	85	0.141	0.111	0.3	231	63	262	0.11	1.0	3[3]
180	Milk, whole	¾ c.	9.0	6.0	7.0	123	0.213	0.168	0.3	345	93	393	0.18		3[3]
240	Milk, whole	1 c.	12.0	8.0	9.5	166	0.283	0.223	0.5	461	125	523	0.22	3.0	5[3]
960	Milk, whole	1 qt.	48.0	32.0	38.0	662	1.132	0.892	2.0	1,844	500	2,092	0.88	12.0	20[3]
Desserts[4]															
—	Cake, angel	4½″ × 3″ 3½″ arc.	48.0	5.0		212	0.007	0.020	0.2		52	114	0.21		
—	Cake, plain	2″ cu.	26.0	2.0	4.0	448	0.018	0.032	0.3	154	62	69	0.20		
—	Cake, sponge	4½″ × 3″ 3½″ arc.	40.5	6.5	4.0	224	0.023	0.098	1.3	375	108	130	0.21		
—	Cake, white	2″ cu.	33.5	2.5	4.5	185	0.016	0.025	0.2	153	57	71	0.19		
—	Cookies, oatmeal	1 thin 2¼″ d.	13.5	2.5	1.5	78	0.008	0.056	0.7	39	91	32	0.16		
—	Cookies, sugar	1 thin 2¼″ d.	5.0	0.5	1.0	31	0.002	0.006	0.1	44	16	13	0.05		
10	Gelatin	1 T.		9.0		36									
—	Gingerbread	2″ sq.	45.0	4.0	7.5	264	0.083	0.041	3.2		117	82	0.41		
—	Ice, orange	4 hp. T.	53.5			214	0.010	0.007	0.2	90	45	20	0.09	24.0	
100	Ice cream, commercial, vanilla	½ c.	20.5	4.0	13.0	215	0.076	0.066	0.2	530	25	50			
100	Jello, lemon	1 s.	31.5	2.5		136	0.003	0.002	0.1		5		0.01	7.0	
—	Mousse, chocolate	3 hp. T.	20.0	3.0	21.5	286	0.063	0.067	0.2	1,115	27	106	0.01		
—	Pie, apple	⅛ 8″ pie	75.0	4.5	21.5	512	0.015	0.052	0.9	167	177	126	1.06	5.0	
—	Pie, lemon meringue	⅛ 8″ pie	67.5	5.5	15.0	427	0.024	0.080	1.2	227	151	124	0.42	18.0	
—	Pudding, bread	3 hp. T.	25.0	5.0	7.5	188	0.128	0.125	0.7	284	98	245	0.23	1.0	
—	Pudding, cornstarch	3 r. T.	26.0	3.0	3.5	148	0.106	0.083	0.2	173	49	196	0.08	1.0	
—	Pudding, custard	3 hp. T.	21.0	9.0	8.5	197	0.162	0.196	1.4	605	117	355	0.13	1.0	
—	Pudding, tapioca	1 hp. T.	27.5	6.0	6.0	188	0.125	0.134	0.9	384	80	267	0.10	1.0	
—	Sherbet, orange	4 hp. T.	57.0	2.5	3.0	265	0.095	0.074	0.3	228	83	173	0.16	44.0	
—	Shortcake, peach	1 b. 3″ d.	76.0	6.5	13.5	452	0.065	0.110	1.2	3,462	261	264	2.47	16.0	
—	Spanish Cream	3 hp. T.	13.5	6.5	5.0	125	0.098	0.113	0.7	343	69	212	0.08	1.0	
Fats															
15	French dressing	1 T.	1.0		8.5	81									
15	Lard	1 T.			15.0	135									
15	Mayonnaise (one egg recipe)	1 T.	0.5		11.0	101	0.002	0.005	0.1	30	4	10			
15	Oil, corn	1 T.			15.0	135									
15	Oil, cottonseed	1 T.			15.0	135									
15	Oil, olive	1 T.			15.0	135									
15	Oleomargarine, fortified	1 T.			12.5	113	0.003	0.003		296					
Fish															
12	Anchovy (C)	3 sm.		2.5	1.0	19	0.003	0.026	0.1						
100	Clams, long (soft shelled)	6–10	2.0	13.5	1.5	76	0.123	0.105	4.1	200	25		1.08		
30	Cod	1 oz.		5.5		22	0.003	0.123	0.1	4	22	48	0.60		
90	Cod	3 oz.		16.0		64	0.009	0.368	0.3	12	66	144	1.80		
30	Cod, salt, dry	1 oz.		8.5		34	0.008	0.076	0.1						

[2] More than ½ of the evaporated milk produced in this country is irradiated and contains not less than 34 U.S.P. units of vitamin D per ½ cup.

[3] If the vitamin D content of milk has been increased by any method it will be indicated, ranging from 135–400 I.U. per quart.

[4] Recipes for the desserts are computed on pages 113–119.

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micrograms		Milligrams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Fish—Continued															
90	Cod, salt, dry	3 oz.		26.0	0.5	109	0.025	0.227	0.5						
60	Crab (C)	⅓ C.	0.5	9.5	1.0	49	0.009	0.108	0.6		81	210	1.68		
30	Flounder	1 oz.		4.5		18	0.011	0.048	0.3		24	57	1.15		
90	Flounder	3 oz.		13.0	0.5	57	0.033	0.144	0.9		72	171	3.46		
30	Haddock	1 oz.		5.0		20	0.005	0.060	0.3		5	60	1.80		
90	Haddock	3 oz.		15.0		60	0.015	0.180	0.9		15	180	5.40		
30	Halibut	1 oz.		5.5	1.5	36	0.003	0.060	0.3		27	60	1.82		
90	Halibut	3 oz.		16.5	4.5	107	0.009	0.180	0.9		81	180	5.47		
60	Herring, pickled	1 sm.		12.0	9.0	129									
90	Herring, smoked	½		33.0	14.0	258	0.036	0.396	1.8	63	40	144			
90	Lobster meat	¾ C. sc.	0.5	16.0	1.0	75	0.054	0.252	0.9		145	125		4	
30	Mackerel	1 oz.		5.5	2.0	40	0.003	0.082	0.3	45	36	16	1.80		
90	Mackerel	3 oz.		17.0	6.5	127	0.010	0.246	0.9	135	108	50	5.40		
30	Oysters, raw	2 m.	1.0	2.0	0.5	17	0.016	0.045	1.7	60	90		0.20		
90	Oysters, raw	6 m.	3.0	6.0	1.5	50	0.048	0.135	5.1	180	270		0.60		
30	Salmon, fresh	1 oz.		6.5	4.0	62	0.004	0.073	0.3	150	23	60	2.00		78
90	Salmon, fresh	3 oz.		19.5	12.0	186	0.012	0.219	0.9	450	69	180	6.00		234
30	Salmon, red (C)	¼ C.		6.5	3.5	58	0.020	0.085	0.4	100[s]	20	67	2.00		150
90	Salmon, red (C)	¾ C.		19.5	10.5	173	0.060	0.255	1.2	300[s]	60	201	6.00		450
30	Salmon, smoked	1 oz.		6.5	3.0	53	0.020	0.085	0.4			50	1.80		
30	Sardines (C)	3 m.		6.0	7.5	92	0.011	0.110	0.5	45	15		1.20		
90	Scallops	4 m.	3.0	13.0		64	0.015	0.153	0.7	180	8	42			
30	Shad	1 oz.		5.5	3.0	49	0.006	0.060	0.3						
30	Shrimp	3-4 m.		7.0		28	0.028	0.051	0.4		27	48	0.23		
90	Smelts	2 L.		16.0	1.5	78	0.013	0.182	0.9						
60	Tuna	⅔ c.		16.0	7.0	127	0.021	0.174	0.8	120					
90	White fish	3 oz.		20.5	6.0	136	0.015	0.183	0.9		81				
Fruits "5%" Edible Portion															
100	Average Figure	1 sv.	5.0	0.5		22									
100	Avocado, Fuerte	½ m.	5.0	1.5	26.5	266	0.019	0.044	1.4	110	150	138		5	
100	Rhubarb	1 c.	4.0	0.5		18	0.004	0.018	0.5	100	15			20	
100	Watermelon	2 × 2½ × 1½″	7.0	0.5		30	0.007	0.013	0.2	50	30	15	0.10	7	
Fruits "10%" Edible Portion															
100	Average Figure	1 sv.	10.0	1.0		44									
100	Blackberries	1 s.d.	12.0	1.0	1.0	61	0.017	0.019	0.9	75	30			7	
100	Cantaloup (muskmelon)	½ m.	9.5	0.5		40	0.016	0.018	0.7	1,000	50	60		30	
100	Cranberries	1 c.	11.5	0.5	0.5	53	0.013	0.011	0.6	50			1.29	12	
20	Cranberry sauce (without sugar)	2 T.	10.0			40	0.001			5				2	
100	Currants, red	½ c.	12.5	1.5	0.5	61	0.026	0.038	0.6		45			45	
100	Gooseberries	⅔ c.	10.0	1.0	0.5	49	0.035	0.031	0.5					25	
100	Grapefruit, fresh	½ m.	10.0	0.5		42	0.021	0.020	0.3	21	75	60	0.21	40	
100	Grapefruit juice (C) unsweetened	½ c. sc.	10.5	0.5		44	0.021	0.020	0.3	21	75	60	0.21	40	
100	Lemon, fresh	1 L.	8.5	1.0	0.5	43	0.022	0.011	0.6		30			45	
100	Lemon juice	½ c. sc.	8.5	1.0	0.5	43	0.022	0.011	0.6		30		0.08	45	
100	Orange, fresh	1 m.	11.0	1.0		48	0.024	0.018	0.4	225	110	50	0.22	54	
100	Orange juice	½ c. sc.	12.5	0.5		52	0.024	0.018	0.4	225	110	50	0.22	54	
100	Peach, yellow, fresh	1 m.	12.0	0.5		50	0.010	0.019	0.3	1,500	45	45	0.95	8	
100	Strawberries	10 L.	8.0	0.5	0.5	39	0.023	0.023	0.9	75	20	10		38	
100	Tangerine	2 sm.	11.0	1.0	0.5	53	0.041	0.018	0.3	252	86	22		27	

[s] Vitamin A figures of canned salmon per 30 grams range from 30 I.U. in pink to 100 in red to 225 in Chinook.

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micro-grams		Milli-grams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Fruits "15%" Edible Portion															
100	Average Figure	1 sv.	14.0	0.5		58									
100	Apple	1 sm.	14.0	0.5	0.5	63	0.007	0.012	0.4	72	40	30	0.50	6	
100	Apple juice	½ c.	13.0			52	0.008		0.4	70	24	36		6	
100	Apricots, fresh	3 m.	13.0			52	0.015	0.024	0.6	4,500	40	105		5	
100	Blueberries	⅔ c.	15.0	0.5	0.5	67	0.025	0.020	0.9	50	30	15		10	
100	Cherries	25 sm.	15.0	1.0	0.5	69	0.017	0.022	0.6	150	45			8	
100	Grapefruit (C)	8 sections	14.0	0.5		58	0.021	0.020	0.3	21	75	60	0.30	40	
100	Grapes, Tokay	20	15.0	1.0	1.0	73	0.015	0.021	0.7	40	34	9		2	
100	Nectarine	2 m.	16.0	0.5		66	0.005	0.022	0.5	1,500	72			24	
100	Pear, fresh	1 m.	16.0	0.5	0.5	71	0.015	0.018	0.3	12	55	75	0.14	4	
100	Pineapple, fresh	1 sl. ¾″	14.0	0.5		58	0.016	0.011	0.3	50	100	65		18	
100	Pineapple juice (C)	½ c. sc.	13.0	0.5	0.5	59	0.018	0.010	0.1	50	75	25		7	
100	Plums	3 av.	13.0	0.5		54	0.020	0.027	0.5	107	120	40	0.56	5	
100	Raspberries, red	¾ c.	14.5	1.0	0.5	67	0.024	0.027	0.9	130	25			12	
Fruits "20%" Edible Portion															
100	Average Figure	1 sv.	19.0	0.5		78									
100	Figs, fresh	3 m.	20.0	1.5	0.5	91	0.053	0.036	0.9	75	90	82	0.63	2	
100	Peach, yellow (C)	2 H., 1 T. juice	18.0	0.5		74	0.009	0.013	0.2	1,500	30	45		4	
100	Pears (C)	2 H., 1 T. juice	18.0	0.5	0.5	79	0.009	0.018	0.2	10	30	75			
100	Pineapple (C)	1 sl. ¾″, 1 T. juice	21.0	0.5		86	0.015	0.009	0.3	25	63	25		10	
Fruits Over "20%" Edible Portion															
100	Average Figure	1 sv.	25.0	0.5		102									
100	Apple sauce (C)	½ c.	26.5	0.5		108	0.005	0.009	0.3	72	27	30		4	
100	Apricots (C)	4 sm. H., 1 T. juice	25.0	0.5		102	0.009	0.014	0.4	4,088	21	79		2	
100	Banana	1 m.	23.0	1.0		96	0.008	0.028	0.6	350	50	75	0.61	10	
100	Fruit cocktail (C)	½ c. sc.	26.0	0.5		106	0.014	0.019	0.4	493	57	66		4	
100	Prune juice	½ c. sc.	23.0			92	0.012	0.018	0.9						
Fruits, Dried, Edible Portion															
30	Apricots	6 H.	20.0	1.5		86	0.020	0.036	2.3	2,500	27	81		1	
30	Currants	2 T.	21.5	1.0		90	0.023	0.041	0.8						
30	Dates	3–4	23.5	0.5	1.0	105	0.022	0.018	1.0	90	23	14	0.66		
30	Figs	2 sm.	22.5	1.0		94	0.048	0.035	0.9	21	39	31	0.52		
30	Peaches	2 H.	21.5	1.0		90	0.018	0.036	1.8	1,100	12	60			
30	Prunes, stoned	3 m.	21.5	0.5		88	0.018	0.024	0.9	420	60	105			
30	Prunes, Str. (C), Heinz	2 T.	8.0	0.5		34	0.010	0.010	0.5	60	13	42			
30	Raisins, seeded	2 T.	22.0	1.0	1.0	101	0.018	0.030	0.9	17	45	38	0.19		
Meats[6]															
30	Bacon	5 sl. full length		3.0	19.5	188	0.002	0.032	0.5		30	30	1.32		
30	Beef, lean	1 oz.		6.5	2.5	49	0.004	0.061	0.9		48	69	2.23		
90	Beef, lean	3 oz.		19.5	7.5	146	0.012	0.183	2.7	27	144	207	6.69		
30	Beef, medium fat	1 oz.		5.0	6.5	79	0.003	0.050	0.7		45	60	2.36		
90	Beef, medium fat	3 oz.		15.0	19.5	236	0.009	0.150	2.1		135	180	7.08		
90	Brain, av.	3 oz.		9.5	8.5	115	0.008	0.098	2.1		225	233	5.40	8	
30	Ham, lean	1 oz.		7.5	4.5	71	0.006	0.072	0.9		304	75			

[6] The vitamin content of meat is given before cooking. Like most other foods, meat undergoes a change in its vitamin content on cooking, the exact amount depending upon its method of preparation.

Table showing % of vitamin lost in the cooking of meat

	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Roasting	30%	10%	5%	—
Broiling	25%	10%	5%	25%
Braising	35%	10%	10%	50%
Cooking in water	40%	13%	—	50%

[Adapted from chart of National Live Stock and Meat board.]

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micrograms		Milligrams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Meat:—Continued															
90	Ham, lean	3 oz.		22.5	13.5	212	0.018	0.216	2.7		912	225			
30	Ham, medium fat	1 oz.		5.0	10.5	115	0.003	0.045	0.7		180	65	2.64		
90	Ham, medium fat	3 oz.		15.0	31.5	344	0.009	0.135	2.1		540	195	7.92		
90	Heart, av.	3 oz.		14.5	10.0	148	0.008	0.210	5.6		248	923	6.12		
90	Kidney, av.	3 oz.	1.0	13.5	7.5	126	0.015	0.255	5.8	849	225	1,680	4.14	6	
30	Lamb, medium fat	1 oz.		6.0	5.0	69	0.003	0.062	0.5		75	71	2.54		
90	Lamb, medium fat	3 oz.		18.0	15.0	207	0.009	0.186	1.5		225	213	7.62		
30	Liver, beef	1 oz.	0.5	6.0	1.5	40	0.003	0.113	2.4	9,000	120	900	4.72	11	
90	Liver, beef	3 oz.	1.5	18.5	4.5	121	0.010	0.340	7.4	27,000	360	2,700	14.18	33	
30	Liver, calves	1 oz.	1.0	5.5	1.5	40	0.003	0.113	1.6	8,100	120	990	4.70	9	
90	Liver, calves	3 oz.	3.0	17.0	4.5	121	0.010	0.340	4.9	24,300	360	2,970	14.11	29	
30	Liver, lamb	1 oz.	1.0	6.0	1.0	37	0.003	0.113	1.9	8,100	120	990	4.27	11	
90	Liver, lamb	3 oz.	3.0	18.5	3.0	113	0.010	0.340	5.9	24,300	360	2,970	12.83	33	
30	Liver, pork	1 oz.	0.5	5.5	1.0	33	0.003	0.113	9.1	8,100	128	810	5.13	8	
90	Liver, pork	3 oz.	1.5	17.0	3.0	101	0.010	0.340	27.3	24,300	384	2,430	15.39	24	
30	Pork, lean	1 oz.		8.5	2.0	52	0.006	0.072	0.9		360	68			
90	Pork, lean	3 oz.		25.5	6.0	156	0.018	0.216	1.8		1,080	204			
30	Pork, medium fat	1 oz.		4.5	9.5	104	0.003	0.065	0.7		320	65	2.64		
90	Pork, medium fat	3 oz.		13.5	28.5	311	0.009	0.195	2.1		960	195	6.92		
30	Poultry, dark	1 oz.		6.5	1.5	40	0.006	0.067	0.6		45	67	2.00		
30	Poultry, light	1 oz.		7.0	1.0	37	0.004	0.067	0.6		28	21	2.19		
90	Sweetbreads, av.	3 oz.		10.5	30.0	312					38	668			
90	Tongue, av.	3 oz.		15.0	13.0	177	0.010	0.133	2.3		257	200	5.47		
30	Veal, lean	1 oz.		6.0	3.0	51	0.003	0.063	0.9		68	77	2.10		
90	Veal, lean	3 oz.		18.0	9.0	153	0.009	0.189	2.7		204	231	6.30		
Miscellaneous															
10	Olive, green	1 m.	1.0		3.0	31	0.012	0.001	0.3	12	7	25			
10	Olive, ripe	2 sm.	0.5		2.5	25	0.012	0.001	0.3	10					
20	Tomato ketchup	1 T.	5.0	0.5		22	0.003	0.004	0.2						
100	Pickle, dill	1 L.	2.0	0.5		10									
30	Pickle, sweet	1 sm.	10.0			40									
—	White sauce, thin	½ c.	8.5	4.0	10.5	145	0.143	0.116	0.3	433	75	270	0.15		
—	White sauce, med.	¼ c.	5.5	2.0	8.5	107	0.072	0.060	0.2	315	44	138	0.10		
Nuts															
30	Almonds, shelled	24–30	5.0	6.5	16.5	195	0.076	0.142	1.2	174	54	150	0.55		
30	Brazil	4	3.0	4.5	20.0	210	0.038	0.180	0.8	3	150				
30	Cocoanut, dried	5 T.	16.0	1.0	12.5	181	0.017	0.047	1.0		45				
30	Peanuts, roasted	33–35	7.0	8.0	11.5	164	0.020	0.012	0.6	108	165	45	3.00		
30	Peanut butter	2 T.	5.0	9.0	14.0	182	0.020	0.012	0.6	108	165	45	5.58		
30	Pecans, shelled	24 H.	4.5	3.0	21.0	219	0.026	0.100	0.8	90	150	90			
30	Walnuts, shelled	16–32 H.	4.0	5.5	19.5	214	0.027	0.107	0.6	15	135				
Soups															
240	Bouillon	1 c.		6.0		24									
240	Consomme, plain broth (C) Heinz	1 c.		8.5		34	0.005	0.046	1.0						
240	Pea, (C), Heinz	8 T. + ½ c. water	9.5	3.5	2.0	70									
240	Tomato, (C), Heinz	8 T. + ½ c. water	15.0	2.0	2.0	86									
240	Vegetable with beef stock (C), Heinz	8 T. + ½ c. water	18.0	3.5	1.0	95									
Sweets and Candy															
30	Chocolate, unsweetened	1 sq.	9.0	4.0	14.5	183	0.027	0.136	0.8		23				
3	Cocoa, dry	1 t.	1.0	0.5	0.5	12	0.003	0.018	0.1						

TABLE 15—*Continued*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micro-grams		Milli-grams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Sweets and Candy—Continued															
9	Cocoa, dry	1 T.	3.0	1.0	2.5	40	0.009	0.057	0.2						
30	Honey	2 T. sc.	24.0			96	0.001	0.005	0.2		2	17	0.11		
20	Jelly	1 T.	15.0			60									
100	Jelly	5 T.	75.0	1.0		304									
30	Marmalade, orange	1 hp. T.	25.5			102									
30	Molasses, cane	2 T. sc.	21.0	0.5		86	0.077	0.009	2.8						
20	Sorghum	1 T.	13.5			54									
30	Syrup, corn, light	2 T.	26.0			104	0.003								
30	Syrup, maple	1 r. T.	21.5			86	0.032	0.004	0.9						
11	Sugar, brown	1 T.	10.5			42	0.010	0.001	0.3						
11	Sugar, confectioners	1 T.	11.0			44									
15	Sugar, granulated	1 T.	15.0			60									
15	Sugar, maple	1 pc. 1″	13.5			54	0.035	0.003	0.6						
12	Chocolate cream	1	9.0	0.5	2.0	56	0.003	0.014	0.1						
43	Chocolate, Hershey, plain	1 bar, 5¢	24.0	3.0	14.5	239	0.086	0.089	1.1						
35	Chocolate, Hershey, almond	1 bar, 5¢	17.0	3.0	13.5	202	0.072	0.087	1.0						
199	Chocolate, Nestles, semi-sweet	17 oz. bar	104.0	10.5	66.5	1,057									
33	Fondant	3 pieces	30.0			120									
30	Fudge	1 piece	19.5	0.5	2.5	103	0.010	0.015	0.1	61	5	13			
30	Gum drop	3 L.	29.5			118									
28	Marshmallow	4	25.0	1.0		104									
25	Peanut brittle	1 piece 2½″	17.0	3.0	4.5	121	0.007	0.039	0.2	36	50	20			
Vegetables[7]															
100	Mushrooms	10 m.					0.014	0.098	0.7		60	5		1	
Vegetables "5%" Edible Portion															
100	Average Figure	1 s.	4.0	1.5		22									
100	Asparagus, fresh	8 st.	4.0	2.0		24	0.021	0.040	1.0	500	165	100	0.51	27	
100	Asparagus, (C)	7 st.	3.0	2.0		20	0.016	0.029	0.7	500	100	75		20	
100	Beans, green string (C)	½ c.	6.5	2.0		34	0.037	0.038	1.4	830	64	73			
60	Beans, green string, strained (C), Heinz	4 T.	2.0	1.0		12	0.031	0.018	0.6	680	22	44		5.5	
30	Beans, soy, dried	2 T.	3.5	10.5	5.5	106	0.068	0.176	2.5	30	360	225	1.23		
100	Bean sprouts	1 c. sc.	4.0	3.0	0.5	33	0.042	0.054	1.0	35	30	120		160	
100	Beet greens	½ c.	5.5	2.0	0.5	35	0.094	0.040	3.2	16,100	111	625		35	
60	Beets, strained (C), Heinz	4 T.	5.0	1.0		24	0.010	0.020	1.0	28	6	16			
100	Broccoli, entire plant	½ c.	5.5	3.5		36	0.140	0.068	1.4	6,000	90	350	1.20	65	
100	Cabbage, partly green	⅔ c.	5.5	1.5		28	0.046	0.034	0.4	55	105	100	0.29	60	
100	Cabbage, Chinese	1 c.	2.5	1.5		16	0.050	0.044	1.0	2,000	76	38		40	
60	Carrots, strained (C), Heinz	4 T.	3.0	0.5		14	0.016	0.016	0.6	3,876	14	28		3	
100	Cauliflower	½ c.	5.0	2.5		30	0.025	0.064	0.9	47	165	185		71	
100	Celery, bleached	4 st.	4.0	1.5		22	0.072	0.046	0.6	10	35	43		17	
100	Chard, Swiss	½ c.	5.0	1.5	0.5	31	0.100	0.050	3.1	9,000		75		15	
100	Cucumber	1 m.	3.0	1.0		16	0.006	0.018	0.3	20	30	25	0.32	8	
100	Egg Plant	½ c.	5.5	1.0		26	0.011	0.031	0.8	60	70	25	0.60	5	
100	Endive	2 st.	4.0	1.5		22	0.104	0.039	1.2	3,850	100	236	0.72	12	
100	Escarole	4 lvs.	4.0	2.0		24	0.074	0.038	1.8	15,000	110	250		8	

[7] Figures for vegetables are for fresh, raw products, unless otherwise indicated. Mineral and vitamin losses will vary with the method of cookery. Vegetables commercially canned or frozen lose negligible amounts of their vitamin content. The household measures given in cups are for the cooked product.

TABLE 15—*Concluded*

Grams	Foods	Household Measure	Grams			Calories	Grams		Mgm.	I.U.	Micro-grams		Milli-grams		I.U.
			Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D
Vegetables:—Continued															
100	Kale	½ c.	7.0	4.0	0.5	49	0.181	0.067	2.5	16,000	150	400		100	
100	Lettuce, green leaf	10 lvs.	3.0	1.0		16	0.069	0.028	1.5	5,000	75	150		15	
100	Lettuce, head	¼ hd.	3.0	1.0		16	0.017	0.040	0.5	100	75	45	0.50	15	
60	Peas, strained (C), Heinz	4 T.	5.0	3.0		32	0.006	0.048	1.0	738	72	70		7	
100	Pepper, green	1 L.	5.5	1.0		26	0.012	0.028	0.4	3,000	30	50	0.76	125	
100	Radishes	10	4.0	1.0		20	0.037	0.031	0.8	25	60	30	0.10	25	
100	Sauerkraut	½ c.	5.0	1.5		26	0.039	0.009	0.3	25	20			5	
100	Spinach, fresh	½ c.	3.0	2.5	0.5	27	0.078[a]	0.046	2.5	18,000	100	400	0.72	50	
60	Spinach, strained (C), Heinz	4 T.	1.0	1.5		10		0.022	0.6	8,516	16	60		7	
100	Squash, summer	½ c.	4.0	0.5		18	0.018	0.015	0.4	300	42	81		3	
100	Tomato, fresh	1 m.	4.0	1.0	0.5	25	0.007	0.021	0.6	1,000	75	45	0.58	22	
100	Tomato (C)	½ c.	4.0	1.0	0.5	25	0.007	0.015	0.4	1,000	75	45	0.55	22	
100	Tomato juice	½ c.	4.0	1.0	0.5	25	0.007	0.015	0.4	1,000	75	45	0.10	22	
20	Tomato paste (C)	1 T.	3.0	1.0		16	0.007	0.018	0.4						
60	Tomato, strained (C), Heinz	4 T.	3.0	0.5		14	0.005	0.010	0.3	690	45	30	0.06	12	
100	Watercress	1 sm. bunch	3.0	2.0	0.5	25	0.157	0.046	3.0	2,000	125	220		55	
Vegetables "10%" Edible Portion															
100	Average figure	1 sv.	8.5	2.0		42									
100	Artichoke, French	½ L.	12.0	3.5	0.5	67	0.040	0.094	1.0	225	120			9	
100	Beans, green string, fresh	½ c.	7.5	2.5		40	0.065	0.044	1.4	1,000	75	110	0.64	25	
100	Beets, fresh	2 m.	9.5	1.5		44	0.024	0.041	0.9		30	50	0.64	15	
100	Brussels sprouts	7 sm.	9.0	4.5	0.5	59	0.027	0.121	1.2	500	150			65	
100	Carrots, fresh	1 L.	9.5	1.0	0.5	47	0.045	0.041	0.6	6,000	100	90	1.47	4	
100	Dandelion greens	½ c.	9.0	2.5	0.5	51	0.084	0.035	3.1	10,500	187	225		22	
100	Okra	10 pods	7.5	2.0		38	0.075	0.053	0.6	2,000	120			20	
100	Onions	2 m.	10.0	1.5		46	0.038	0.044	0.5		30	50	0.10	15	
100	Peas (C)	4 T.	10.0	3.0		52	0.016	0.106	1.3	588	236	130	1.30	6	
100	Pumpkin	½ c.	7.5	1.0		34	0.023	0.046	0.9	2,000	45	45	0.70	5	
100	Rutabaga (yellow turnip)	½ c.	9.0	1.0		40	0.074	0.056	0.5	28	30	35		30	
100	Squash, winter	½ c.	9.0	1.5	0.5	17	0.019	0.028	0.6	3,000	48	81		3	
100	Turnip, white	½ c.	7.5	1.0		34	0.051	0.032	0.5		30	30		30	
Vegetables "15%" Edible Portion															
100	Parsnips	½ c.	14.0	1.5	0.5	67	0.060	0.076	0.8		155	75			
100	Peas, fresh	½ c.	17.5	6.5	0.5	101	0.023	0.127	2.1	1,000	400	200	1.35	25	
Vegetables "20%" Edible Portion															
100	Beans, baked (C) with fat	3 r. T.	19.5	7.0	2.5	129	0.062	0.185	2.0	55	132	110			
30	Beans, lima, dried	2 T. (½ c. ck.)	20.0	5.5	0.5	107	0.022	0.116	2.9	30	157	235	0.55		
30	Beans, navy, dried	2 T. (½ c. ck.)	18.0	7.0	0.5	105	0.044	0.139	3.1		153	98	0.85		
100	Corn, yellow, fresh	1 m. ear ½ c.	20.5	3.5	1.0	105	0.006	0.103	0.5	600	135	60		10	
100	Corn, yellow (C)	4 T.	19.0	3.0	1.0	97	0.007	0.100	0.4	500	100	60		6	
30	Lentils, dried	2½ T.	18.0	7.5	0.5	107	0.031	0.115	2.6	15	150	95	0.93		
30	Peas, dried	2 T. (½ c. ck.)	18.5	7.5	0.5	109	0.023	0.123	1.8	225	158	90	0.30		
100	Potato, white	1 sm.	19.0	2.0		84	0.011	0.057	1.3	30	100	40	1.18	10	
Vegetables Over "20%" Edible Portion															
100	Beans, lima, fresh	½ c.	23.5	7.5	1.0	133	0.028	0.133	2.4	300	300	175	0.29	30	
45	Potato chips	30 L.	22.0	3.0	16.5	250	0.015	0.063	1.2	45	100	40			
100	Potato, sweet	1 sm.	28.0	2.0	0.5	125	0.030	0.052	1.0	3,500	90	75	1.29	20	

[a] Calcium of spinach is not available (see Sherman and Lanford, Essentials of Nutrition, 2nd ed., Macmillan Co., 1943).

Sources of figures used in Table 15:

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TABLE 16

VARIED MENUS USING APPROXIMATELY THE SAME TOTAL FOOD FOR THE DAY

Breakfast					
Fruit Cereal with milk and sugar	Fruit	Fruit	Fruit Cereal	Fruit	Fruit Griddle cakes or waffles with butter and syrup or jelly
Bread or toast, butter, jelly	Bread or toast, butter	Bread or toast, butter, jelly	Bread or toast, butter, jelly	Doughnuts	
Egg	Egg	Bacon or ham and egg			Bacon or sausage
Beverage	Beverage	Beverage	Beverage	Beverage	Beverage
Noon Meal					
Cereal with cheese	Soup with cereal		Milk soup		
Vegetable salad with mayonnaise	Vegetable salad with cheese Mayonnaise	Vegetable plate including potato	Fish or chicken salad with vegetables Mayonnaise	Egg or meat sandwich Vegetable salad with mayonnaise	Vegetables au gratin Crisp salad with dressing
Bread and butter	Rolls and butter	Rolls and butter	Rolls and butter		Rolls and butter
Fruit	Fruit ice	Fruit salad	Fruit gelatin	Fruit and cookies	Fruit and cookies
Milk	Milk	Milk	Beverage	Milk	Milk
Evening Meal					
Broth with crackers		Broth with cereal	Tomato juice	Vegetable soup, toasted crax	Consomme
Meat or fish Potato	Meat or poultry Rice	Meat or poultry with stuffing	Baked beans	Meat or poultry with dumplings	Meat or chicken pie with vegetables
Vegetables, 2-cooked	Vegetables, cooked, salad	Vegetables, cooked, celery, olives	Cole slaw or crisp salad	Vegetables, cooked	Vegetable, cooked
Bread and butter	Bread and butter	Bread and butter	Brown bread and butter	Rolls and butter	Bread and butter
Fruit gelatin Cake	Fruit pie	Ice cream	Fruit sherbet	Cereal pudding	Floating island
Beverage	Beverage	Beverage	Beverage	Beverage	Beverage

TABLE 17

SUGGESTIONS FOR WAYS OF USING FOODS IN THE DIET*

	Milk	Meat, Fish and Poultry			Eggs	Cheese	Fats
		Fresh, Canned	Salt	Smoked			
Kinds of Food	Dried Evaporated Fresh Skimmed	Beef Pork Lamb Mutton Veal	Pork	Beef Pork		American Cottage, with or without the fat Cream Others	Bacon Butter Oils Peanut butter Cheese (see cheese) Cream (see milk)
		Chicken Duck Turkey					
		Cod Flounder Haddock Halibut Herring Mackerel Salmon Shell fish	Cod Haddock Herring Mackerel Salmon	Haddock Halibut Herring Salmon			
Ways of Using the Foods	As a beverage: Chocolate Eggnog Fruit juices Milk shakes Over cereals In boiled dressing In cereals In cream sauce In custards In puddings In vegetable or fish chowder In vegetable soup With fruits and berries In ice cream In junket In sherbets *Cream* In beverages In frozen desserts: Ice cream Mousse In gelatin desserts In soups With desserts: Plain Whipped As sandwich fillings combined with fruits and nuts	As croquettes, with white sauce, crumbs and egg, fried As hash, with chopped vegetables As loaf, with egg, crumbs, cereal and chopped vegetables As meat balls or fish cakes with egg, bread crumbs, and cereal As stuffing for vegetables combined with egg and cereal In chowder, fish with milk and potatoes In pie, with vegetables and biscuit crust In salad, with egg, fruit and vegetables In sandwiches with vegetables In soup with vegetables and cereals In stew, meat with vegetables With cream or white sauce (cheese may be added) With cereals, as macaroni, spaghetti, and rice (vegetables may be added)		As omelet, combined with: Cheese Jelly Vegetables Scrambled, combined with: Cheese Meat Tomatoes Stuffed, combined with foods to flavor With cream sauce (cheese may be added) With bacon With toast In desserts: Cakes or cookies Custard Frozen desserts Pudding In salad, combined with meat, fish, vegetables, chicken In sauces In mayonnaise	With cream sauce on toast, noodles, macaroni, rice With omelets In cheese cake or pie In salads with fruits and vegetables In sandwiches alone or with vegetables In soups as flavoring With crackers and jelly	*Butter* On bread On cereals On potato On vegetables In puddings In sauces for both vegetables and desserts *Peanut Butter* On bread In sandwiches In hot breads In cookies *Bacon* With eggs, meat, and fish With vegetables, hot or in salad *Oils* *Dressings:* Mayonnaise with egg French dressing with vinegar or lemon juice

* For recipes consult an authoritative cook book.

TABLE 17—*Continued*

	Cereals*	Breads and Flours*
Kinds of Food	Barley (pearled) Cornflakes Cornmeal Farina Grapenuts Hominy Macaroni Noodles Oats, rolled Pettijohn Ralston Rice, brown Rice, polished Spaghetti Tapioca Wheat, cracked Wheat, shredded Wheatena	Cornmeal, whole Cornstarch Graham Oatmeal Rye Wheat, whole White
Ways of Using the Foods	As breakfast cereals (hot or cold) Fried mush Fritters Served with: Fruits (fresh, dried, canned) Milk, cream, butter Molasses, honey, syrup In fritters In gruels In soups As a main dish Combined with meat, fish, egg or cheese Served with cream sauce (cheese may be added), tomato sauce As fried mush As dessert: In cookies In puddings, served with Milk, cream, butter Fruit (fresh, dried, canned) Molasses, honey, syrup Spices Sugar, brown and white	*Breads* Sliced, served with butter, jelly, honey, peanut butter Sandwiches filled with Cheese or jelly Fruit (fresh, dried) Mayonnaise Meat, fish, poultry Relishes Vegetables Toast, foods served on Cheese and bacon (toasted together) Cream sauce (cheese may be added) Jelly, honey, butter Meat, fish, poultry (with or without gravy) Vegetables (creamed or buttered) Hot breads Muffins, with dried fruits, berries, molasses Pancakes Popovers Scones Waffles Crackers Arrowroot cookies "Butter" varieties "Cheese" varieties Graham Oatmeal Rice wafers Ry-Krisp Soda crackers Sweetened varieties Plain or frosted Combined with fruit, nuts, chocolate, spices Whole wheat wafers In puddings *Flours* Cake Plain or frosted With or without fat In combination with nuts, fruits, chocolate, spices and flavoring Cookies Plain or frosted In combination, as above Doughnuts Pie

* With few exceptions breads and cereals are enriched or fortified to the whole grain nutritive value.

TABLE 17—*Concluded*

	Vegetables				Fruits		Sweets
	Fresh or Canned			Dried			
	Green Leafy	Yellow	Others	Legumes	Fresh, Canned	Dried	
Kinds of food	Beet greens Brussels sprouts Cabbage Chard Dandelion greens Lettuce Spinach	Carrots Corn, yellow Parsnips Potato, sweet Squash Turnip	Asparagus Beans, lima Beans, string Beets Cauliflower Celery Corn, white Cucumbers Eggplant Onion Peas, green Peppers Potatoes, white Radishes Tomatoes	Beans Lentils Peas	Apple Banana Berries Grapefruit Lemon Orange Peach Pear Pineapple Rhubarb Tomato	Apples Apricots Dates Figs Peaches Prunes Raisins	Honey Molasses Sugar, brown Sugar, white Syrup
Ways of using the foods	Salads (raw or cooked) Combined with: Cheese, nuts, eggs Fruit Meat, fish, poultry *Dressing*— French, mayonnaise, boiled or variations Served with: Butter Cream, thin Sauce, white (cheese may be added) Scalloped with: Crumbs and butter In soups with: Meat, fish, poultry (cereals may be added) In chowders and stews with: Fish and milk Meat In sandwiches with: Butter and dressing (cucumbers, lettuce, onion, young spinach, tomato, watercress) As pickles and relishes			Combined with: Meat, vegetables Baked with: Added fats Fat meat Molasses Brown sugar In scalloped dishes In soups (Cheese or meat may be added) In sandwiches (Baked beans)	Candies Desserts: Frozen Mousse Sherbet Gelatin Pies Puddings Shortcake Juice With or without pulp In salads combined with Cheese and nuts In sandwiches combined with: Cheese and nuts In sauces for: Meat, fish, desserts Preserved, as: Jam, jelly, marmalade Whole Raw or cooked With cereals		*Molasses* In baked beans In gingerbread In ginger cookies On bread On cereal *Sugar* In desserts In candy In jelly In preserves On cereals On fruit *Honey and Syrup* Used as molasses

TABLE 18

METHOD OF COMPUTING THE FOOD VALUE OF A RECIPE AND THE COMPUTED FOOD VALUE OF SOME COMMONLY USED RECIPES*

The recipe should be taken from an authoritative cook book.

Steps in computing the food value of a recipe:

1. List the foods used in the recipe stating the amounts in both grams and household measures.
2. From the Table of Food Values and Measures (Table 15) ascertain for each ingredient the units of carbohydrate, protein, fat, calcium, phosphorus, iron and the vitamins. Arrange these figures in tabulated form, similar to example given. If it is desired to know the sodium chloride content, or excess acid or alkaline ash of the recipe the values can be calculated from Tables 40, 46, and 47.
3. Total the amount of each of the food constituents of the various foods.
4. To determine the number of calories in the recipe, multiply the grams of carbohydrate and of protein by 4, and the number of grams of fat by 9. Total these figures.
5. To determine the food value of one serving divide these total figures by the number of servings the recipe makes.

After computing several recipes or diets one is able to evaluate them in approximate amounts.

Example: Recipe for Gingerbread

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Molasses	1 cup	240	168	4		688	0.616	0.072	22.4					
Flour, white	2¼ cups	252	191	27	2	890	0.045	0.254	3.4		932	655	3.29	
Fat (lard)	4 tablespoons, melted	60			60	540								
Soda	1 teaspoon													
Ginger	1½ teaspoons													
Salt	½ teaspoon													
Boiling water	½ cup													
	8 servings		359	31	62	2,118	0.661	0.326	25.8		932	655	3.29	
	1 serving		44.8	3.8	7.7	265	0.083	0.041	3.2		117	82	0.41	

Method: Mix and sift soda, ginger and salt with flour. Add water to molasses and to this add slowly sifted flour. Add melted shortening and beat well. Bake in shallow, greased pan in a moderate oven for about 25 minutes.

* Recipes are taken from *Good Cooking*, Heseltine and Dow, Houghton Mifflin Company, 1933. The food values were computed from the Table of Food Values and Measures (Table 15).

TABLE 18—*Continued*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Breads														
Biscuit														
Flour	2 c.	224	170	24	2	794	0.040	0.226	3		828	582	2.92	
Milk	¾ c.	160	8	5.5	6.5	114	0.188	0.148	0.3	306	83	348	0.14	
Fat (lard)	3 T.	45			45	405								
Salt	½ t.													
Baking powder	3 t.													
14 biscuits	2¼″ d.		178	29.5	53.5	1313	0.228	0.374	3.3	306	911	930	3.06	
1 biscuit	2¼″ d.		12.6	2.1	3.8	94	0.016	0.027	0.2	22	65	66	0.22	
Muffins, plain														
Flour	2 c.	224	170	24	2	794	0.040	0.226	3		828	582	2.92	
Egg	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Fat (butter)	¼ c. melted	60			48	432	0.008	0.008		1620				
Milk	1 c.	240	12	8	9.5	166	0.283	0.223	0.5	461	125	523	0.22	
Sugar	3 T.	45	45			180								
Salt	½ t.													
Baking powder	2½ t.													
12 muffins, medium	2¾″ d.		227	39	64.5	1645	0.358	0.569	5	2581	1028	1230	3.17	
1 muffin, medium	2¾″ d.		19	3.2	5.5	137	0.030	0.047	0.4	215	86	103	0.27	
Muffins, cornmeal														
Flour	1 c.	112	85	12	1	397	0.020	0.113	1.5		414	291	1.46	
Cornmeal	¾ c.	120	88	10	4	428	0.020	0.184	1.2	900	540	156	1.20	
Egg	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Milk	1 c.	240	12	8	9.5	166	0.283	0.223	0.5	461	125	523	0.22	
Fat (butter)	¼ c. melted	60			48	432	0.008	0.008		1620				
Sugar	3 T.	45	45			180								
Baking powder	2½ t.													
Salt	½ t.													
12 muffins	2¾″ d.		230	37	67.5	1676	0.358	0.640	4.7	3481	1154	1095	2.91	
1 muffin	2¾″ d.		19.2	3	5.6	140	0.030	0.053	0.4	290	96	91	0.24	
Rolls														
Flour, bread	2½ c.	280	212.5	30	2.5	993	0.050	0.282	4		1035	728	3.65	
Sugar	2 T.	30	30			120								
Fat (lard)	2 T.	30			30	270								
Milk, scalded	1 c.	240	12	8	9.5	166	0.283	0.223	0.5	461	125	523	0.22	
Yeast cake	1	14	2	2		16					69	252		
12 to 17 rolls	2″ d.		256.5	40	42.0	1562	0.333	0.505	4.5	461	1229	1503	3.87	
1 roll	2″ d.		16.3	2.5	2.6	91	0.021	0.032	0.3	29	77	94	0.24	
Cakes														
Plain Cake														
Fat (butter)	4 T.	60			48	432	0.008	0.008		1620				
Sugar	1 c.	240	240			960								
Flour, cake	2 c.	224	170	24	2	794	0.040	0.226	3		828	582	2.92	
Egg	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Milk	¾ c.	180	9	6	7	123	0.213	0.168	0.3	345	93	393	0.18	
Baking powder	2½ t.													
Salt	½ t.													
Vanilla	1 t.													
16 cup cakes or an 8-inch cake			419	37	62	2382	0.288	0.514	4.8	2465	996	1100	3.13	
1 cup cake or a 2-inch cube			26.2	2.3	3.9	149	0.018	0.032	0.3	154	62	69	0.20	

TABLE 18—*Continued*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Cakes—Continued														
White Cake														
Butter	½ c.	80			64	572	0.011	0.011		2147				
Sugar	1½ c.	360	360			1,440								
Flour, cake	2 c.	224	170	24	2	794	0.040	0.226	3		828	582	2.92	
Milk	¾ c.	160	8	5.5	6.5	114	0.188	0.148	0.3	306	83	348	0.14	
Egg whites	3	90		9		36	0.012	0.015				207	0.06	
Baking powder	1½ t.													
Salt	½ t.													
Vanilla	½ t.													
16 cup cakes or an 8-inch cake			538	38.5	72.5	2956	0.251	0.400	3.3	2453	911	1137	3.12	
1 cup cake or a 2-inch cube			33.6	2.4	4.5	185	0.016	0.025	0.2	153	57	71	0.19	
Angel Cake														
Egg white	1 c. (8–9)	270		27		108	0.036	0.045				621	0.18	
Sugar	1¼ c.	300	300			1200								
Flour, cake	1 c.	112	85	12	1	397	0.020	0.113	1.5		414	291	1.46	
Salt	¼ t.													
Cream of tartar	1 t.													
Vanilla	¾ t.													
Almond extract	¼ t.													
9-inch cake, 3 inches deep—8 servings			385	39	1	1705	0.056	0.158	1.5		414	912	1.64	
1 serving, 3½-inch arc, 4½ by 3 inches			48.1	4.9	0.1	213	0.007	0.020	0.2		52	114	0.21	
Sponge Cake														
Eggs	6	300		42	30	438	0.162	0.672	9	3000	450	750	0.18	
Sugar	1 c.	240	240			960								
Flour, cake	1 c.	112	85	12	1	397	0.020	0.113	1.5		414	291	1.46	
Salt	½ t.													
Lemon rind	½ gr.													
Lemon juice	1 T.	13	1			4	0.003	0.001	0.1		3		0.01	5
9-inch cake, 3 inches deep—8 servings			326	54	31	1799	0.185	0.786	10.6	3000	867	1041	1.65	5
1 serving, 3½-inch arc, 4½ x 3 inches			40.7	6.7	3.9	225	0.023	0.098	1.3	375	108	130	0.21	0.1
Gingerbread														
Shortening (lard)	½ c.	80			80	720								
Molasses	½ c.	80	56	1		229	0.205	0.024	7.4					
Sugar	½ c.	80	80			320								
Eggs	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Flour	1 c.	112	85	12	1	397	0.020	0.113	1.5		414	291	1.46	
Boiling water	½ c.													
Salt	½ t.													
Soda	½ t.													
Baking powder	½ t.													
Ginger	1 t.													
Cinnamon	½ t.													
8 servings			221	20	86	1739	0.252	0.249	10.4	500	489	416	1.49	
1 serving	2″ cu.		27.6	2.5	10.7	217	0.032	0.031	1.3	63	61	52	0.19	

TABLE 18—*Continued*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Cakes—Continued														
Gingerbread, low cost†														
Fat (lard)	4 T. melted	60			60	540								
Molasses	1 c.	240	168	4		688	0.616	0.072	22.4					
Flour	2½ c.	252	191	27	2	890	0.045	0.254	3.4		932	655	3.29	
Soda	1 t.													
Salt	½ t.													
Ginger	1½ t.													
Boiling water	½ c.													
8 servings			359	31	62	2118	0.661	0.326	25.8		932	655	3.29	
1 serving	2″ cu.		44.9	3.9	7.7	265	0.083	0.041	3.2		116	82	0.41	
Cookies														
Sugar Cookies														
Butter or oleomargarine	½ c.	120			96	864	0.016	0.016		3240				
Sugar	¾ c.	180	180			720								
Egg	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Milk	2 T.	30	1.5	1	1	19	0.036	0.028		58	16	65	0.03	
Flour	3 c.	336	255	36	3	1191	0.060	0.339	4.5		1242	873	4.38	
Baking powder	1 t.													
Vanilla	1 t.													
85 very thin cookies	2½″ d.		436.5	44	105	2867	0.139	0.495	6	3798	1333	1063	4.44	
1 very thin cookie	2½″ d.		5.1	0.5	1.2	34	0.002	0.006	0.1	44	16	13	0.05	
Oatmeal Macaroons														
Egg	1	50		7	5	73	0.027	0.112	1.5	500	75	125	0.03	
Sugar	½ c.	120	120			480								
Butter, melted	2 t.	10			8	72	0.002	0.002		270				
Rolled Oats uncooked	2 c.	240	144	40	16	880	0.128	1.008	12		1752	520	3.20	
Salt	½ t.													
Vanilla	½ t.													
20 very thin cookies	2½″ d.		264	47	29	1505	0.157	1.122	13.5	770	1827	645	3.23	
1 very thin cookie	2½″ d.		13.4	2.3	1.4	75	0.008	0.056	0.7	39	91	32	0.16	
Pastry														
Apple Pie														
Crust for 2 crust pie														
Flour	1½ c.	168	127.5	18	1.5	593	0.030	0.170	2.3		621	437	2.19	
Fat (lard)	6 T.	90			90	810								
Salt	½ t.													
Water	6 T.													
5 servings			127.5	18	91.5	1403	0.030	0.170	2.3		621	437	2.19	
1 serving			25.5	3.6	18.3	281	0.006	0.036	0.4		124	87	0.44	
Filling														
Apples	4 m.	600	84	4	4	388	0.044	0.072	2.4	432	240	180	3	24
Sugar	¾ c.	160	160			640								
Flour	1 T.	7	5	0.5		22	0.001	0.007	0.1		26	18	0.09	
Butter	1 T.	15			12	108	0.002	0.002		405				
Water	1-2 T.													
Lemon, cinnanamon, nutmeg, as desired														

† Stern and Spitz, *Food for the Worker*, M. Barrows and Company, 1917.

TABLE 18—*Continued*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Pastry—Continued														
5 servings			249	4.5	16	1158	0.047	0.081	2.5	837	266	198	3.09	24
1 serving			49.8	0.9	3.2	232	0.009	0.016	0.5	167	53	39	0.62	5
Total for 8-inch pie			376.5	22.5	107.5	2561	0.077	0.251	4.8	837	887	635	5.28	24
Total for 1 serving,	⅛ pie		75	4.5	21.5	513	0.015	0.052	0.9	167	177	126	1.06	5
Lemon Meringue Pie														
Crust														
Flour	1 c.	112	85	12	1	397	0.020	0.113	1.5		414	291	1.46	
Fat	4 T.	60			60	540								
Salt	½ t.													
Water	4 T.													
1 crust, 8-inch pie,	5 servings		85	12	61	937	0.020	0.113	1.5		414	291	1.46	
1 serving,	⅛ pie		17	2.4	1.4	187	0.004	0.022	0.3		83	58	0.29	
Filling														
Lemon juice	1 c.	200	17	2	1	86	0.044	0.022	1.2		60		0.16	90
Egg yolks	2	36		6	10	114	0.048	0.212	3	1000	150	104	0.02	
Sugar	¾ c.	180	180			720								
Flour	5 T.	35	25	2.5		110	0.005	0.035	0.5		130	90	0.45	
Butter	1 t.	5			4	36	0.001	0.001		135				
Water, boiling	1 c.													
Lemon rind grated	1													
Salt	⅛ t.													
5 servings			222	10.5	15	1066	0.098	0.270	4.7	1135	340	194	0.63	90
1 serving			44.5	2.1	3	213	0.019	0.054	0.9	227	68	39	0.12	18
Meringue														
Egg white	2	60		6		24	0.008	0.010				138	0.04	
Sugar	2 T.	30	30			120								
Salt	⅛ t.													
5 servings			30	6		144	0.008	0.010				138	0.04	
1 serving			6	1.2		29	0.001	0.002				27	0.01	
Total for 1 pie	8″ d.		337	28.5	76	2147	0.126	0.393	6.2	1135	754	623	2.13	90
Total for 1 serving,	⅛ pie		67.5	5.7	15.2	429	0.024	0.080	1.2	227	151	124	0.42	18
Peach Shortcake														
Crust														
Flour	1½ c.	168	127.5	18	1.5	593	0.030	0.170	2.3		621	437	2.19	
Butter or fat	4 T.	60			48	432	0.008	0.008		1620				
Milk	½ c.	120	6	4	5	85	0.141	0.111	0.3	231	63	262	0.11	1
Sugar	1 T.	15	15			60								
Baking powder	2 t.													
Salt	½ t.													
4 servings			148.5	22	54.5	1170	0.179	0.289	2.6	1851	684	699	2.30	1
1 serving	3″ cake		37.1	5.5	13.6	292	0.045	0.072	0.6	462	171	174	0.57	
Filling														
Peaches	8 m.	800	96	4		400	0.080	0.152	2.4	12000	360	360	7.60	64
Sugar	4 T.	60	60			240								
4 servings			156	4		640	0.080	0.152	2.4	12000	360	360	7.60	64
1 serving			39	1		160	0.020	0.038	0.6	3000	90	90	1.90	16
Total for 4 servings			304.5	26	54.5	1810	0.259	0.441	5.0	13851	1044	1059	9.90	65
Total—1 shortcake	3″ x 2½″ d.		76.1	6.5	13.6	452	0.065	0.110	1.2	3462	261	264	2.47	16

TABLE 18—*Continued*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Puddings														
Bread Pudding														
Milk	2 c.	480	24	16	19	332	0.566	0.446	1.0	922	250	1046	0.44	
Bread crumbs or cubes	1 c.	75	40	6	12.5	198	0.050	0.075	0.8		165	130	0.68	
Sugar	¼ c.	60	60			240								
Egg	1 or 2 yolks	18		3	5	57	0.024	0.106	1.5	500	75	52	0.01	
Salt	¼ t.													
Vanilla	½ t.													
5 servings			124	25	36.5	827	0.640	0.627	3.3	1422	490	1228	1.13	
1 serving	3 hp. T.		24.8	5	7.3	185	0.128	0.125	0.7	284	98	245	0.23	
Cornstarch Pudding														
Milk	¼ c. cold	60	3	2	2.5	43	0.070	0.055	0.1	115	31	131	0.05	
Milk	1½ c. scalded	300	15	10	12	209	0.353	0.278	0.6	576	156	654	0.27	
Cornstarch	3 T.	30	27			108								
Sugar	¼ c.	60	60			240								
Salt	½ t.													
Vanilla	1 t.													
4 servings			105	12	14.5	600	0.423	0.333	0.7	691	187	785	0.32	
1 serving	3 r. T.		26.2	3	3.6	150	0.106	0.083	0.2	173	49	196	0.08	
Custard														
Egg	3	150		21	15	219	0.081	0.336	4.5	1500	225	375	0.09	
Milk, scalded	2 c.	480	24	16	19	332	0.566	0.446	1	922	250	1046	0.44	
Sugar	¼ c.	60	60			240								
Salt	½ t.													
Vanilla	½ t.													
4 servings			84	37	34	791	0.647	0.782	5.5	2422	475	1421	0.53	
1 serving	3 hp. T.		21	9.2	8.5	198	0.162	0.196	1.4	605	117	355	0.13	
Tapioca Cream														
Milk, scalded	2 c.	480	24	16	19	332	0.566	0.446	1.0	922	250	1046	0.44	
Tapioca, minute	2½ T.	38	32.5			130	0.005	0.003	0.5			38		
Eggs	2	100		14	10	146	0.054	0.224	3.0	1000	150	250	0.06	
Sugar	¼ c.	80	80			320								
Salt	½ t.													
Vanilla	½ t.													
5 servings			136.5	30	29	928	0.625	0.673	4.5	1922	400	1334	0.50	
1 serving	1 hp. T.		27.3	6	5.8	186	0.125	0.134	0.9	384	80	267	0.10	
Gelatin Desserts														
Lemon Jelly														
Gelatin	1 T.	10		9		36								
Lemon juice	¼ c.	67	5.5	0.5		29	0.014	0.007	0.4		20		0.05	30
Sugar	½ c.	120	120			480								
Water, cold	¼ c.													
Water, hot	1½ c.													
4 servings			125.5	9.5		545	0.014	0.007	0.4		20		0.05	30
1 serving	1 hp. T.		31.4	2.4		136	0.003	0.002	0.1		5		0.01	7
Spanish Cream														
Gelatin	2 t.	7		6		24								
Milk, cold	¼ c.	60	3	2	2.5	43	0.070	0.055	0.1	115	31	131	0.05	
Milk, scalded	1½ c.	312	15.5	10.5	12.5	216	0.368	0.290	0.6	599	163	680	0.29	
Eggs	2	100		14	10	146	0.054	0.224	3	1000	150	250	0.06	
Sugar	¼ c.	60	60			240								
Salt	½ t.													
Vanilla	½ t.													

TABLE 18—*Concluded*

Foods	Household Measure	Grams				Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
		Amount	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Gelatin Desserts—Continued														
5 servings			78.5	32.5	25	669	0.492	0.569	3.7	1714	344	1061	0.40	4.5
1 serving	3 hp. T.		13.7	6.5	5	126	0.098	0.113	0.7	343	69	212	0.08	0.9
Frozen Desserts														
Orange Ice														
Orange juice	1 c.	200	26	1		108	0.048	0.036	0.8	450	220	100	0.44	108
Lemon juice	2 T.	25	2			8	0.005	0.003	0.1		7		0.02	11
Sugar	1 c.	240	240			960								
Water	1½ c.													
Orange rind, gr.	2													
Orange coloring if desired														
5 servings			268	1		1076	0.053	0.039	0.9	450	227	100	0.46	119
1 serving	4 hp. T.		53.6	0.2		213	0.010	0.007	0.2	90	45	20	0.09	24
Orange Milk Sherbet														
Orange juice	1 c.	200	26	1		108	0.048	0.036	0.8	450	220	100	0.44	108
Lemon juice	2 T.	25	2			8	0.005	0.003	0.1		7		0.02	11
Sugar	1 c.	240	240			960								
Milk	1½ c.	360	18	12	14	249	0.424	0.334	0.8	692	188	784	0.33	4
Orange rind, gr.	2													
Orange coloring if desired														
5 servings			286	13	14	1325	0.477	0.373	1.7	1142	415	884	0.79	223
1 serving	4 hp. T.		57.2	2.6	2.8	265	0.095	0.074	0.3	228	83	173	0.16	44
Chocolate Mousse														
Gelatin	½ T.	5		4.5		18								
Milk, cold	¼ c.	60	3	2	2.5	43	0.070	0.055	0.1	115	31	131	0.05	
Milk, scalded	½ c.	120	6	4	5	85	0.141	0.111	0.3	231	63	262	0.11	
Chocolate	1½ oz.	45	13.5	6	22	274	0.040	0.204	1.2		35			
Sugar	¾ c.	160	160			640								
Heavy cream	2 c.	480	16	16	184	1784	0.384	0.304	0.8	10808	144	672		
Vanilla	2 t.													
10 servings			198.5	32.5	213.5	2844	0.635	0.674	2.4	11154	273	1065	0.16	
1 serving	3 hp. T.		19.8	3.2	21.3	284	0.063	0.067	0.2	1115	27	106	0.01	
White Sauce														
Thin White Sauce for cream toast and cream soup														
Butter	1 T.	15			12	108	0.002	0.002		405				
Flour	1 T.	7	5	0.5		22	0.001	0.007	0.1		26	18	0.09	
Milk	1 c.	240	12	8	9.5	166	0.283	0.223	0.5	461	125	523	0.22	
Salt	¼ t.													
2 servings			17	8.5	21.5	296	0.286	0.232	0.6	866	151	541	0.31	
1 serving	½ c.		8.5	4.2	10.7	148	0.143	0.116	0.3	433	75	270	0.15	
Medium White Sauce for cream and escalloped dishes														
Butter	2 T.	30			24	216	0.004	0.004		810				
Flour	2 T.	14	10	1		44	0.002	0.014	0.2		52	36	0.18	
Milk	1 c.	240	12	8	9.5	166	0.283	0.223	0.5	461	125	523	0.22	
4 servings			22	9	33.5	426	0.289	0.241	0.7	1271	177	559	0.40	
1 serving	¼ c.		5.5	2.2	8.4	106	0.072	0.060	0.2	315	44	138	0.10	

TABLE 19
CARBOHYDRATE

VEGETABLES AND FRUITS ARRANGED ACCORDING TO THEIR AVERAGE PERCENTAGE COMPOSITION OF CARBOHYDRATE*

Vegetables

"5 Per cent"	"10 Per cent"	"15 Per cent"	"20 Per cent"	Over "20 Per cent"
Asparagus..... 8 st.	Beans, string.... ½ c.	Parsnips..... ½ c.	Beans, lima, dried, ck.....½ c.	Beans, lima . ½ c.
Asparagus (C)... 7 st.	Beets..... 2 m.	Peas..... ½ c.	Beans, navy, dried, ck..... ½ c.	Potato, sweet 1 sm.
Beans, string (C) ½ c.	Brussels sprouts. 7 sm.		Corn..... ½ c.	
Beet greens..... ½ c.	Carrots..... 1 L.		Peas, dried, ck. ½ c.	
Cabbage..... ¾ c.	Dandelion greens ½ c.		Potato, white... 1 sm.	
Cabbage, Chinese..... 1 c.	Onions..... 2 m.			
Cauliflower..... ½ c.	Peas (C)..... 4 T.			
Celery..... 4 st.	Pumpkin..... ½ c.			
Chard..... ½ c.	Rutabaga..... ½ c.			
Cucumber..... 1 m.	Squash, winter.. ½ c.			
Eggplant..... ½ c.	Turnip..... ½ c.			
Lettuce..... ¼ hd.				
Pepper..... 1 L.				
Radishes..... 10				
Sauerkraut..... ¾ c.				
Spinach..... ½ c.				
Squash, summer ½ c.				
Tomatoes..... 1 m.				
Tomatoes (C).... ½ c.				

Fruits

Avocado..... ⅓ m.	Blackberries..... ½ c.	Apple..... 1 sm.	Peaches (C).... 2 H.	Applesauce (C)..... ½ c.
Rhubarb..... 1 c.	Cantaloup..... ½	Apricots..... 3 m.	Pears (C)..... 2 H.	Apricots (C) 4 sm. H.
	Cranberries..... 1 c.	Blueberries..... ¾ c.	Pineapple (C).. 1 sl.	Banana..... 1 m.
	Currants..... ½ c.	Cherries..... 25 sm.		Dried:
	Gooseberries..... ¾ c.	Grapefruit (C). 8 sections		Apricots .. 6 H.
	Grapefruit..... ½ m.	Grapes..... 20		Currants.. 2 T.
	Lemon..... 1 L.	Pear..... 1 m.		Dates..... 3–4
	Orange..... 1 m.	Pineapple..... 1 sl.		Figs..... 2 sm.
	Peach..... 1 m.	Plums..... 3 av.		Peaches.... 2 H.
	Strawberries..... 10 L.	Raspberries..... ¾ c.		Prunes.... 3 m.
	Tangerine..... 2 sm.			Raisins.... 2 T.
	Watermelon..... ½ thin slice			

* Following the Joslin nomenclature.

TABLE 20

AVAILABLE CARBOHYDRATE IN VEGETABLES AND FRUITS

(Figures taken from *The Carbohydrate Content of Foods*, by R. A. McCance and R. D. Lawrence, Med. Res. Council, Special Report Series 135, H. M. Stationery Office, 1929, London, England)

Grams	Food	Household Measure	Grams
	Vegetables		
100	Asparagus	8 st., 4 inches long	1.5
100	Beans, butter or lima	½ c. or 4 r. T.	16.0
100	Beans, French or string	½ c. or 4 r. T.	1.3
100	Beans, Haricot or navy	½ c. or 3 r. T.	16.7
100	Beets	2 sm.	8.0
100	Brussels sprouts	9 m.	2.7
100	Cabbage	5 r. T., ck.	1.0
100	Carrots	1 L.	5.9
100	Cauliflower	6 r. T.	1.3
100	Celery	4 st., raw	1.0
100	Celery	6 r. T., ck.	0.5
100	Cucumber	½ m. or 10 sl.	1.75
100	Endive	2 m. st.	2.6
100	Lettuce	½ head or 10 leaves	0.7
100	Kale	1 s.	0.5
100	Onions	2 m.	5.4
100	Parsnips	1 L.	9.5
100	Peas	4 T.	12.8
100	Potatoes	1 sm., old	19.2
100	Pumpkin	½ c., cu., raw	2.5
100	Radishes	15–20 m.	1.6
100	Spinach	4 r. T.	1.3
100	Tomatoes	1 m.	2.4
100	Turnips	4 r. T., cu.	3.5

AVAILABLE CARBOHYDRATE OF FRUITS

(Edible Portion)

(Figures taken from *Available Carbohydrate of Fruits*, by E. M. Widdowson and R. A. McCance, The Biochemical Journal, Vol. XXIX, p. 151, 1935, University Press, Cambridge, England)

100	Apples, Empire eating	1 sm.	12.17
100	Apricots	3 m.	6.65
100	Banana	1 m.	19.20
100	Blackberries	⅔ c.	6.36
100	Cherries	25 sm.	11.94
100	Cranberries	⅔ c.	3.54
100	Grapefruit	½ m.	5.33
100	Grapes, white	24 av.	16.13
100	Oranges	1 m.	8.51
100	Orange juice	½ c. sc.	9.44
100	Peaches	1 m.	9.06
100	Pineapple	1 sl., ¾-inch thick	11.63
100	Plums	3–4 m.	9.60
100	Raspberries	4 r. T.	5.61
100	Strawberries	10 L.	6.21

TABLE 21

CARBOHYDRATE EQUIVALENTS

Approximately 10 grams. Various fruits equivalent to 1 orange

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Apple	½ m.	75	**10.5**	0.5	0.5
Apricots (C)	2 H.	40	**10.0**		
Apricots, dried	3 H.	15	**10.0**	1.0	
Apricots, fresh	2 L.	70	**10.0**		
Banana	½ m.	50	**11.5**	0.5	
Blackberries	½ c.	100	**12.0**	1.0	1.0
Blueberries	7 T.	67	**10.0**	0.5	0.5
Cantaloup	¼ melon	100	**9.5**	0.5	
Cherries, sweet	17 sm.	67	**10.0**	0.5	0.5
Cranberries	1 c.	100	**11.5**	0.5	0.5
Currants	½ c.	100	**12.5**	1.5	0.5
Currants, dried	1 T.	15	**10.5**	0.5	
Dates	2	15	**11.0**		0.5
Figs, dried	1 sm.	15	**11.0**	0.5	
Gooseberries	⅔ c.	100	**10.0**	1.0	0.5
Grapefruit	½ m.	100	**10.0**	0.5	
Grapefruit (C)	6 sections	70	**10.0**	0.5	
Grapes	13	67	**10.0**	0.5	0.5
Lemon	1¼ L.	125	**10.5**	1.0	0.5
Orange	1 m.	100	**11.0**	1.0	
Orange juice	½ c. sc.	100	**12.5**	0.5	
Peach	1 m.	100	**12.0**	0.5	
Peach (C)	1 H., ½ T. J.	50	**9.0**		
Peach, dried	1 H.	15	**10.5**	0.5	
Pear	⅔ m.	67	**10.5**	0.5	0.5
Pear (C)	1 H., ½ T. J.	50	**9.0**		
Pineapple	¾ sl. ¾-in.	75	**10.5**	0.5	
Pineapple (C)	½ sl., ½ T. J.	50	**10.5**		
Plums	2 L.	80	**10.5**		
Prunes	1 L. or 2 sm.	15	**10.5**		
Raisins	1 T.	15	**11.0**	0.5	0.5
Raspberries, red	½ c.	70	**10.0**	0.5	0.5
Rhubarb	2½ c.	250	**10.0**	1.0	
Strawberries	13 L.	130	**10.5**	0.5	0.5
Tangerine	2 sm.	100	**11.0**	1.0	0.5
Watermelon	1 thin sl.	150	**10.5**	0.5	

Other food constituents as well as carbohydrate should be considered in using these equivalents.

TABLE 22

CARBOHYDRATE EQUIVALENTS

Approximately 10 grams. Various foods equivalent to 2 teaspoons of sugar

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Beans, baked (C)	2 T.	50	10	3.5	1
Biscuit	1 b. 2¼″ d.	—	12.5	2	4
Bread	⅔ or 1 thin sl.	20	10	2	0.5
Cake, angel	1″ arc 4½ x 3″	—	12	1	
Cake, plain	1″ cu.	—	13	1	2
Cake, sponge	1″ arc 4½ x 3″	—	10	0.5	1
Cake, white	⅓ 2″ cu.	—	11	1	1.5
Cookies, oatmeal	¾ thin, 2¼″ d.	—	10	2	1
Cookies, sugar	2 thin, 2¼″ d.	—	10	1	2
Cornflakes	¾ c.	15	12.5	1	
Cornstarch	1 T.	10	9		
Corn syrup	2 t.	10	9		
Crackers	2 Uneedas	12	9	1	1
	3 saltines	12	9	1.5	1.5
	1½ graham	15	11	1.5	1.5
Flour	2 T.	14	10	1	
Fruit:					
5 per cent	2 s.	200	10	1	
10 per cent	1 s.	100	10	1	
15 per cent	1 very sm. s.	75	10.5	0.5	
Over 15 per cent					
Banana	½ m.	50	11.5	0.5	
Figs, dried	1 sm.	15	11	0.5	
Prunes	2 sm. or 1 L.	15	10.5		
Raisins	1 T.	15	11	0.5	0.5
Gingerbread	¼ 2″ sq.	—	11	1	2
Ice, orange	1 T.	—	10.5		
Jam or jelly	2 t.	14	10		
Jello, lemon	⅓ s.	33	10.5	1	
Macaroni, ck	6 T.	75	11	2	
Molasses	1 sc. T.	15	10.5		
Muffin, cornmeal	½ muffin, 2¾″ d.	—	9.5	1.5	3
Muffin, plain	½ muffin, 2¾″ d.	—	9.5	1.5	3
Oats, rolled, ck	6 T.	90	9	2.5	1
Pudding, bread	2 T.	—	12.5	2.5	3.5
Pudding, cornstarch	2 T.	—	13	1.5	1.5
Pudding, tapioca	2 t.	—	9	2	2
Ry-Krisp	2	14	10	2	
Sherbet, orange, milk	1½ T.	—	11	0.5	0.5
Shredded wheat	½ b.	15	12	2	
Sugar	2 t. or 2 lumps	10	10		
Tapioca	1 sc. T.	12	10		
Vegetables:					
5 per cent	2½ s.	250	10	3.5	
10 per cent	1 s.	100	8.5	2	
15 per cent	5 T. peas	63	11	4	
Over 20 per cent					
Corn	½ m. ear	50	10	1.5	0.5
Corn	2 T. (C)	50	9.5	1.5	0.5
Potato	½ sm.	50	9.5	1	

Other food constituents as well as carbohydrate should be considered in using equivalents.

TABLE 23

CARBOHYDRATE EQUIVALENTS

Approximately 15 grams. Various fruits equivalent to 1 small apple

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Apricots	3 m.	100	13		
Apricots (C)	2 H., ½ T. J.	60	15		
Apricots, dried	4½ H.	23	15	1	
Banana	¾ m.	75	17	0.5	
Blackberries	10 T.	125	15	1	1
Blueberries	⅔ c.	100	15	0.5	0.5
Cantaloup	⅓ melon	133	19	0.5	
Cherries, sweet	25 sm.	100	15	1	0.5
Cranberries	1¼ c.	125	14.5	0.5	0.5
Currants	¾ c.	125	15.5	2	0.5
Currants, dried	4 t.	20	14.5	0.5	
Dates	2½	20	14		0.5
Figs	1½ sm.	20	15.5	0.5	
Gooseberries	1 c.	150	15	1.5	0.5
Grapefruit	¾ m.	150	15	0.5	
Grapefruit (C)	8 sections	100	14	0.5	
Grapefruit juice (C)	¾ c. sc.	150	15	0.5	
Grapes	20	100	15	1	1
Lemons	2 L.	200	17	2	1
Oranges	1½ m.	150	16.5	1.5	
Orange juice	½ c.	100	14	0.5	
Peach	1¼ m.	125	15	0.5	
Peaches (C)	2 sm. H., 1 T. J.	85	15	0.5	
Peaches, dried	2 sm. H.	23	18	1	
Pear	1 m.	100	16	0.5	0.5
Pear (C)	2 sm. H., 1 T. J.	85	15	0.5	
Pineapple	1 sl. ¾″	100	14	0.5	
Pineapple (C)	¾ sl., 1 T. J.	75	15.5	0.5	
Pineapple juice (C)	½ c. sc.	100	13	0.5	0.5
Plums	3 av.	100	13	0.5	
Prunes	2 m.	20	14	0.5	
Raisins	1½ T.	20	14.5	0.5	0.5
Raspberries, red	¾ c.	100	14.5	1	0.5
Strawberries	20 L.	200	16	1	1
Tangerine	3 sm.	150	16.5	1.5	0.5
Watermelon	2 thin sl.	200	14	1	

Other food constituents as well as carbohydrate should be considered in using these equivalents.

TABLE 24

CARBOHYDRATE EQUIVALENTS

Approximately 15 grams. Various foods equivalent to 1 slice of bread or 1 very small potato

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Beans, baked (C)	2 r. T.	75	13	4.5	1.5
Biscuit	1¼ b. 2″ d.	—	15.5	2.5	5
Bread	1 sl.	30	15	3	0.5
Cake, angel	1″ arc 4½ x 3″	—	14.5	1.5	
Cake, plain	1″ cu.	—	15.5	1	2.5
Cake, sponge	1½ arc 4½ x 3″	—	16	2.5	1.5
Cake, white	⅘ 2″ cu.	—	13.5	1	2
Cookies, oatmeal	1 thin 2¼″ d.	—	13.5	2.5	1.5
Cookies, sugar	3 thin 2¼″ d.	—	15	1.5	3
Cornstarch	1½ T.	15	13.5		
Corn syrup	1 T.	15	13		
Crackers	3½ Uneedas	21	16	1.5	1.5
	2 graham	20	15	2	2
	5 saltines	20	15	2.5	2.5
Flour, white	3 T. sifted	21	15	1.5	
Fruit:					
5 per cent	3 s.	300	15	1.5	
10 per cent	2 sm. s. or 1 L.	150	15	1.5	
15 per cent	1 sv.	100	14	0.5	
20 per cent	¾ sv.	80	15	0.5	
Gingerbread	⅓ 2″ cu.	—	15	1.5	2.5
Ice, orange	1 hp. T.	—	13.5		
Jam or jelly	1 T.	20	15		
Jello, lemon	½ s.	50	15.5	1	
Macaroni, ck	½ c.	100	14.5	3	
Muffin, cornmeal	¾ muffin, 2 ¾″ d.	—	14	2	4
Muffin, plain	¾ muffin, 2 ¾″ d.	—	14	2	4
Molasses	1½ T. sc.	23	15.5	0.5	
Oats, rolled, ck	1 sm. s.	145	15	4	1.5
Pudding, bread	2 hp. T.	—	16.5	3	5
Pudding, cornstarch	2 r. T.	—	17	2	2
Pudding, tapioca	1 T.	—	13.5	3	3
Ry-Krisp	3 crackers	21	15	3	
Sherbet, orange, milk	1 hp. T.	—	14	0.5	0.5
Shredded wheat	⅔ biscuit	20	16	2	
Sugar	3 t. or 3 lumps	15	15		
Tapioca	1 T.	15	13		
Vegetables:					
5 per cent	4 s.	400	16	6	
10 per cent	2 s.	200	17	4	
Corn (C)	3 r. T.	80	15	2.5	1
Corn, fresh	1 sm. ear	75	15	2.5	1

Other food constituents as well as carbohydrate should be considered in using these equivalents.

TABLE 25

PROTEIN EQUIVALENTS

Approximately 7 grams. Various foods equivalent to 1 egg

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
°Almonds	24–30 nuts	30	5	6.5	16.5
Bacon	10 sl. full length	60		6	39
°Beans, baked (C)	3 r. T.	100	19.5	7	2.5
°Beans, lima, dry	3 T.	45	30	8	0.5
°Beans, lima, fresh	½ c.	100	23.5	7.5	1
°Beans, navy, dry	2 T.	30	18	7	0.5
Beans, soy, dry	1½ T.	23	2.5	7.5	4.
°Bread	2½ sl.	75	37.5	7.5	1
°Cereal, oats, dry	6 T. (1¼ c. ck.)	45	27	7.5	3
Cheese, American	1 oz. or 2 T.	30	1	7	10
Cheese, cottage, skim	2 T.	30	1	6	
Cheese, cream	3 T.	45		7.5	19.5
°Crackers, Uneedas	14	84	63	7	7
°Crackers, graham	7	70	52.5	7	7
Cream, light	1 c.	240	12	8	48
Egg	1	50		7	5
Fish, av.	1½ oz.	45		8	2
°Gelatin	¾ T.	7		6.5	
Liver, beef	1 oz.	30	0.5	6	1.5
Liver, calves	1 oz.	30	1	5.5	1.5
Meat, lean	1 oz.	30		6.5	2.5
Meat, med. fat	1½ oz.	45		7.5	9.5
Poultry, dark	1 oz.	30		6.5	1.5
Poultry, light	1 oz.	30		7	1
Milk	1 c.	240	12	8	9.5
°Peanut butter	1½ T.	23	3.5	6.5	10.5
°Peanuts, shelled	33–35 nuts	30	7	8	11.5
°Peas, dried	2 T.	30	18.5	7.5	0.5
°Potato	2 L. or 3 sm.	300	57	6	
°Vegetables–5 per cent	5 s.	500	20	7.5	
°Vegetables–10 per cent	3 s.	300	25.5	6	

Other food constituents as well as protein should be considered in using these equivalents.

° Incomplete protein.

TABLE 26
SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF FAT IN TERMS OF AVERAGE SERVINGS†

4 Grams or More	3.9 to 3 Grams	2.9 to 2 Grams	1.9 to 1 Gram	Less than 1	"Fat Free"
		Bread, Cereals and Crackers			
		Oats, rolled	Graham cracker Noodles Rice, white	Bread Ralston Rice, brown	
		Dairy Products			
+Butter Cheese American Cream Cream, heavy Egg yolk	*Cream, light		**Milk Milk, skim	Buttermilk Cheese, cottage	Egg white
		Fruits			
Avocado			Blackberries Dates Grapes Raisins		
		Meat, Fish and Poultry			
**Bacon Halibut Liver Mackerel Meat and poultry Lean **Medium fat Salmon Shad		Meat **Lean	**Liver Oysters **Poultry Smelts	Flounder	Cod Haddock
		Miscellaneous			
Cake Plain White Doughnut Gingerbread Ice Cream Nuts—all kinds Oil Pie	+Mayonnaise	+Chocolate	Cake, sponge	Cake, angel +Cocoa	Corn syrup Gelatin Ginger ale Honey Jello Jelly Maple syrup Marmalade Molasses Sugar Tapioca
		Vegetables			
**Beans, soy, dried	++Olive, green	Beans, baked (C)	Beans, lima Corn		

Average Servings

Bread	30 grams	Milk	240 grams
Cereals, dry	30 grams	Meat, fish or poultry	90 grams
Cheese	30 grams	Nuts	30 grams
Fruits, fresh	100 grams	Vegetables, fresh	100 grams
Fruits, dried	30 grams	Vegetables, dried (legumes)	30 grams

† Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.
Other Servings: * 15 gram serving; ** 30 gram serving; + 5 gram serving; ++ 10 gram serving.

TABLE 27

FAT EQUIVALENTS

Approximately 4 grams. Various foods equivalent to 1 teaspoon of butter

Food	Household Measure	Grams			
		Amount	Carbohydrate	Protein	Fat
Bacon	1 sl. full length	6		0.5	4
Butter	1 t.	5			4
Cheese, American	½ oz. or 1 T.	15	0.5	3.5	5
Cheese, cream	2 t.	10		1	4
Cream, heavy	1 T.	15	0.5	0.5	5.5
Cream, light	1½ T.	22	0.5		4.5
Egg	1	50		7	5
French dressing	½ T.	8	0.5		4
Ice cream, commercial	2½ T.	30	6	1	4
Liver, beef	3 oz.	90	1.5	18.5	4
Mayonnaise	1 t.	5			3.5
Meat, lean	2 oz.	60		13	5
Meat, med. fat	¾ oz.	23		3.5	5
Poultry, dark	3 oz.	90		19.5	4.5
Poultry, light	4 oz.	120		28	4
Milk, whole	½ c.	120	6	4	5
Oil	1 t.	5			5
Olives, green	1½ m.	15	1.5		4.5
Olives, ripe	3 sm.	15	0.5		3.5
Peanut butter	2 t.	10	2	3	4.5
Peanuts, shelled	16–18 nuts	10	2.5	2.5	4
Walnuts, shelled	4–8 H.	8	1	1.5	5

Other food constituents as well as fat should be considered in using these equivalents.

TABLE 28
CALCIUM

Average Servings of Vegetables and Fruits Arranged According to Their Contents of Calcium*

Vegetables

Above 0.050 gram	0.050 to 0.041 gram	0.040 to 0.031 gram	0.030 to 0.021 gram	0.020 to 0.004 gram
Beans, string....0.065	Beans, navy....0.044	Beans, string (C)....0.037	Asparagus....0.021	Asparagus (C)..0.016
Beet greens....0.094	Cabbage....0.046	Onions....0.038	Beans, lima, dried....0.022	Corn....0.006
Broccoli....0.140	Carrots....0.045	Radishes....0.037	Beans, lima....0.028	Corn (C)....0.007
Celery....0.072		Sauerkraut....0.039	Beets....0.024	Cucumber....0.006
Chard....0.100			Brussels sprouts 0.027	Eggplant....0.011
Dandelion greens 0.084			Cauliflower....0.025	Lettuce, head...0.017
Endive....0.104			Peas, dried....0.023	Mushroom....0.014
Lettuce, leaf....0.069			Peas, fresh....0.023	Peas (C)....0.014
Parsnips....0.060			Potato, sweet...0.030	Pepper....0.012
			Pumpkin....0.023	Potato, white...0.011
				Squash, summer....0.018
				Squash, winter..0.019
				Tomato....0.007

Fruits

Above 0.050 gram	0.050 to 0.041 gram	0.040 to 0.031 gram	0.030 to 0.021 gram	0.020 to 0.004 gram
	Figs.... .048	Gooseberries....0.035	Apricots, dried..0.020	Apples....0.007
			Blueberries....0.025	Applesauce (C)..0.005
			Currants....0.026	Apricots (C)....0.009
			Grapefruit....0.021	Banana....0.008
			Lemon....0.022	Blackberries....0.017
			Orange....0.024	Cantaloup....0.016
			Raspberries....0.024	Cherries....0.017
			Strawberries....0.023	Cranberries....0.013
				Dates....0.022
				Peaches....0.010
				Peaches (C)....0.009
				Peaches, dried..0.018
				Pears....0.015
				Pears (C)....0.009
				Pineapple....0.016
				Pineapple (C)...0.015
				Prunes....0.018
				Raisins....0.018
				Rhubarb....0.004
				Watermelon....0.007

* Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.

TABLE 29

CALCIUM EQUIVALENTS

Approximately 0.036 gram. Various foods equivalent to 2 tablespoons of milk or ⅛ cup

Grams	Food	Household Measure	Grams	Food	Household Measure
	Bread and Cereals			*Meat*	
60	Bread, wh. wheat	2 sl.	360	Liver, beef	12 oz.
150	Bread, rye, light	5 sl.	270	Meat, lean	9 oz.
60	Bread, white	2 sl.	360	Meat, med. fat	12 oz.
60	Oats, rolled, dry	½ c. (1½ c. ck.)	180	Poultry, dark	6 oz.
			270	Poultry, light	9 oz.
75	Shredded wheat	2½ b.			
				Miscellaneous	
	Dairy Products		15	Almonds	12–15 nuts
4	Cheese, American	¾ t.	30	Maple syrup	1 r. T.
45	Cheese, cottage	3 T.	15	Molasses	1 T. sc.
10	Cheese, cream	2 t.	60	Peanuts	66–70 nuts
45	Cream, heavy	3 T.	45	Walnuts	24–48 nuts
38	Cream, light	2½ T.			
75	Egg	1½		*Vegetables*	
15	Milk, evaporated	1 T.	150	Asparagus	12 st.
30	Milk, skim	2 T.	45	Beans, lima, dried	3 T.
30	Milk, whole	2 T.	50	Beans, string	¼ c.
			75	Cabbage	½ c.
	Fish		65	Carrots	⅔ L.
210	Haddock	7 oz.	150	Cauliflower	¾ c.
90	Herring, smoked	½ fish	50	Celery	2 st.
360	Mackerel	12 oz.	38	Chard	3 T.
60	Oysters	4 m.	38	Dandelion greens	3 T.
60	Salmon (C)	½ c.	38	Endive	¾ st.
270	Salmon, fresh	9 oz.	200	Lettuce	½ hd.
180	Shad	6 oz.	100	Onions	2 m.
			50	Parsnips	¼ c.
	Fruits		100	Potato, sweet	1 sm.
45	Apricots, dried	9 H.	300	Potato, white	3 sm.
150	Blueberries	1 c.	50	Rutabaga	¼ c.
45	Currants, dried	3 T.	75	Turnips	6 T.
45	Dates	5–6	25	Watercress	¼ bu.
23	Figs	1½ sm.			
100	Gooseberries	⅔ c.			
200	Grapes	40			
150	Grapefruit	¾ m.			
150	Lemon	1½ L.			
150	Orange	1½ m.			
150	Orange juice	¾ c. sc.			
300	Peach	3 m.			
250	Pears	2½ m.			
165	Plums	5 av.			
60	Prunes	6 m.			
150	Raspberries	1 c.			
900	Rhubarb	9 c.			
150	Strawberries	15 L.			

TABLE 30
CALCIUM
Various Combinations of Foods Supplying a Day's Requirement
Daily Requirement: Adult—0.8 gram. Children (under 12)—1 gram

Adult

Grams	Food	Household Measure	Calcium Grams
720	Milk	3 cups	0.849
Total Calcium			0.849
Total Phosphorus			0.669
Total Iron			0.0015
480	Milk	2 cups	0.566
100	Beans, string	1 s. d.	0.065
120	Bread, white, enriched	4 sl.	0.080
100	Carrots	1 s. d.	0.045
100	Orange	1 m.	0.024
200	Potato	1 L.	0.022
Total Calcium			0.802
Total Phosphorus			0.783
Total Iron			0.0072
240	Milk	1 cup	0.283
200	Apple	1 L.	0.014
100	Broccoli	1 s.	0.140
240	Bread, white, enriched	6 sl.	0.120
100	Carrots	1 s. d.	0.045
100	Eggs	2	0.054
30	Molasses	2 T. sc.	0.077
180	Oats, rolled, ck	1 s. d.	0.016
100	Orange	1 m.	0.024
200	Potato	1 L.	0.022
100	Tomato	1 m.	0.007
Total Calcium			0.802
Total Phosphorus			1.048
Total Iron			0.0016
240	Milk	1 cup	0.283
100	Banana	1 sm.	0.008
150	Bread, whole wheat	5 sl.	0.075
100	Broccoli	1 s. d.	0.140
100	Eggs	2	0.054
100	Lettuce	½ hd.	0.017
120	Meat, med. fat	4 oz.	0.012
30	Molasses	2 T. sc.	0.077
200	Oranges	2 m.	0.048
400	Potato	2 L.	0.044
30	Raisins	2 T.	0.018
60	Shredded wheat	2 b.	0.028
Total Calcium			0.804
Total Phosphorus			1.561
Total Iron			0.0235

Child

Grams	Food	Household Measure	Calcium Grams
960	Milk	4 cups	1.132
Total Calcium			1.132
Total Phosphorus			0.892
Total Iron			0.002
720	Milk	3 cups	0.849
100	Broccoli	1 s.	0.140
100	Potato	1 sm.	0.011
Total Calcium			1.000
Total Phosphorus			0.794
Total Iron			0.0042
480	Milk	2 cups	0.566
100	Beans, string	1 s. d.	0.065
90	Bread, whole wheat	3 sl.	0.045
100	Broccoli	1 s.	0.140
100	Eggs	2	0.027
30	Molasses	2 T. sc.	0.077
180	Oats, rolled, ck	1 s. d.	0.016
200	Oranges	2 m.	0.048
100	Potato	1 sm.	0.011
100	Tomato	1 m.	0.007
Total Calcium			1.002
Total Phosphorus			1.054
Total Iron			0.0141
240	Milk	1 cup*	0.283
200	Apple	1 L.	0.014
100	Beans, string	1 s. d.	0.065
180	Bread, whole wheat	6 sl.	0.090
100	Broccoli	1 s.	0.140
100	Carrots	1 s. d.	0.045
100	Eggs	2	0.054
100	Kale	½ c.	0.181
60	Meat, med. fat	2 oz.	0.006
30	Molasses	2 T. sc.	0.077
200	Oranges	2 m.	0.048
Total Calcium			1.003
Total Phosphorus			1.106
Total Iron			0.0188

* If only this amount of milk were used (and no cheese), it would be impossible for the child to eat the following amounts of foods (to obtain his requirements).

TABLE 31
PHOSPHORUS
Average Servings of Vegetables and Fruits Arranged According to Their Content of Phosphorus*

Vegetables

Above .050 gram		.050 to .041 gram		.040 to .031 gram		.030 to .021 gram		.020 to .011 gram		Less Than .010 gram	
Beans, lima, dried	0.116	Beans, string	0.044	Asparagus	0.040	Asparagus (C)	0.029	Cucumber	0.018	Sauerkraut	0.009
Beans, navy	0.139	Beets	0.041	Beans, string (C)	0.038	Pepper, green	0.028	Squash, summer	0.015		
Broccoli	0.068	Cabbage, Chinese	0.044	Beet greens	0.040	Squash, winter	0.028				
Brussels sprouts	0.121	Carrots	0.041	Cabbage	0.034	Tomato	0.021				
Cauliflower	0.064	Celery	0.046	Dandelion greens	0.035						
Corn	0.103	Chard	0.050	Eggplant	0.031						
Corn (C)	0.100	Lettuce	0.040	Endive	0.039						
Parsnip	0.076	Onions	0.044	Radishes	0.031						
Peas	0.127	Pumpkin	0.046	Turnip	0.032						
Peas (C)	0.070	Spinach	0.046								
Peas, dried	0.123	Watercress	0.046								
Potato, sweet	0.052										
Potato, white	0.057										
Rutabaga	0.056										

Fruits

Above .050 gram		.050 to .041 gram		.040 to .031 gram		.030 to .021 gram		.020 to .011 gram		Less Than .010 gram	
		Currants, dried	0.041	Apricots, dried	0.036	Apricots	0.024	Apple	0.012	Applesauce (C)	0.009
				Currants	0.038	Cherries	0.022	Blackberries	0.019	Pineapple (C)	0.009
				Figs	0.035	Grapefruit	0.020	Blueberries	0.020		
				Gooseberries	0.031	Grapes	0.021	Cantaloup	0.018		
				Peaches, dried	0.036	Plums	0.027	Cranberries	0.011		
				Raisins	0.030	Prunes	0.024	Dates	0.018		
						Strawberries	0.023	Grapefruit (C)	0.020		
						Raspberries	0.027	Grapefruit juice (C)	0.020		
								Lemon	0.011		
								Orange	0.018		
								Peach	0.019		
								Peaches (C)	0.013		
								Pear	0.018		
								Pears (C)	0.018		
								Pineapple	0.011		
								Rhubarb	0.018		
								Watermelon	0.013		

* Cf. Table of Food Values and Measures, (Table 15) for amounts of average servings.

TABLE 32

PHOSPHORUS EQUIVALENTS

Approximately 0.056 gram. Various foods equivalent to 4 tablespoons of milk

Grams	Food	Household Measure	Grams	Food	Household Measure
	Bread and Cereals			*Meats*	
38	Bread, wh. wheat	1¼ sl.	48	Bacon	8 sl. full length
38	Bread, rye, light	1¼ sl.	15	Liver, beef or calves	½ oz.
60	Bread, white	2 sl.	30	Meat, lean	1 oz., sc.
12	Oats, rolled, dry	1½ T.	30	Meat, med. fat	1 oz.
15	Ralston, dry	1 T. (⅜ c. ck.)	23	Poultry, dark or light	¾ oz.
10	Wheat, Cream of, dry	1 T. (¼ c. ck.)		*Nuts*	
15	Wheat, shredded	½ b.	12	Almonds	10–12 nuts
			300	Peanut butter	10 T.
	Dairy Products		15	Pecans	12 H.
8	Cheese, American	½ T.	15	Walnuts	8–16 nuts
20	Cheese, cottage	4 t.			
90	Cream, heavy	6 T.		*Vegetables*	
75	Cream, light	5 T.	15	Beans, lima, dried	1 T.
25	Egg, whole	½	40	Beans, lima fresh	3 T.
9	Egg, yolk	½	12	Beans, navy	1 T.
30	Milk, evaporated	2 T.	125	Beans, string	¼ s.d.
60	Milk, skim	4 T.	50	Brussels sprouts	3 sm.
60	Milk, whole	4 T.	125	Carrots	1¼ L.
			100	Cauliflower	½ c.
	Fish		50	Corn	½ m. ear or 4 T.
15	Cod	½ oz.			
38	Flounder	1¼ oz.	150	Dandelion greens	¾ c.
30	Haddock	1 oz.	60	Mushrooms	6 m.
45	Oysters	3 m.	66	Parsnips	⅓ c.
23	Salmon, fresh	¾ oz.	50	Peas	¼ c.
30	Shad	1 oz.	50	Peas, dried	1 T.
			100	Potato, sweet	1 sm.
	Fruits		100	Potato, white	1 sm.
200	Banana	2 m.	125	Pumpkin	⅝ c.
300	Blackberries	3 s.d.	125	Spinach	⅝ c.
250	Cherries	63	200	Turnips	1 c.
45	Currants	3 T.			
45	Figs, dried	3 sm.			
250	Grapes	50			
45	Peaches, dried	3 H.			
500	Pineapple	5 sl. ¾″ thick			
70	Prunes	7 m.			
60	Raisins	4 T.			
200	Raspberries, red	1½ c.			
250	Strawberries	25 L.			

TABLE 33
PHOSPHORUS
Various Combinations of Foods Supplying a Day's Requirement
Daily Requirement: Adult—1.32 grams. Child (9 years)—1.5 grams

Adult				Child			
Grams	Food	Household Measure	Phosphorus Grams	Grams	Food	Household Measure	Phosphorus Grams
150	Bread, whole wheat	5 sl.	0.225	120	Bread, whole wheat	4 sl.	0.180
100	Eggs	2	0.224	100	Eggs	2	0.224
120	Meat, med. fat	4 oz.	0.200	960	Milk	4 c.	0.892
480	Milk	2 c.	0.446	180	Oats, rolled, ck	1 s.d.	0.126
180	Oats, rolled, ck	1 s.d.	0.126	200	Potato	1 L.	0.114
200	Potato	1 L.	0.114				
Total Phosphorus			1.335	Total Phosphorus			1.536
Total Calcium			0.745	Total Calcium			1.284
Total Iron			0.0139	Total Iron			0.0115
200	Apple	1 L.	0.024	100	Banana	1 sm.	0.028
100	Beans, string	1 s.d.	0.044	120	Bread, whole wheat	4 sl.	0.180
150	Bread, whole wheat	5 sl.	0.225	100	Carrots	1 s.d.	0.041
100	Carrots	1 s.d.	0.041	50	Egg	1	0.112
50	Egg	1	0.112	60	Meat, med. fat	2 oz.	0.100
90	Meat, med. fat	3 oz.	0.150	720	Milk	3 c.	0.669
480	Milk	2 c.	0.446	180	Oats, rolled, ck	1 s.d.	0.126
100	Orange	1 m.	0.018	100	Orange	1 m.	0.018
200	Potato	1 L.	0.114	100	Peas	1 s.d.	0.127
30	Shredded wheat	1 b.	0.125	200	Potato	1 L.	0.114
100	Tomato	1 m.	0.021				
Total Phosphorus			1.320	Total Phosphorus			1.515
Total Calcium			0.868	Total Calcium			1.080
Total Iron			0.015	Total Iron			0.0146
200	Apple	1 L.	0.024	200	Apple	1 L.	0.024
100	Banana	1 sm.	0.028	100	Banana	1 sm	0.028
100	Beans, string	1 s.d.	0.044	100	Beans, string	1 s.d.	0.044
150	Bread, whole wheat	5 sl.	0.225	150	Bread, whole wheat	5 sl.	0.225
100	Broccoli	1 s.	0.068	100	Carrots	1 s.d.	0.041
100	Carrots	1 s.d.	0.041	50	Egg	1	0.112
50	Egg	1	0.112	60	Meat, med. fat	2 oz.	0.100
100	Lettuce	½ hd.	0.040	720	Milk	3 c.	0.669
90	Meat, med. fat	3 oz.	0.150	200	Potato	1 L.	0.114
480	Milk	2 c.	0.446	30	Shredded wheat	1 b.	0.125
100	Orange	1 m.	0.018	100	Tomato	1 m.	0.021
200	Potato	1 L.	0.114				
100	Tomato	1 m.	0.021				
Total Phosphorus			1.331	Total Phosphorus			1.503
Total Calcium			1.019	Total Calcium			1.132
Total Iron			0.0165	Total Iron			0.015
100	Beans, string	1 s.d.	0.044	150	Bread, whole wheat	5 sl.	0.225
150	Bread, whole wheat	5 sl.	0.225	100	Carrots	1 s.d.	0.041
50	Egg	1	0.112	60	Meat, med. fat	2 oz.	0.100
720	Milk	3 c.	0.669	960	Milk	4 c.	0.892
180	Oats, rolled, ck	1 s.d.	0.126	100	Orange	1 m.	0.018
100	Pineapple	1 sl.	0.011	100	Peas	1 s.d.	0.127
200	Potato	1 L.	0.114	200	Potato	1 L.	0.114
100	Tomato	1 m.	0.021				
Total Phosphorus			1.322	Total Phosphorus			1.517
Toal Calcium			1.077	Total Calcium			1.327
Total Iron			0.0124	Total Iron			0.0121

TABLE 34
IRON
Average Servings of Vegetables and Fruits Arranged According to Their Content of Iron

Vegetables

Above 1.5 Milligrams		1.5–1.0 Milligrams		0.9–0.5 Milligram		0.4–0.0 Milligram	
Beans, lima, dried	2.9	Asparagus	1.0	Asparagus (C)	0.7	Cabbage	0.4
Beans, lima, fresh	2.4	Beans, string	1.4	Beans, string (C)	0.7	Corn (C)	0.4
Beans, navy	3.1	Broccoli	1.4	Beets	0.9	Cucumber	0.3
Beet greens	3.2	Brussels sprouts	1.2	Carrots	0.6	Lettuce	0.1
Chard	3.1	Cabbage, Chinese	1.0	Cauliflower	0.9	Pepper	0.4
Dandelion greens	3.1	Endive	1.2	Celery	0.6	Sauerkraut	0.3
Peas, dried	1.8	Potato, sweet	1.0	Corn	0.5	Squash, summer	0.4
Peas, fresh	2.1	Potato, white	1.3	Eggplant	0.8		
Spinach	2.5			Lettuce, head	0.5		
Watercress	3.0			Mushrooms	0.7		
				Onions	0.5		
				Pumpkin	0.9		
				Radishes	0.8		
				Rutabaga	0.5		
				Squash, winter	0.6		
				Tomato	0.6		
				Turnip	0.5		

Fruits

Above 1.5 Milligrams		1.5–1.0 Milligrams		0.9–0.5 Milligram		0.4–0.0 Milligram	
Apricots, dried	2.3	Dates	1.0	Apricots	0.6	Apples	0.4
Peaches, dried	1.8			Banana	0.6	Applesauce (C)	0.3
				Blackberries	0.9	Apricots (C)	0.4
				Blueberries	0.9	Grapefruit	0.3
				Cantaloup	0.7	Grapefruit (C)	0.3
				Cherries, sweet	0.6	Orange	0.4
				Cranberries	0.6	Peach	0.3
				Currants	0.6	Peach (C)	0.2
				Figs	0.9	Pear	0.3
				Gooseberries	0.5	Pear (C)	0.2
				Grapes	0.7	Pineapple	0.3
				Lemons	0.6	Pineapple (C)	0.3
				Plums	0.5	Watermelon	0.2
				Prunes	0.9		
				Raisins	0.9		
				Raspberries	0.9		
				Strawberries	0.9		

Cf. Tables of Food Values and Measures (Table 15) for amounts of average servings.

TABLE 35

IRON EQUIVALENTS

Approximately 1.5 milligrams. Various foods equivalent to 1 egg

Grams	Food	Household Measure	Grams	Food	Household Measure
	Bread and Cereals			*Miscellaneous*	
75	Bread, wh. wheat	2½ sl.	45	Maple syrup	2 T.
90	Bread, rye	3 sl.	20	Molasses	1 T., sc.
150	Bread, white, enr.	5 sl.			
180	Oats, rolled	¾ c.		*Nuts*	
45	Wheat, shredded	1½ b.	40	Almonds	30–40 nuts
			80	Peanuts	88 nuts
	Dairy Products		60	Pecans	48 H.
18	Egg yolk	1	75	Walnuts	40–80 H.
50	Egg	1			
720	Milk	3 c.		*Vegetables*	
			150	Asparagus	12 st.
	Fish		15	Beans, lima, dried	1 T.
150	Flounder	5 oz.	60	Beans, lima, fresh	5 T.
90	Herring, smoked	½ sm. fish	100	Beans, string	½ c.
30	Oysters	2 m.	50	Beet greens	¼ c.
120	Salmon (C)	1 c.	150	Beets	3 m.
150	Salmon, fresh	5 oz.	100	Broccoli	½ c.
			120	Brussels sprouts	9 m.
	Fruits		150	Cauliflower	¾ c.
20	Apricots, dried	4 H.	50	Chard	¼ c.
150	Blackberries	12 T.	50	Dandelion greens	¼ c.
150	Blueberries	1 c.	150	Lettuce, leaf	15 lvs.
200	Currants	1 c.	200	Parsnips	1 c.
45	Dates	5–6 stoned	66	Peas	⅓ c.
45	Figs	3	30	Peas, dried	2 T.
30	Peaches, dried	2 H.	150	Potato, sweet	1½ sm.
500	Pears	5 m.	100	Potato, white	1 sm.
60	Prunes	6 m.	150	Pumpkin	¾ c.
45	Raisins	3 T.	60	Spinach	5 T.
150	Raspberries, red	1 hp. c.	50	Watercress	½ bunch
	Meat				
90	Bacon	15 strips			
75	Chicken	2½ oz.			
20	Liver, beef	⅔ oz.			
45	Beef, lean	1½ oz.			
60	Beef, m. fat	2 oz.			

TABLE 36
IRON

VARIOUS COMBINATIONS OF FOODS SUPPLYING A DAY'S REQUIREMENTS

Daily Requirement: Adult—12 milligrams. Child (9 years)—10 milligrams

Adult				Child			
Grams	Food	Household Measure	Iron Milligrams	Grams	Food	Household Measure	Iron Milligrams
150	Bread, whole wheat	5 sl.	3.0	30	Bread, whole wheat	1 sl.	0.6
50	Egg	1	1.5	50	Egg	1	1.5
480	Milk	2 c.	1.0	720	Milk	3 c.	1.5
180	Oats, rolled, ck	1 s.d.	1.5	180	Oats, rolled, ck	1 s.d.	1.5
200	Potato	1 L.	2.6	200	Potato	1 L.	2.6
100	Spinach	1 s.d.	2.5	100	Spinach	1 s.d.	2.5
Total Iron			12.1	Total Iron			10.2
Total Calcium			784.0	Total Calcium			1007.0
Total Phosphorus			1069.0	Total Phosphorus			1112.0
200	Apple	1 L.	0.8	200	Apple	1 L.	0.8
100	Banana	1 sm.	0.6	100	Banana	1 sm.	0.6
100	Beans, string	1 s.d.	1.4	100	Beans, string	1 s.d.	1.4
120	Bread, white, enr	4 sl.	1.2	100	Carrots	1 s.d.	0.6
100	Carrots	1 s.d.	0.6	480	Milk	2 c.	1.0
480	Milk	2 c.	1.0	30	Molasses	2 T. sc.	2.8
30	Molasses	2 T. sc.	2.8	100	Orange	1 m.	0.4
100	Orange	1 m.	0.4	200	Potato	1 L.	2.6
200	Potato	1 L.	2.6	Total Iron			10.2
100	Tomato	1 m.	0.6	Total Calcium			821.0
Total Iron			12.0	Total Phosphorus			724.0
Total Calcium			908.0				
Total Phosphorus			865.0	90	Bread, whole wheat	3 sl.	1.8
				100	Broccoli	1 s.	1.4
150	Bread, whole wheat	5 sl.	3.0	60	Meat, med. fat	2 oz.	1.4
100	Broccoli	1 s.	1.4	720	Milk	3 c.	1.5
120	Meat, med. fat	4 oz.	2.8	200	Potato	1 L.	2.6
480	Milk	2 c.	1.0	30	Prunes	3 m.	0.9
200	Potato	1 L.	2.6	30	Shredded wheat	1 b.	1.0
30	Prunes	3 m.	0.9	Total Iron			10.6
30	Shredded wheat	1 b.	1.0	Total Calcium			1094.0
Total Iron			12.7	Total Phosphorus			1235.0
Total Calcium			847.0				
Total Phosphorus			1202.0	100	Eggs	2	3.0
				60	Meat, lean	2 oz.	1.8
100	Eggs	2	3.0	480	Milk	2 c.	1.0
120	Meat, lean	4 oz.	3.6	180	Oats, rolled, ck	1 s.d.	1.5
480	Milk	2 c.	1.0	100	Peas	1 s.d.	2.1
180	Oats, rolled, ck	1 s.d.	1.5	30	Raisins	2 T.	0.9
100	Peas	1 s.d.	2.1	Total Iron			10.3
30	Raisins	2 T.	0.9	Total Calcium			685.0
Total Iron			12.1	Total Phosphorus			1075.0
Total Calcium			693.0				
Total Phosphorus			1197.0				

TABLE 37
COPPER
Average Servings of Some Common Foods Arranged According to Their Content of Copper*

Grams	Food	Copper
More than 300 Micrograms		
	Cereals	
100	Corn	449
	Fish	
30	Oysters	1087
	Fruit	
100	Avocado	71
	Meat, Poultry	
30	Liver	1036
	Vegetables	
100	Kale	328
290–200 Micrograms		
	Cereals	
30	Barley, entire	226
30	Oats	222
30	Rye, entire	197
30	Wheat	236
	Fruit	
100	Banana	200
	Vegetables	
30	Beans, dry	287
30	Beans, lima, dry	275
30	Peas, dried	241
100	Spinach	197
190–100 Micrograms		
	Cereals	
30	Flour, whole wheat	131
	Dairy Products	
50	Egg	127
	Fruit	
100	Grapes	98
100	Pears	134
	Vegetables	
100	Asparagus	141
100	Beans, string	126
100	Beets	187
100	Cabbage	99
100	Carrots	111
100	Lettuce, loose leaf	145
100	Onions	130
100	Pepper, green	107
100	Potato	164
100	Sweet potato	184
100	Tomato	97
90–10 Micrograms		
	Cereal and Bread	
30	Bread, white	62
30	Flour, white	44
30	Rice, white	55
	Dairy Products	
240	Milk	84
	Fish	
30	Haddock	65
30	Halibut	48
30	Mackerel	69
	Fruit	
100	Apple	71
100	Cantaloup	57
100	Orange	76
100	Plums	80
30	Prunes, dried	88
100	Strawberries	75
	Vegetables	
100	Lettuce, head	69
100	Turnip	85

* Sherman, Chemistry of Food and Nutrition, 6th ed., Macmillan Co., 1941.

TABLE 38

MANGANESE

Average Servings of Some Common Foods Arranged According to Their Content of Manganese*

Grams	Food	Manganese
More than 400 Micrograms		
	Cereals	
30	Barley, entire	505
30	Flour, whole wheat	1284
30	Oats	1484
30	Rye, entire	920
30	Wheat	1378
	Fruit	
100	Banana	642
	Vegetables	
30	Beans, dry	451
30	Beans, lima, dry	497
100	Beets	577
100	Corn	683
100	Kale	587
100	Lettuce, head	777
100	Lettuce, loose leaf	1240
30	Peas, dried	597
100	Spinach	828
100	Sweet potato	407
390–300 Micrograms		
	Cereals	
30	Rice, white	304
	Vegetables	
100	Beans, string	326
100	Onions	363
290–200 Micrograms		
	Cereals	
30	Flour, white	214
	Fruit	
100	Avocado	291
100	Strawberries	219
	Vegetables	
100	Carrots	247
190–100 Micrograms		
	Fruits	
30	Prunes, dried	131
	Meat	
30	Liver	103
	Vegetables	
100	Asparagus	190
100	Cabbage	114
100	Pepper, green	126
100	Potato	173
100	Tomato	189
90–10 Micrograms		
	Bread	
30	Bread, white	93
	Dairy Products	
50	Egg	17
240	Milk	15
	Fish	
30	Haddock	5
30	Halibut	3
30	Mackerel	6
30	Oysters	89
30	Honey	63
	Fruit	
100	Apple	84
100	Cantaloup	42
100	Grapes	83
100	Orange	25
100	Pears	64
100	Plums	96
	Vegetables	
100	Turnip	83

* Sherman, Chemistry of Food and Nutrition, 6th ed., Macmillan Co., 1941.

TABLE 39
POTASSIUM
Average Servings of Some Common Foods Arranged According to Their Content of Potassium*

Grams	Food	Potassium
More than 400 Micrograms		
	Fruit	
100	Avocado	653
	Vegetables	
30	Beans, lima, dried	518
100	Dandelion greens	461
100	Parsnips	417
100	Potato, white	496
100	Spinach	489
300–400 Micrograms		
	Fruit	
100	Banana	373
100	Rhubarb	358
	Vegetables	
100	Beets	336
100	Broccoli	395
100	Carrots	311
100	Cauliflower	313
100	Escarole	381
100	Kale	387
100	Lettuce	311
100	Mushrooms	384
100	Potato, sweet	373
100	Squash, winter	320
100	Tomato juice	310
100	Turnip	327
100	Watercress	301
	Dairy Products	
240	Milk	343
	Sweets	
30	Molasses	371
200–300 Micrograms		
	Fruit	
100	Cantaloup	249
100	Cherries	246
30	Dates	203
30	Figs	297
100	Grapes	254
100	Peaches	256
100	Pineapple	214
100	Plums	232
30	Prunes	254
30	Raisins	212
	Vegetables	
100	Beans, string	251
100	Cabbage	294
100	Celery	291
100	Egg plant	229
100	Peas	284
100	Tomato	268
	Nuts	
30	Almonds	228

Grams	Food	Potassium
100–200 Micrograms		
	Breads, Cereals	
30	Barley, entire	146
30	Bread, whole wheat	135
30	Oatmeal	129
30	Rice, whole	103
30	Wheat, entire	140
	Fish	
30	Cod fish	102
30	Halibut	102
30	Mackerel	125
	Fruit	
100	Apple	116
100	Blackberries	181
100	Grapefruit	198
100	Grape juice	139
100	Lemon	148
100	Orange	181
100	Pears	129
100	Raspberries	190
100	Strawberries	145
	Meat	
30	Beef, lean	102
30	Chicken	112
30	Ham, med. lean	115
30	Heart	111
30	Veal	108
	Nuts	
30	Brazil nuts	181
30	Walnuts	158
	Sweets	
30	Chocolate	133
	Vegetables	
100	Asparagus	187
100	Cucumber	100
100	Onions	183
100	Squash, summer	150
Less than 100 Micrograms		
	Flour, Bread, Cereal	
30	Barley, pearl	33
30	Bread, white	33
30	Farina	36
30	Flour, buckwheat	39
30	Flour, whole wheat	97
30	Flour, white	39
30	Macaroni	52
30	Rice, white	24
	Dairy Products	
15	Butter	2
30	Cheese, hard	40
30	Cream	39
50	Egg	69
	Fish	
30	Blue fish	95
30	Clams	52
30	Flounder	94
30	Haddock	94
30	Salmon	95
	Fruit	
100	Blueberries	65
100	Cranberries	80
	Meat	
30	Bacon	72
30	Lamb	91
30	Pork, med. fat	91

* Sherman, Chemistry of Food and Nutrition, 6th ed., Macmillan Co., 1941.

TABLE 40

SODIUM CHLORIDE

AVERAGE SERVINGS* OF SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF SODIUM CHLORIDE†

Grams	Food	Sodium Chloride
	Less Than 0.10 Gram	
	Breads and Cereals	
30	Bread, white, low salt	0.023
30	Cornmeal	0.027
8	Cracker, graham	0.075
6	Cracker, uneeda	0.077
30	Cream of wheat	0.037
7	Flour, white	0.008
30	Macaroni	0.036
30	Matzoh	0.001
30	Oat, rolled	0.033
30	Rice, white	0.027
30	Shredded wheat	0.034
	Dairy Products	
5	Butter, unsalted	0.001
30	Cheese, cottage	0.084
50	Egg	0.090
24	Egg yolk	0.027
18	Egg white	0.060
	Fruit	
100	Apple	0.008
100	Applesauce	0.008
100	Apricots, fresh	0.003
100	Blueberries	0.010
100	Cantaloup	0.067
100	Cherries	0.020
30	Figs	0.017
100	Grapefruit	0.008
100	Grapes	0.010
100	Lemon juice	0.005
100	Peach	0.010
100	Pear	0.020
100	Pineapple	0.080
30	Raisins	0.040
100	Raspberries	0.020
100	Rhubarb	0.059
100	Strawberries	0.010
100	Watermelon	0.010
	Miscellaneous	
30	Almonds	0.024
5	Cocoa	0.005
100	Grape juice	0.003
30	Honey	0.014
15	Mayonnaise	0.064
30	Peanuts	0.030
30	Walnuts	0.020
	Vegetables	
100	Asparagus	0.060
100	Brussels sprouts	0.070
100	Beans, lima, fresh	0.004
100	Beans, string	0.040
100	Cabbage	0.040
100	Carrots	0.050
100	Cauliflower	0.060
100	Corn, canned	0.026
100	Eggplant	0.040
100	Onions	0.034
100	Parsnips	0.050
100	Peas	0.040
100	Potato	0.060
100	Pumpkin	0.060
100	Squash	0.010
100	Turnip	0.070
100	Tomato	0.060
	More Than 0.10 Gram	
	Breads and Cereals	
30	Bread, rye	0.507
30	Bread, white	0.130
30	Bread, whole wheat	0.300
	Dairy Products	
5	Butter, salted	0.510
240	Buttermilk	0.384
30	Cheese, American	0.246
30	Cheese, cream	0.375
120	Cream, heavy	0.237
120	Cream, medium	0.158
240	Milk	0.432
	Fish	
90	Cod, fresh	0.213
90	Haddock	0.171
90	Halibut	0.198
90	Mackerel, fresh	0.228
90	Salmon, canned	0.116
90	Salmon, fresh	0.213
90	Shad	0.153
	Fruit	
100	Banana	0.206
	Meat and Poultry	
30	Bacon	0.600
90	Chicken	0.144
90	Ham	3.6–4.5
90	Liver	0.156
90	Meat	0.153
	Miscellaneous	
100	Ice cream	0.198
130	Molasses	0.157
	Vegetables	
100	Beets	0.100
100	Celery	0.260
100	Dandelion greens	0.168
100	Lettuce	0.120
100	Potato, sweet	0.160
100	Spinach	0.120

* Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.

† Pattee, Alida. *Dietetics*, 18th ed., A. F. Pattee. Also Proudfit, Fairfax. *Nutrition and Diet Therapy*, 6th ed., Macmillan Co., 1934.

TABLE 41

VITAMIN A EQUIVALENTS

Approximately 1000 International Units. Various foods equivalent to two eggs

Grams	Food	Household Measure
	Dairy Products	
38	Butter*	2½ Tablespoons
68	Cheese, American (cheddar)	2½ ounces
45	Cream, heavy, 40%	3 Tablespoons or 5½ Tablespoons, whipped
90	Cream, light, 20%	6 Tablespoons
100	Eggs	2 medium
200	Ice cream, commercial	1 cup
540	Milk, whole	2¼ cups
53	Oleomargarine, fortified	3½ Tablespoons
	Meat	
3	Liver, beef	⅛ ounce
4	Liver, calves	⅛ ounce
4	Liver, pork	⅛ ounce
	Fruits	
13	Apricots, dried	2½ halves
100	Cantaloup	¼
67	Nectarine	1⅓ medium
66	Peach, yellow	1 small or ⅔ medium
75	Prunes, stoned	7½ medium
	Vegetables	
7	Beet greens	½ Tablespoon
100	Beans, string	½ cup or 1 sauce dish
17	Broccoli, entire plant	1⅓ Tablespoon
17	Carrots	⅙ large
12	Chard, Swiss	1 Tablespoon, scant
188	Corn, sweet	2 small ears or ⅞ cup
10	Dandelion greens	1 Tablespoon, scant
7	Escarole	⅓ leaf, small
20	Lettuce, green leaf	2 leaves
100	Peas, fresh	½ cup or 1 sauce dish
135	Peas, green dried	9 Tablespoons
33	Pepper, green	⅓ large
30	Potato, sweet	⅓ small
50	Pumpkin	4 Tablespoons or ¼ cup
6	Spinach	½ Tablespoon, scant
35	Squash, winter	3 Tablespoons, scant
100	Tomato, fresh	1 medium
50	Watercress	½ small bunch

* The vitamin A content of butter varies according to the season or the type of feed for the animals.

TABLE 42

THIAMINE EQUIVALENTS

Approximately 75 micrograms. Various foods equivalent to 1 egg

Grams	Food	Household Measure
	Dairy Products	
330	Cheese, American (cheddar)	11 ounces
240	Cream, heavy, 40%	1 cup
240	Cream, light, 20%	1 cup
50	Egg	1
160	Milk, whole	⅔ cup
	Meat	
50	Beef, lean	1¾ ounces
30	Brain, average	1 ounce
30	Heart, average	1 ounce
30	Kidney, average	1 ounce
30	Lamb, medium fat	1 ounce
20	Liver, beef	⅔ ounce
20	Liver, pork	⅔ ounce
6	Pork, lean	⅕ ounce
53	Poultry, dark	1¾ ounces
83	Poultry, light	2¾ ounces
30	Veal, lean	1 ounce
	Fish	
90	Flounder	3 ounces
90	Halibut	3 ounces
60	Mackerel	2 ounces
23	Oysters	1½
105	Salmon, canned	1 cup, scant
	Fruits	
200	Apple	2 small or 1 large
150	Banana	1½ medium
100	Grapefruit	½ medium
66	Orange	⅔ medium or ⅓ cup juice
100	Pineapple juice, canned	½ cup, scant
66	Plums	2
40	Prunes, stoned	4 medium
	Vegetables	
46	Asparagus, fresh	3½ stalks
100	Beans, green string, fresh	½ cup or 1 sauce dish
26	Beans, lima, fresh	2 tablespoons
7	Beans, soy, dried	1¼ teaspoons
90	Broccoli, entire plant	½ cup, scant
75	Carrots	¾ large
75	Corn, canned	3 tablespoons
50	Kale	6 tablespoons
100	Lettuce, head	¼ head
15	Peas, dried	1 tablespoon
20	Peas, fresh	1½ tablespoons
80	Potato, sweet	⅘ small
75	Potato, white	¾ small
78	Spinach	6 tablespoons
100	Tomato	1 medium
	Breads	
24	Bread, cracked wheat	⅘ slice
60	Bread, rye, light	2 slices
38	Bread, white, enriched, min.	1¼ slices
22	Bread, whole wheat	¾ slice
	Cereals	
15	Cream of wheat, enriched, dry	1½ tablespoon or ¼ cup cooked
10	Oats, rolled, dry	1⅓ tablespoons or ¼ cup cooked
30	Shredded wheat	1 biscuit
	Nuts	
15	Brazil	2
15	Peanuts, roasted	15
15	Peanut butter	1 tablespoon
15	Pecans, shelled	12 halves
18	Walnuts	9 halves

TABLE 43
RIBOFLAVIN EQUIVALENTS
Approximately 125 micrograms. Various foods equivalent to 1 egg

Grams	Food	Household Measure
	Dairy Products	
20	Cheese, American (cheddar)	4 teaspoons
90	Cream, heavy, 40%	6 tablespoons
75	Cream, light, 20%	5 tablespoons
50	Egg, whole	1
38	Milk, evaporated	2½ tablespoons
60	Milk, whole	4 tablespoons or ¼ cup
	Meat	
60	Beef, medium fat	2 ounces
50	Brain, average	1⅔ ounces
15	Heart, average	½ ounce
6	Kidney, average	⅕ ounce
51	Lamb, medium fat	1¾ ounces
4	Liver, beef	¼ ounce
4	Liver, calves	⅛ ounce
60	Pork, medium fat	2 ounces
60	Poultry, dark	2 ounces
	Fish	
60	Haddock	2 ounces
240	Mackerel	8 ounces
60	Salmon	2 ounces
	Fruits	
150	Banana	1½ medium
200	Cantaloup	½
200	Grapefruit	1 medium
250	Orange	2½ medium
35	Prunes, stoned	3½ medium
105	Raisins	7 tablespoons
	Vegetables	
130	Asparagus	10 stalks
100	Beans, green string, fresh	½ cup or 1 sauce dish
65	Beans, lima, fresh	5 tablespoons
15	Beans, soy, dried	1 tablespoon
20	Beet greens	1½ tablespoons
126	Cabbage, partly green	1 cup, scant
133	Carrots	1⅓ large
78	Cauliflower	6 tablespoons
200	Corn, yellow	2 medium ears
50	Dandelion greens	¼ cup
50	Endive	1 leaf
50	Escarole	2 leaves
52	Kale	4 tablespoons
80	Lettuce, green leaf	8 leaves
65	Peas, fresh	5 tablespoons
45	Peas, dried green	3 tablespoons
300	Potato, white	3 small
34	Spinach	2½ tablespoons
300	Tomato	3 medium
50	Watercress	½ small bunch
	Breads	
90	Bread, cracked wheat	3 slices
360	Bread, rye, light	12 slices
75	Bread, white, enriched, min.	2½ slices
75	Bread, whole wheat	2½ slices
	Cereals	
60	Oats, rolled, dry	½ cup or 1½ cups cooked
75	Shredded wheat	2½ biscuits
	Nuts	
100	Peanuts	100
90	Peanut butter	6 tablespoons
36	Pecans, shelled	30 halves

TABLE 44

NIACIN EQUIVALENTS

Approximately 600 micrograms. Various foods equivalent to ¼ oz. beef

Grams	Food	Household Measure
	Dairy Products	
300	Cheese, American (cheddar)	10 ounces
1000	Eggs, whole	20
720	Milk, whole	3 cups
	Meat	
8	Beef, medium fat	¼ ounce
10	Brain, average	⅓ ounce
10	Heart, average	⅓ ounce
15	Kidney, average	½ ounce
8	Lamb, medium fat	¼ ounce
4	Liver, beef	⅛ ounce
8	Pork, medium fat	¼ ounce
8	Poultry, light	¼ ounce
	Fish	
15	Flounder	½ ounce
10	Halibut	⅓ ounce
10	Salmon, fresh or canned	⅓ ounce
	Fruits	
50	Cranberries	½ cup
300	Grapefruit, fresh	1½ medium
300	Orange	3 medium
66	Peach, yellow, fresh	⅔ medium
120	Apple	1 medium
100	Banana	1 medium
30	Dates, dried	3–4
105	Raisins, seeded	7 tablespoons
	Vegetables	
120	Asparagus, fresh	9 stalks
15	Beans, soy, dried	1 tablespoon
200	Cabbage, partly green	1⅓ cups
120	Lettuce, head	¼ head
85	Spinach	½ cup, scant
100	Tomato, fresh	1 medium
100	Beans, green string, fresh	½ cup
45	Carrots	½ medium
50	Peas, fresh	¼ cup
30	Beans, lima, dried	2 tablespoons
50	Potato, white	½ small
	Breads	
68	Bread, white, enriched, min.	2¼ slices
30	Bread, whole wheat	1 slice
35	Ry-Krisp	5
	Cereals	
60	Cornflakes	3 cups
150	Macaroni, dry	1¼ cups
15	Maltex, dry	1 tablespoon
45	Oats, rolled, dry	⅜ cup
15	Shredded wheat	½ biscuit
	Nuts	
30	Almonds, shelled	24–30 nuts
4	Peanut butter	¾ teaspoon

TABLE 45

ASCORBIC ACID EQUIVALENTS

Approximately 54 milligrams. Various foods equivalent to one orange

Grams	Food	Household Measure
	Fruits	
900	Apple	9 small
500	Banana	5 medium
200	Cantaloup	½
66	Grapefruit, fresh	⅔
134	Grapefruit juice, canned	⅔ cup, scant
134	Lemon juice	⅔ cup, scant
100	Orange	1 medium
100	Orange juice	½ cup, scant
700	Peach, yellow	7 medium
300	Pineapple, fresh	3 slices ¾″
800	Pineapple juice, canned	4 cups, scant
140	Strawberries	14 large
200	Tangerine	4 small
	Vegetables, raw	
75	Cabbage, partly green	½ cup
400	Lettuce, head	1 head
50	Pepper, green	½ large
500	Potato, white	5 small
100	Spinach	½ cup
250	Tomato, fresh	2½ medium
250	Tomato juice	1¼ cups
100	Watercress	1 small bunch

TABLE 46

ACID ASH-FORMING FOODS

Average Servings of Some Common Foods Arranged according to Their Excess of Acid Ash**

Grams	Food	Household Measure	Excess Acidity in cubic centimeters Normal Acid—HCl
	Bread		
30	Bread, graham	1 sl.	2.0
30	Bread, rye	1 sl.	2.0
30	Bread, white	1 sl.	2.1
30	Bread, wh. wheat	1 sl.	2.2
	Cereals		
30	Barley	3 T.	3.12
30	Cornflakes	1 c.	1.6
30	Farina	3 T.	2.9
30	Oatmeal, dry	5 T.	3.6
30	Macaroni	4 T.	2.9
30	Rice, brown	2 T.	2.8
30	Rice, polished	3 T.	2.8
10	Rice, puffed	½ c.	0.9
30	Shredded wheat	1 b.	3.6
30	Spaghetti	4 T.	2.9
10	Wheat, puffed	½ c.	1.1
30	Whole wheat	3 T.	3.6
	Crackers		
8	Graham	1	1.0
4	Saltines	1	0.3
6	Soda crackers	1	0.5
	Dairy Products		
30	Cheese, cheddar	1 p. (1″x1½″x1″)	1.62
35	Egg white	1 white	1.7
50	Egg whole	1	5.5
15	Egg yolk	1 yolk	3.75
	Fish		
30	Codfish (salt)	1 oz.	3.8
90	Haddock	3 oz. (3″x2½″x1″)	7.7
90	Halibut	3 oz.	8.37
90	Herring, smoked	3 oz.	9.0
90	Mackerel	3 oz.	8.4
30	Oysters	2 m.	4.53
90	Salmon (C)	3 oz.	9.63
90	Salmon, fresh	3 oz.	9.9
30	Sardines	4 sm.	3.39
30	Smelts	1 oz. or 2 fishes	2.6

TABLE 46—*Concluded*

Grams	Food	Household Measure	Excess Acidity in cubic centimeters Normal Acid—HCl
	Flour		
8	Flour, white	1 T.	0.8
	Fruits		
100	Cranberries	⅔ c.	*
100	Plums	3 (1½″ d.)	*
50	Prunes	5 sm.	*
	Meats		
15	Bacon	2 thick or 3 thin strips	1.5
90	Beef	3 oz.	9.0
90	Chicken	3 oz.	9.63
90	Ham, boiled	3 sl.	9.0
90	Ham, m. fat	3 sl. (4½″x4½″x⅛″)	6.7
90	Ham, smoked, lean	3 sl. (4¼″x4½″x⅛″)	8.7
90	Ham smoked, m.	3 sl. (4½″x4½″x⅛″)	7.5
	Lamb		—
90	Liver	(2¾″x2½″x¼″)	9.0
90	Pork, lean	½″ thick	9.0
90	Pork, m. fat	1 chop (½″ thick)	7.5
90	Veal	3 oz.	9.8
	Miscellaneous		
28	Cake, plain	1¾″ cu.	1.2
24	Cookies, sugar	2	1.0
45	Doughnuts	1	3.3
15	Mayonnaise	1 T.	0.21
15	Peanut butter	1 sc. T.	0.7
30	Peanuts	33–35 nuts	1.2
30	Walnuts, English	8–16	2.2
	Vegetables		
100	Corn, sweet	4 T.	1.8
100	Lentils	½ c., ck.	5.1

* These fruits "give rise to hippuric acid which remains unburned, so that they increase rather than decrease the acidity of the urine."—Sherman, Henry C., *Chemistry of Food and Nutrition*, p. 278, Macmillan Co., 1932.

** Waller, *Nutritive Value of Foods*, George Wahr, Ann Arbor; and Stern and Spitz, *Food for the Worker*, M. Barrows.

TABLE 47

ALKALINE ASH-FORMING FOODS

Average Servings of Some Common Foods Arranged according to Their Excess of Alkaline Ash*

Grams	Food	Household Measure	Excess Alkalinity in cubic centimeters Normal Alkali—NaOH
	Dairy Products		
240	Buttermilk	1 c.	5.3
30	Cream, m	2 T.	0.2
30	Cream, heavy	2 T.	0.12
30	Milk, evaporated	2 T.	1.38
240	Milk, whole	1 c.	5.5
240	Milk, skim	1 c.	4.3
	Fruits		
	Fresh—5 per cent		
100	Cantaloup	¼ melon	7.5
100	Muskmelon	¼ melon	7.5
100	Rhubarb	1 c.	8.5
	Fresh—10 per cent		
100	Grapefruit	½	5.6
100	Lemon juice	7 T.	4.0
100	Orange	1 m.	5.6
100	Orange juice	½ c. sc.	4.5
100	Peach	1 m.	5.0
100	Watermelon	½ thin sl.	2.7
	Fresh—15 per cent		
100	Apple	1 sm.	3.7
100	Apricots	2 (1⅝″ d.)	6.8
100	Grapes	1 sm. bunch	2.7
100	Pear	1 m.	3.7
100	Pineapple	1 sl. (¾″ thick)	6.8
	Fresh—20 per cent		
100	Banana	1 sm.	3.6
100	Cherries	25 sm. (sour)	6.1
	Dried—over 20 per cent		
30	Currants	¼ c.	1.7
30	Dates	3–4 stoned	3.3
30	Raisins	¼ c. seeded	7.1
	Miscellaneous		
100	Applesauce	½ c.	4.5
30	Cocoanut	1 oz.	2.1
100	Grape juice	½ c., sc.	3.9
100	Ice cream, vanilla	2 hp. T.	0.5
30	Marmalade, orange	1 r. T.	0.1
23	Molasses	1 T.	13.7
135	Pie, apple	⅙ pie (9″ d.)	2.2

TABLE 47—*Concluded*

Grams	Food	Household Measure	Excess Alkalinity in cubic centimeters Normal Alkali—NaOH
	Nuts		
10	Almonds	10 nuts	1.23
	Vegetables		
	Fresh—5 per cent		
100	Asparagus	8 st.	0.85
100	Beans, string (C)	1 s.	2.7
100	Beet greens	1 s.	27.0
100	Cabbage	1 s.	6.0
100	Cauliflower	1 s.	5.3
100	Celery	4 st.	7.8
100	Cucumber	1 sm.	7.9
100	Endive	1 s.	7.4
100	Lettuce	¼ head or 16 lvs.	7.4
100	Radishes	10	2.9
100	Sauerkraut	1 s.	5.7
100	Spinach	1 s.	27.0
100	Tomatoes	1 m.	5.6
	Fresh—10 per cent		
100	Beans, string	1 s.	5.4
100	Beets	1 s.	10.9
100	Brussels sprouts	1 s.	6.0
100	Carrots	1 s.	10.8
100	Mushrooms	4 L.	4.0
100	Onions	1 s.	1.5
100	Pumpkin	1 s.	1.5
100	Squash, Hubbard	1 s.	2.8
100	Turnip	1 s.	2.7
	Fresh—15 per cent		
100	Parsnips	1 s.	12.0
100	Peas	1 s.	1.2
	Over 20 per cent		
100	Beans, baked	1 s.	6.4
100	Beans, lima (C)	1 s.	9.2
100	Beans, lima, fresh	1 s.	14.0
30	Peas, dried (C)	3 T.	1.5
100	Potato, sweet	1 sm.	6.7
100	Potato, white	1 sm.	7.1

* Waller, *Nutritive Value of Foods*, George Wahr, Ann Arbor; and Stern and Spitz, *Food for the Worker*, M. Barrows.

TABLE 48

AVERAGE SERVINGS OF SOME COMMON FOODS ARRANGED FOR COMPARISON OF THEIR EXCESS OF ACID ASH OR EXCESS OF ALKALINE ASH IN TERMS OF NORMAL SOLUTION

Excess of Acid or Alkaline Ash	More than 10 grams	9.9 to 9.0 grams	8.9 to 8.0 grams	7.9 to 7.0 grams	6.9 to 6.0 grams	5.9 to 5.0 grams	4.9 to 4.0 grams	3.9 to 3.0 grams	2.9 to 2.0 grams	1.9 to 1.0 gram	Less Than 1.0 gram
	Meat, Fish, and Poultry										
Acid Ash-Forming Foods	Cod, salt 11.3 Ham, fresh lean 10.8 Herring, smoked 16.2 Oysters 13.5	Beef, lean Chicken Fowl Liver, beef Pork, lean Salmon Veal, lean	Beef, fat Beef, m. fat Halibut Ham, smoked, lean Lamb Liver, calf Mackerel Mutton, lean Shad Veal, m. fat	Haddock Ham, smoked, m. fat Mutton, m. fat Pork, m fat Smelts	Ham, fresh, m. fat	Cod, fresh Egg, whole		*Bacon *Sardines (C)			
							Miscellaneous				
							Egg, yolk		*Walnuts, English	Cheese, cheddar Corn, sweet Egg, white	Cocoanut, dried *Mayonnaise †Peanut butter Peanuts
									Breads and Cereals, Crackers		
								Barley Doughnut Oats, rolled Wheat Cream of Shredded	Breads, all Farina Macaroni Noodles Rice, white Spaghetti	Cornflakes Cornmeal	**Cracker, graham Saltine Soda †Flour, white **Sugar cookie
	Vegetables										
Alkaline Ash-Forming Foods	Beans, lima dried 12.4 fresh 14.4 Beet greens 27.0 Beets 10.8 Carrots 10.9 Chard 13.6 Parsnips 11.8 Spinach 27.0	Beans, lima (C)	Carrots (C) Rutabaga	Celery Cucumber Lettuce Potato, white	Beans, baked (C) Potato, sweet	Beans, navy string Cabbage Cauliflower Sauerkraut Tomatoes	Mushrooms		Beans, string (C) Pepper Radishes Squash Turnip	Dandelion greens Onions Peas dried fresh Pumpkin	Asparagus Asparagus (C) Peas (C)
	Fruits										
	Apricots, dried 18.6 Figs, dried 30.0		Muskmelon Rhubarb	Raisins	Apricots, fresh Cherries, sweet Orange juice	Banana Grapefruit Lemon Orange Peach	Grape juice Lemon juice Peaches (C)	Apples Dates Pear	Applesauce Currants, dried Grapes Watermelon	Pears (C)	Currants, fresh
	Miscellaneous										
	Molasses 17.8					Buttermilk **Olives, green	Milk, Skim Whole	Almonds		*Milk, evaporated	*Cream Marmalade, orange

Other Servings: * 30 grams, ** one each, † 1 tablespoon.

Continued on next page.

TABLE 48—*Concluded*

Neutral Foods	*Neutral Foods*	
	Butter Cornstarch Ginger ale Lard	Oil Sugar Tapioca

	Average Servings		*Average Servings*
Bread	30 grams	Milk	240 grams
Cereals, dry	30 grams	Meat, fish or poultry	90 grams
Cheese	30 grams	Nuts	30 grams
Fruits, fresh	100 grams	Vegetables, fresh	100 grams
Fruits, dried	30 grams	Vegetables, dried (legumes)	30 grams

TABLE 49

PURIN BEARING FOOD

AVERAGE SERVINGS* OF SOME COMMON FOODS ARRANGED ACCORDING TO THEIR CONTENT OF URIC ACID†

Over .15 gram	.15 to .101 gram	.10 to .051 gram	.049 to .01 gram	Less than .01 gram	"Purin Free"
		Beverages‡			
			Beer 0.0230	Coffee (1 T.) 0.0030 Tea (1 t.) 0.0004	
		Bread and Crackers			
					White
		Cereals (Refined)			
					Barley Hominy Rice Sago Tapioca Wheat
		Dairy Products			
			Cheese, dairy 0 0198	Cheese, cream 0.0045	Butter Cheese Edam Limburger Roquefort Swiss Cream Eggs Milk
		Fish			
Trout 0.1512 Herring 0.1863	Anchovies 0.1395 Carp 0.1458 Codfish 0.1026 Pike 0.1215 Sardines 0.1026	Crab 0.0540 Herring, red 0.0756 Lobster 0.0594 Oysters 0.0783 Salmon, fresh 0.0648	Salmon, smoked 0.0459		Fish Roe (Caviar)
		Meat			
Kidney 0.2160 Liver 0.2511 Squab 0.1566 Sweetbread 0.8910	Liverwurst 0.1026 Tongue, smoked 0.1485 Veal 0.1026	Beef 0.0999 Brains 0.0756 Chicken 0.0783 Goose 0.0899 Ham, boiled 0.0675 smoked 0.0648 Mutton 0.0702 Pheasant 0.0918 Pork 0.1007			
		Nuts			
					All except peanuts
		Vegetables			
		Beans 0.0510 Mushrooms 0.0540 Peas, dried 0.0540 Spinach 0.0720	Asparagus 0.0240 Beans, shell 0.0243 Cauliflower 0.0240 Lentils 0.0486 Radishes 0.0150	Beans, string 0.0060 Cabbage 0.0060 Garlic—trace Lettuce 0.0090 Potato, white 0.0060	All except those included in previous lists

* Cf. Table of Food Values and Measures (Table 15) for amounts of average servings.

† Based on the table of J. Schmidt and G. Bessau taken from J. Brugsch: Gicht in Kraus and Brugsch; Specielle Pathologie and Therapie der Inneren Krankheiten, Berlin, p. 228.

‡ Harrop, George A., Jr., M.D., *Diet in Disease*, P. Blakiston's Son & Co., Inc., Philadelphia.

TABLE 50

CHOLESTEROL

AVERAGE SERVINGS OF VARIOUS FOODS ARRANGED ACCORDING TO THEIR CONTENT OF CHOLESTEROL (ANIMAL SOURCES)

Grams	Food	Household Measure	More than 1 gram	0.99 to 0.50 gram	0.49 to 0.10 gram	0.09 to 0.01 gram	Less than 0.01 gram
30	Bacon	6 thin sl.				0.023	
15	Bacon, fat	1 T.				0.02	
90	Beef, fresh	3½″ x 2½″ x ¾″				0.07	
30	Blood, beef	2 T.				0.06	
30	Brains, cattle	1 oz.	1.11				
15	Butter	1 T.				0.03	
30	Cheese, cream	2 r. T.				0.03	
90	Chicken	3½″ x 2½″ x ¾″			0.47		
18	Egg yolk	1			0.39		
30	Fats, lard, suet	2 T.			0.11		
90	Kidney, mutton	½ c., chopped	3.06				
90	Kidney	⅜ c., chopped			0.22		
90	Liver	3½″ x 2½″ x ¾″	3.06				
90	Liver, goose	½ c., chopped			0.44		
90	Meat, chicken	3½″ x 2½″ x ¾″			0.10		
30	Milk, cows'	2 T.					0.009
240	Milk, cows'	1 c.				0.072	
30	Muscle, dried beef	1 oz.				0.07	
30	Pancreas, calf	1 oz.		0.94			
90	Pork	3½″ x 2½″ x ¾″				0.04	
90	Rabbit, whole	⅜ c., chopped			0.105		
30	Roe, Salmon	1 oz.		0.66			
30	Thymus, calf	1 oz.		0.69			
90	Veal	3½″ x 2½″ x ¾″				0.08	

Adapted from the table by John Russell Twiss, M.D., J. A. M. A., Vol. 101, No. 24, p. 1841, December 9, 1933.

TABLE 51

CHOLESTEROL

AVERAGE SERVINGS OF VARIOUS FOODS ARRANGED ACCORDING TO THEIR CONTENT OF CHOLESTEROL

(Vegetable Sources)

Grams	Food	Household Measure	.49 to .10 gram	.09 to .01 gram	Less than .01 gram
30	Almonds	24–30 nuts		0.016	
100	Apples	1 sm.			0.007
100	Apricots	3 m.			0.003
100	Artichokes, French	4 sm. hearts		0.016	
100	Asparagus	8 st.		0.010	
100	Bananas	1 sm.			0.008
30	Beans, flageolets, dry	3 T.			0.001
100	Beans, green, fresh	½ c.		0.018	
30	Beans, kidney, dry	3 T.		0.011	
100	Beets	2 m.			0.0005
30	Bread, white	1 sl.			0.004
100	Carrots	1 L. or ¼ c.			0.001
100	Cauliflower	6 r. T.		0.023	
100	Celery	4 st.			0.0008
50	Chestnuts, fresh	8		0.097	
30	Chocolate	1 sq.		0.017	
3	Cocoa	1 t.			0.0001
100	Corn, sweet	⅜ c. or 1 m. ear	0.10		
30	Cornmeal	3 T.			0.006
100	Eggplant	½ c.			0.002
100	Endive, French	2 st.			0.006
100	Figs, black, fresh	4 L.		0.010	
142	Flour, wheat	1 c.		0.035	
100	Grapes, white	24			0.006
100	Leeks	¾ c.			0.0009
30	Lentils, dry	2½ T.		0.012	
100	Lettuce	¼ head			0.002
15	Margarine, nut	1 T.			0.006
100	Melons			0.017	
100	Mushrooms, cooked	½ c.			0.002
100	Olive, black	10 L.		0.018	
15	Olive oil	1 T.		0.018	
100	Oranges	1 m.		0.014	
100	Peaches	1 m.			0.006
115	Peanut oil	½ c.		0.095	
100	Pears	1 sm.		0.014	
30	Peas, dry	2 T.		0.018	
100	Potatoes	1 sm.			0.003
50	Prunes, dry	5 m.		0.012	
30	Rice, white	10 T. or ¾ c.			0.008
100	Sauerkraut	¾ c.			0.001
25	Sorrel	½ c.			0.002
100	Spinach	4 r. T.			0.006
100	Squash	½ c.			0.003
100	Strawberries	10 L.			0.009
100	Tomatoes	1 m.			0.0004

Adapted from table by Milton A. Bridges, *Food and Beverage Analyses*, p. 21, Lea and Febiger, 1935.

TABLE 52

NORMAL RANGE FOR CERTAIN PHYSIOLOGICAL DATA

Blood:	
Hemoglobin:	
Children	12–15 grams per 100 cc.
Adults: Male	14–18 grams per 100 cc.
Female	12–16 grams per 100 cc.
Red cell count:	
Children	4,000,000–4,500,000 per c.mm.
Adults: Male	4,500,000–5,400,000 per c.mm.
Female	4,000,000–4,800,000 per c.mm.
White cell count:	
Children	7,000–15,000 per c.mm.
Adults	6,000–12,000 per c.mm.
Non-protein nitrogen:	
Children	19–40 mgm. per 100 cc.
Adults	25–40 mgm. per 100 cc.
Uric acid:	
Children	0.5–3.5 mgm. per 100 cc.
Adults	2.0–3.5 mgm. per 100 cc.
Urea:	
Children	8–20 mgm. per 100 cc.
Adults	10–15 mgm. per 100 cc.
Sodium chloride	450–500 mgm. per 100 cc.
Sugar	80–120 mgm. per 100 cc.
Cholesterol	150–240 mgm. per 100 cc.
Calcium	9–11 mgm. per 100 cc.
Bilirubin	less than 1.0 mgm. %
Sedimentation rate (Westergrem method):	
Male	up to 10 mm. in 1 hour
Female	up to 15 mm. in 1 hour
Creatinine	1–2 mgm. per 100 cc.
Phosphorus:	
Children	3–7 mgm.
Adults	3–4.5 mgm.
Alkaline phosphatase:	
Children	5–12 Bodansky units
Adults	1.5–4 Bodansky units
Acid phosphatase	less than 4 King-Armstrong units
Ascorbic acid:	
Children	1.5 mgm. per 100 cc.
Adults	0.8–2.4 mgm. per 100 cc.
Albumin	4.6–6.7%
Globulin	1.2–2.3%
Total protein	5.8–9.0%
Urine	
Volume	1000–2000 cc. in 24 hours
Specific gravity	1010–1032
Color	Amber
Reaction	Acid to litmus
Sugar	0–trace
Albumin	0–trace
Diacetic acid	0
Sediment:	
Casts	0
Red blood corpuscles	None to a rare red cell
White blood corpuscles	None to an occasional white cell
Squamous cells	More in females
Acetone	0
Phenolsulphonephthalein excretion	25% in 15 minutes, 40–60% in one hour (intravenously)
Gastric acidity	0.4–0.5% hydrochloric acid
Blood pressure	
Children	$\frac{90–110}{60–70}$
Adults	$\frac{100–150}{70–90}$
Basal Metabolic Rate	Minus 15—plus 10

TABLE 53

BIOLOGIC FOOD GROUPS* USED IN THE TREATMENT OF FOOD ALLERGY

GRAMINEAE
- Wheat
- Rice
- Rye
- Oat
- Barley
- Corn
- Sorghum

PALMACEAE
- Cocoanut
- Date

LILIACEAE
- Onion
- English Garlic
- Asparagus
- Leek
- Chive

MORACEAE
- Black Mulberry
- Fig
- Hops

POLYGONACEAE
- Buckwheat
- Rhubarb

JUGLANDACEAE
- Black Walnut
- English Walnut
- Pecan
- Hickory
- Butternut

BETULACEAE
- Hazelnut
- Filbert
- Chestnut

CHENOPODIACEAE
- Spinach
- Beet
- Swiss Chard

GROSSULARIACEAE
- Currant
- Gooseberry

CRUCIFERAE
- Radish
- Horse Radish
- Mustard
- Turnip
- Rutabago
- Cabbage
- Kale
- Brussels Sprouts
- Kohl-rabi
- Cauliflower
- Broccoli

ROSACEAE
- Blackberry
- Strawberry
- Raspberry

POMACEAE
- Apple
- Pear

DRUPACEAE
- Almond
- Plum
- Prune
- Cherry
- Apricot
- Peach

LEGUMINOSAE
- Pea
- Kidney Bean
- Lima Bean
- Lentil
- Peanut
- Navy Bean
- String Bean

RUTACEAE
- Lemon
- Orange
- Grapefruit
- Tangerine

MALVACEAE
- Cottonseed
- Okra, Gumbo

UMBELLIFERAE
- Carrot
- Parsnip
- Parsley
- Celery
- Dill

VACCINIACEAE
- Huckleberry
- Cranberry
- Blueberry

SOLANACEAE
- Potato
- Tomato
- Eggplant
- Green Pepper
- Red Pepper
- Ground Cherry

CUCURBITACEAE
- Pumpkin
- Squash
- Cantaloup
- Cucumber
- Watermelon
- Muskmelon

COMPOSITAE (Chichoriaceae)
- Salsify, Oyster Plant
- Chicory
- Lettuce
- Endive

COMPOSITAE (Asteraceae)
- Jerusalem Artichoke
- Artichoke

ACERACEAE
- Maple Sugar

STERCULIACEAE
- Cocoa

THEACEAE
- Tea

RUBIACEAE
- Coffee

MUSACEAE
- Banana

VITACEAE
- Grape-Raisin

ANACARDIACEAE
- Pistachio Nut

OLEACEAE
- Olive

CONVOLVULACEAE
- Sweet Potato
- Yam

BROMELIACEAE
- Pineapple

ZINZIBERACEAE
- Ginger

UNGULATAE
- Beef
- Lamb
- Mutton
- Pork
- Veal

AVES
- Chicken
- Duck
- Goose
- Squab
- Turkey

PISCES
- Bass
- Crappie
- Pike
- Whitefish
- Herring
- Halibut
- Haddock
- Salmon

CRUSTACEAE
- Lobster
- Crab
- Shrimp
- Crayfish

MOLLUSCA
- Clam
- Oyster
- Scallop
- Abalone

*Adapted from an arrangement by M. Murray Peshkin, M.D., New York, N. Y.

TABLE 54

ELIMINATION DIETS FOR THE DIAGNOSIS AND TREATMENT OF FOOD ALLERGY*—VANDERBILT CLINIC DIETS

	Adults				Children			
	Diet 1	Diet 2	Diet 3	Diet 4	Diet 5 For Infants	Diet 6 Children 1-2 Years	Diet 7 School Child	Diet 8 School Child
Beverage	Coffee	Milk Chocolate[d]	Tea Lemonade	Grape juice	Sobee[o]	Sobee Lemonade	Sobee	Lemonade
Fruit	Grapefruit Prunes Plums	Apple Apricots	Peaches Banana Lemon	Grapes Raisins Pears	Grapefruit juice Lemon juice	Lemon juice Banana	Apricots Banana	Apple Lemon
Vegetable	Peas (any kind) Corn (any kind)	Beets Lettuce	Onion Carrots Lentils	Beans (any kind) Turnips (yellow or white)	Carrot String beans	Carrot String beans	Carrot Beans (all kinds)	Corn Beets Peas
Meats	Lamb Mutton	Beef Veal	Mackerel Salmon	Chicken Egg	Lamb	Lamb	Lamb	Beef
Cereal	Corn[a] Hominy	Rice[e] Rye	Wheat[h]	Barley Oatmeal Steel-cut oats	Barley Oatmeal	Barley Oatmeal	Barley Oatmeal	Corn Rice
Bread	Corn pone Corn crisps	Rye-rice muffin Whole rye wafer[f]	Homemade biscuit Whole wheat bread[i] Some wheat crackers[j]	Barley-oatmeal muffin		Barley-oatmeal muffin	Barley-oatmeal muffin	Corn pone Corn crisps
Fat	Corn oil[b]	Beef suet Butter or cream	Cotton seed oil[k]	Olive oil Chicken fat		Olive oil	Olive oil	Corn oil[b]
Miscellaneous	Corn syrup[c] Plum jam Molasses Molasses candy	Vinegar Cheese Apple butter Chocolate fudge Plain milk-chocolate bars[g] Mineral oil	Spaghetti[l] Peach jam Lemon drops	Olives Grape jelly Peppermint or wintergreen cream candy[n]	Corn syrup[c] Corn sugar Viosterol[p]	Viosterol[p]	Chocolate Apricot jam Chocolate candy (homemade)	Corn syrup[c] Molasses Apple butter

Water, cane sugar, brown sugar, powdered dextrose, salt, gelatin,[m] baking soda, cream of tartar, hard candy,[n] may be used freely on all diets.

Diets, 5, 6, and 7 contain practically the same foods but are adapted for different ages. If the mother is unable to bake the prescribed bread substitutes, Ry-Krisps[f] may be added.

[a] Corn meal mush or Post Toasties. [b] Corn oil, Mazola, manufactured by the Corn Products Refining Co., is stated to contain only pure corn oil.

[c] Corn syrup, Karo, Blue Label, manufactured by Corn Products Refining Co., is stated to be made from 85–90 per cent corn syrup and 10 per cent refiners' sugar.

[d] Chocolate, this applies to a pure chocolate or cocoa and does not indicate chocolate preparations, such as the cocoa malt or chocolate malted milk preparations.

[e] Rice, preferably brown or as Puffed Rice, Quaker Oats Co., or Rice Krispies, Kellogg's.

[f] Ry-Krisps, whole rye wafer stated to be made from whole rye, salt, and water. Manufactured by the Ralston Purina Co., St. Louis, Mo.

[g] Plain Hershey milk chocolate bars are stated to be made from whole milk, chocolate, and sugar. Filled chocolate candy bars or chocolate creams may not be used as they usually contain egg and sometimes nuts or fruits. [h] Wheat breakfast cereals as Farina, Cream of Wheat, Wheatena, Shredded Wheat, Puffed Wheat, etc.

[i] Wholewheat bread as baked by the leading bakers in New York City is stated to be made without milk. It usually contains yeast and frequently lard which introduces additional foods. Practically all New York white bread does contain milk. This may not apply in every community.

[j] Uneeda Biscuits and Graham Crackers of the National Biscuit Co. are stated to be made without milk or eggs.

[k] Cotton seed oil, i.e., Crisco, manufactured by Proctor and Gamble. It may be salted and also used as a very good substitute for butter.

[l] Spaghetti, this does not include macaroni and noodles as some brands of macaroni contain milk and all noodles contain egg.

[m] Commercially prepared lemon flavored gelatin may be used on diets 3, 6, and 8, but on the other diets it is necessary to use unflavored gelatin as the allowed fruit flavors are not prepared commercially.

[n] Hard candy applies to the commercial candy flavored with peppermint, wintergreen, clove, cinnamon, etc., but not to soft candies, such as marshmallows, fondants, creams or nougats because egg white is used in the making of these.

[o] Sobee, manufactured by Mead, Johnson & Co., contains soy bean 67.5 per cent, barley flour 9.5 per cent, olive oil 19 per cent, sodium chloride 1.3 per cent and calcium carbonate 2.7 per cent. If it is prepared by using 1 ounce of Sobee to 7 ounces of water, the nutritive value of one fluid ounce is approximately equivalent to 17 calories. The percentage composition in normal dilution is carbohydrate 4.07 per cent, protein 4.15 per cent and fat 2.81 per cent.

[p] Viosterol, irradiated ergosterol usually with corn oil as a vehicle. If corn is contraindicated, suggest using Abbot's Viosterol which is irradiated ergosterol in sesame oil.

* Waters, Irene, Reprint from The Journal of Allergy, St. Louis, Vol. II, No. 4, p. 225, May, 1931.

TABLE 55

THE AMOUNTS OF CARBOHYDRATE, PROTEIN, FAT AND CALORIES FOR THE VARIOUS GRAM RATIOS OF THE KETOGENIC DIET

Diet Calculation Table

Cals.	Gram Ratios													
	1:1		1.5:1		2:1		2.5:1		3:1		3.5:1		4:1	
	F:C-P		F:C-P		F:C-P		F:C-P		F:C-P		F:C-P		F:C-P	
1000	77	77	86	57	91	45	94	38	97	32	99	28	100	25
	79	79	88	59	93	47	97	39	99	33	101	29	102	26
	81	81	90	60	96	48	99	40	102	34	104	30	105	26
	83	83	92	61	98	49	101	41	104	35	106	30	107	27
1100	85	85	94	63	100	50	104	41	106	36	108	31	110	27
	87	87	96	64	102	51	106	42	109	36	111	32	112	28
	88	88	99	66	105	52	108	43	111	37	113	32	115	29
	90	90	101	67	107	53	111	44	114	38	116	33	118	29
1200	92	92	103	69	109	55	113	45	116	39	118	34	120	30
	94	94	105	70	111	56	116	46	118	40	121	34	122	31
	96	96	107	71	114	57	118	47	121	40	123	35	125	31
	98	98	109	73	116	58	120	48	123	41	126	36	127	32
1300	100	100	111	74	118	59	123	49	126	42	128	37	130	32
	102	102	114	76	120	60	125	50	129	43	130	37	132	33
	104	104	116	77	122	61	128	51	130	43	133	38	135	34
	106	106	119	78	124	62	130	52	132	44	136	39	138	34
1400	108	108	120	80	128	64	132	53	135	45	138	40	140	35
	110	110	123	82	130	65	135	54	138	46	141	40	142	36
	112	112	125	83	132	66	137	55	141	47	143	41	144	36
	113	113	126	84	134	67	139	56	143	48	146	42	146	37
1500	115	115	129	86	136	68	141	57	144	48	148	42	150	38
	117	117	131	87	138	69	144	58	147	49	150	43	152	38
	119	119	134	89	140	70	146	59	150	50	152	44	156	39
	121	121	135	90	144	72	150	60	153	51	155	44	158	39
1600	123	123	137	91	146	73	151	60	156	52	157	45	160	40
	125	125	140	93	149	74	153	61	158	53	161	46	162	41
	127	127	143	94	150	75	155	62	159	53	163	47	165	41
	129	129	144	96	152	76	158	63	162	54	165	47	168	42
1700	131	131	146	97	154	77	160	64	165	55	168	48	170	43
	133	133	149	99	156	78	163	65	168	56	170	49	172	43
	135	135	150	100	158	79	165	66	170	57	172	49	176	44
	137	137	152	101	162	81	168	67	171	57	175	50	178	44
1800	138	138	155	103	164	82	170	68	174	58	177	51	180	45
	140	140	156	104	166	83	173	69	177	59	179	51	182	46
	142	142	158	105	168	84	175	70	179	60	182	52	185	46
	144	144	161	107	170	85	178	71	180	60	185	53	184	47
1900	146	146	162	108	172	86	180	72	183	61	187	54	190	48
	148	148	165	110	176	88	183	73	186	62	189	54	192	48
	150	150	167	111	178	89	185	74	189	63	192	55	195	49
	152	152	168	112	180	90	188	75	192	64	195	56	197	49
2000	154	154	171	114	182	91	190	76	195	65	197	56	200	50
	156	156	173	116	184	92	191	76	196	65	200	57	202	51
	158	158	176	117	186	93	193	77	198	66	202	58	205	51
	160	160	178	118	189	94	196	78	201	67	204	58	207	52
2100	162	162	180	120	191	95	198	79	203	68	207	59	210	52
	163	163	182	121	193	97	200	80	206	69	210	60	212	53
	165	165	184	123	196	98	203	81	208	69	212	61	215	54
	167	167	186	124	198	99	205	82	210	70	214	61	217	54
2200	169	169	189	126	200	100	207	83	213	71	217	62	220	55
	171	171	191	127	202	101	210	84	215	72	220	63	222	56
	173	173	193	128	204	102	212	85	218	73	222	63	225	56
	175	175	195	130	207	103	214	86	220	73	224	64	227	57
2300	177	177	197	131	209	105	217	87	222	74	227	65	230	57
	179	179	199	133	212	106	219	88	225	75	229	66	232	58
	181	181	202	134	214	107	222	89	228	76	232	66	235	59
	182	182	204	136	216	108	224	90	230	77	234	67	237	59
2400	185	185	206	137	218	109	226	91	232	77	236	68	240	60
	186	186	208	139	220	110	229	92	235	78	239	68	242	61
	188	188	210	140	222	111	231	93	237	79	242	69	245	61
	190	190	212	141	225	112	233	94	240	80	244	70	247	62
2500	192	192	214	143	228	114	236	95	242	81	246	70	250	62
2600	200	200	222	148	236	118	245	99	249	83	255	73	260	65
2700	208	208	231	154	244	122	252	101	261	87	266	76	268	67
2800	215	215	240	160	254	127	262	105	270	90	273	78	280	70
2900	223	223	247	165	262	131	272	109	279	93	283	81	288	72
3000	231	231	253	170	274	137	282	113	291	97	294	84	300	75
3100	238	238	265	177	289	140	292	117	300	100	304	87	318	77
3200	246	246	273	182	290	145	300	120	309	103	314	90	320	80
3300	254	254	282	188	300	150	310	124	318	106	322	92	328	82
3400	261	261	291	194	308	154	320	128	327	109	332	95	340	85
3500	269	269	300	200	318	159	330	132	336	112	343	98	348	87

E. H. Luther and W. M. Bartlett, Massachusetts General Hospital.

Note: The figures for Carbohydrate, Protein and Fat are given in grams. The protein is based on the individual's protein requirement—½ to 1 gram per kilogram of body weight. The number of calories required is located on the table and the desired ratio selected to furnish this number of calories. The amount of protein is then deducted from the figures given in the column marked *CP*. The remainder represents the amount of carbohydrate which will be required to give the desired ratio.

TABLE 56

FOOD CONTENT OF DIETS MODIFIED ACCORDING TO CONSISTENCY†

Restricted Liquid	Full Liquid	Soft	Light
	All foods on restricted liquid diet—plus	All foods on full liquid diet—plus	All foods on soft diet —plus
Beef juice Broth—fat free Cereal water Coffee (no milk or cream) Fruit ices Fruit juices (bland) Ginger ale and other carbonated beverages Kaffee Hag Postum Sanka Tea Toast water Vegetable juices—strained Water	Cereal gruels Cream Egg beverages Egg lemonade Eggnog Gelatin desserts (clear) Ice cream—no fruit or nuts Junket Milk Milk beverages Chocolate Cocoa Malted milk Milkshakes Sherbets Soft custards Soups—strained Cream Vegetable	Bread—white Milk toast Toasted Butter Cake Angel Sponge Cereals, cooked Refined Whole grain Finely ground Strained Cheese, cottage Crackers, white Eggs, soft cooked Fruits (free from skin and seed) Pulp, Grapefruit Orange Soft cooked (baked or canned, as) Apples Apricots Bananas Peaches Pears Prunes Fruit jellies Fruit whips Jellies Macaroni Noodles Potato—baked, creamed, mashed Puddings (no nuts or raisins) Bread Cornstarch Custard Tapioca Rice Spaghetti Vegetables, puréed, Asparagus Beans, string Carrots Peas Spinach Squash Tomatoes	Breads Cakes, plain Cereals Cheese American Cream Cookies, plain Eggs—any way except fried *Fish Minced, baked or steamed Fruits Mayonnaise Meats (except beef, mutton, pork and veal) Bacon Brains *Chicken (tender) minced, stewed, roasted Lamb chops Poultry *Scraped beef *Sweet breads Olives *Oysters Soups Vegetables (cooked and raw) Except the cabbage family, corn, dried beans, cucumbers, onions, radishes and turnips

* Permitted by some physicians on the soft diet.

† Adapted from a committee report of the Diet Therapy Section of the A. D. A., 1930–32. J. A. D. A., Vol. IX, No. 1, May, 1933.

TABLE 57

FIGURES FOR THE CONSTRUCTION OF NORMAL AND DIABETIC DIETS FOR ADULTS

	Grams per Kilo Body Wt. per day			Total Grams Average Weight, 70 Kilos			Calories (Moderate activity)	
	C	P	F	C	P	F	Total	Per Kilo Body Wt. per day
NORMAL DIET	4–6	1–1.5	1–2	280–420	70–105	70–140	2800–3150	40–45
	Grams per Kilo Body Wt. per day			Total Grams Average weight, 70 Kilos			**Calories	
	*C	P	F	C	P	F	Total	Per Kilo Body Wt. per day
DIABETIC DIETS:								
Overweight	1.4–2.1	1.0–1.2	0.5–1.0	100–150	70–85	35–70	1000–1600	14–22
Average weight	2.1–2.8	1.2–1.5	1.0–1.6	150–200	85–105	70–110	1600–2200	22–31
Underweight	2.8–3.6	1.5–1.5	1.6–2.1	200–250	105–105	110–150	2200–2800	31–40

The amount of the food constituents may be modified within the range of the figures given to meet the needs of the patient—such as various grades of activity and associated diseases, or abnormal conditions.

When insulin is not used the amounts of carbohydrate may be lowered and the amounts of fat increased to obtain the same caloric value.

* As a general rule, no less than 100 grams of carbohydrate are prescribed in these diets.

** As a general rule, no less than 1000 calories are prescribed in these diets.

Amounts of minerals and vitamins are the same as for the normal diet, unless there are other requirements for associated diseases or abnormal conditions. If sufficient amounts of minerals and vitamins are not supplied by food, medication should be prescribed.

Total calories are given in rounded numbers. To estimate total calories multiply the grams of carbohydrate and the grams of protein by 4 and the grams of fat by 9, and total the results.

Diet for Children: For normal growth and development children require a normal diet with sufficient insulin to utilize it, but concentrated carbohydrates are excluded.

NOTES FOR DIETS

PART III

DIETARY OUTLINES

FOREWORD

In the following part, a chart and a series of dietary outlines present in a brief and comprehensive form the principles that have been discussed in the text, so that the complete dietetic treatment for a disease can be seen without referring to the text.

The chart states for each disease the body part affected, its normal function, the pathological physiology or abnormal condition present, and other considerations that enter into effective treatment. It restates the normal requirements of the food constituents, as given in the text. Also it indicates for each therapeutic diet whether the requirements, with respect to food constituents, calories and consistency of foods, remain normal (N) or need to be increased (+) or decreased (−). For example,—in reading down the column for protein under the heading "Per kilogram of body weight," it will be seen that only in certain kidney and liver disorders is a change indicated from the normal protein. Again, looking down the columns for the minerals, calcium, phosphorus, and iron, it will be seen that the requirements remain normal (N) except for some diseases in which the skeletal structure is affected or for the needs of the fetus. In reading across the page it will be seen that for many diseases there is no modification from the normal requirement of any of the food constituents.

This is the value of the table,—that to one who knows the normal requirements of the food constituents, and has an understanding of a particular disease or abnormal condition, a glance will show what modification of the normal diet, if any, is necessary in the case of a particular dysfunction of a body part.

The dietary outlines that follow are constructed in conformity with the plan of the table, carrying the same headings and statements under each disease, but developing in greater detail the dietetic treatment that is indicated in the table.

The description of the diseases concerned in these outlines presents only certain fundamental facts that are pertinent to dietetic treatment, so that the principles underlying diet therapy will stand forth clearly in relation to medical findings and treatment. No attempt has been made to give complete medical data. This will already have been acquired or will need to be secured from other sources.

Each dietary outline includes a brief review of the environmental factors that influence the effectiveness of the diet, and suggestions relative to the education of the patient. For a more detailed discussion, reference may be made to the text (Chapters 4, 5, 6).

When the diagnosis is established, the physician will consider the aid to be obtained from diet therapy. Seldom, however, is there but one disease to be treated. The food prescription must often consider an associated condition, sometimes more than one. A dietary planned to help to compensate for only one condition may be harmful to another, and may need adjustment to meet the requirements of various diseases. In view of such a possibility there have been listed, alpha-

FOOD CONSTITUENTS NEEDED PER DAY FOR THE NORMAL DIET AND THEIR VARIATION IN THERAPEUTIC DIETS

Body Conditions	Body Parts Affected	Physiology	Pathological Physiology and Abnormal Conditions	Food Constituents per Day														Other Factors Contributing to Effective Dietetic Treatment
				Grams per Kilogram Body weight			Calories	Grams		Milligrams	I.U.	Micrograms		Milligrams		I.U.	Consistency, Fiber	
				Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D		
Child Normal	Entire body	The maintenance of health and the keeping of all body parts and functions in normal condition.		6 to 10	2 to 3	2 to 3	*	**	**	**	**	**	**	**	**	**	N	
Adult Normal (male and female)				4 to 6	1 to 1.5	1 to 2	*	.8	1.32	12	5000	m., 1800 f., 1500	m., 2700 f., 2200	m., 18 f., 15	m., 75 f., 70	**	N	
Food Allergy		Foods are usually assimilated and used by body without showing sensitivity to any food.	Hypersensitivity in body cells due to certain foods, probably a protein specific to that food.	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Exclusion of foods to which patient is allergic. Medication may be necessary to make diet adequate.
Constipation Atonic	Large intestine	Formation and excretion of the feces which contain indigestible food residue, unabsorbed digestive secretions, and bacteria.	A functional type of constipation; lack of muscle tone. Redundant colon may be present.	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Establishment of good habits of personal hygiene, mental and physical. Regulation of bowel movement adjusted to daily routine. Cathartics only on prescription of physician.
Constipation Spastic			Hyperirritability, due to cathartics, coarse food, or emotional influences. Alternating spasm and atony or a combination.	N	N	N	N	N	N	N	N	N	N	N	N	N	–	
Colitis			Changes in secretion and motility, destructive ulcerating lesions, involving the entire colon with marked spasm and thickening of intestinal wall.	N	N	N	N	N	N	N	N	N	N	N	N	N	–	
Ulcer	Stomach or duodenum	Stomach-softening and breaking of food by mechanical action and digestion of protein by pepsin and hydrochloric acid. Duodenum digestion of carbohydrate, protein, and fat.	Ulceration to varying depths associated with inflammation of the surrounding mucosa, occasionally with hemorrhage or perforation. Hydrochloric acid usually in excess. Achlorhydria may occur. Change in motility with or without spasm.	N	N	+	N	N	N	N	N	N	N	N	N	N	–	Frequent and regular feedings. Exclusion of foods that stimulate gastric secretion and are either chemically, mechanically or thermally irritating. Establishment of good habits of personal hygiene, physical and mental.

Underweight	Body tissue	Normal storage of body tissue to meet the standards of average weight for growth, development, and maintenance of normal body functioning.	Deficiency of stored fat and possibly protein. Deficient absorption of food. Poor appetite, often of emotional origin.	+	N	+	+	N	N	N	N	N	N	N	N	N	N	Establishment of good habits of personal hygiene, mental and physical. Correction of physical defects. Sufficient rest and sleep.
Obesity	Adipose tissue		Excessive deposition of fat, due to immoderate food intake, lack of sufficient physical activity, or both in many cases, abnormalities in metabolism in certain types.	−	N	−	−	N	N	N	N	N	N	N	N	N	N	Establishment of good habits of personal hygiene, mental and physical. Glandular treatment only under direction of physician.
Diabetes																	
Adult	Islands of Langerhans of the pancreas	Secretions of a hormone, insulin, which is of importance to metabolism of glucose and fat.	Deficiency of insulin secretion by Islands of Langerhans, causing deficient glycogen storage and deficient glucose oxidation.	−	N	N	−	N	N	N	N	N	N	N	N	N	N	Administration of insulin for satisfactory control of the condition. Calories sufficient to maintain desired weight.
Child				N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Liver Disorder																	
Chronic	Liver	The intermediary metabolism of various food constituents. Formation and secretion of bile. Excretion into the bile of the disintegration of hemoglobin. The detoxification of harmful products of ingestion and protein metabolism.	Disturbance of one or several of the functions as a result of degenerative and inflammatory changes in the cells, alterations in the circulatory system, infections (chronic and acute), toxic processes, disorders affected by diseases of the biliary tract, and tumors, benign and malignant.	+	+	−	N	N	N	N	+	+	+	+	N	N	Low N	The diet should be bland, non-irritating, and non-stimulating. Medication may be necessary to make the diet adequate in minerals and vitamins. Feedings between meals to fulfill the high carbohydrate requirement. Establishment of good habits of personal hygiene, physical and mental.
Liver Disorder																	
Acute				+	N	−	−	N	N	N	+	+	+	+	N	N	Low N	
Epilepsy (in children)																	
Ketogenic Diet	Not determined	Not known.	"Convulsive seizures, the physiological cause of which is unknown."—Talbot.	−	N	+	N	N	N	N	N	N	N	N	N	N	N	Calcium, iron and vitamins to make diet adequate.
Nephritis	Kidneys	Excretion of the end products of protein metabolism. Regulation of acid-base balance and fluid.	Inability of kidneys to excrete water and end products of protein metabolism which accumulate in blood.	N	− to N	N	N	N	N	N	N	N	N	N	N	N	N	In edema restriction of sodium chloride and fluid, or increase of the acidity of the diet according to different authorities.
Nephrosis			Marked loss of albumin in urine. Plasma protein below 5.5 per cent results in edema.	N	+	−	N	N	N	N	N	N	N	N	N	N	N	
Pregnancy	Maternal and fetal tissue	Normal functioning of the maternal organism adjusted to the demands of the developping fetus.	Increased demands on maternal metabolism by presence of fetus.	N	N	N	N	1.5	2.0	15	6000	1800	2500	18	100	400–800	N	Calories based on the desired body weight. Decrease of protein if there are any kidney complications.
Rickets	Skeletal structure	Adequate utilization of calcium. Proper bone formation and proper functioning of the central nervous system.	Various disturbances of bone formation and calcification and of proper functioning of the central nervous system.	N	N	N	N	N	N	N	N	N	N	N	N	+	N	Administration of fish liver liver oil, sunshine, as medication.
Other Bone Deformities				N	N	N	N	+	+	N	N	N	N	N	N	+	N	

Key: N = Normal. − = Decrease. + = Increase.
* See Tables 11, 12, and 13.
** See Table 2.

betically, at the end of each outline, abnormal or pathological conditions that may occur, one or several of them, in association with the disease.

The intention of the repetition of statement in the outlines is that under each disease shall be found complete data for the diet.

The dietary outline for pregnancy will serve to illustrate the use of this material. With the preliminary statement of the conditions that indicate body changes, the normal food requirements will come to mind automatically, or they can be reviewed in the first outline—that for the Normal Diet. The directions for dietetic treatment follow, with a statement of the necessary variations from the normal in food constituents to meet the body changes (in this case an increase of minerals and vitamins) and a brief review of the foods (milk, fruits, and vegetables) that will make valuable contributions of minerals and vitamins. To supplement the statement of the required amounts of the food constituents,—for example, 1.5 grams of calcium,—reference to the Tables of Food Values and Measures will guide the choice of food to satisfy these requirements. Further help will be gained from the tables listing foods equivalent in calcium, phosphorus, iron and the vitamins (Tables 29 to 45), as well as the tables listing fruits and vegetables according to their content of minerals (Tables 28, 31, 34) and those giving various combinations that will supply the day's requirement (Tables 30, 33, 36). Likewise when the protein needs to be reduced, as in certain kidney complications, or the calories, for reduction of weight, help will be gained from the tables that give the protein, carbohydrate and fat contents of the foods in terms of their equivalent values (Tables 21, 24, 25, 27).

As research in the fields of both medicine and nutrition adds new knowledge, adjustments will doubtless need to be made in diet therapy. But the principle underlying diet construction will remain steadfast: the diet must supply food in kinds and amounts to fulfill body needs in health and disease.

THE NORMAL DIET

Dietary Outline

Body part affected: The whole body.

Physiology: The maintenance of all body parts and functions in normal condition.[1]

Medical examination: The condition of the body is checked by a complete medical examination, including:

Comparison of present weight with the average weight.

Determination of blood pressure, pulse, temperature; examination of head, heart, lungs, abdomen, and extremities.

Laboratory data: Laboratory studies of blood and urine.

Dietetic treatment: Foods to supply the food constituents in amounts adequate for the protection of health.

The food constituents:

Carbohydrate:

Amount:

Adult: 4–6 grams per kilogram average body weight.

Child: 6–10 grams per kilogram average body weight.

Qualifying factor: There should be sufficient cellulose to aid normal bowel elimination.

[1] "Health—Soundness of body; that condition of a living organism and of its various parts and functions which conduces to efficient and prolonged life; a normal bodily condition." The Century Dictionary, as quoted by Sherman, *Chemistry of Food and Nutrition*, 4th edition, p. 532, Macmillan Co., 1932.

Protein:

Amount:

Adult: ¾–1½ grams per kilogram average body weight.

Child: 2–3 grams per kilogram average body weight.

Qualifying factor: 50 per cent of the minimum requirement should be complete protein.

Fat:

Amount:

Adult: 1–2 grams per kilogram average body weight.

Child: 2–3 grams per kilogram average body weight.

Qualifying factor: There should be adequate amounts of the fats that carry the fat-soluble vitamins.

Minerals:

Amount:

Adult: Calcium—.8 gram per day.
Phosphorus—1.32 grams per day.
Iron—12 milligrams per day.

	Calcium	Phosphorus	Iron
	Grams per Day	Grams per Day	Milligrams per Day
Adults;	0.8	1.32	12
Children:			
Under 1 year	1.0	1.0	6
1–3 years	1.0	1.0	7
4–6 years	1.0	1.0	8
7–9 years	1.0	1.0	10
10–12 years	1.0	1.2	12
Girls:			
13–15 years	1.3	1.2	15
16–20 years	1.0	1.2	15
Boys:			
13–15 years	1.4	1.32	15
16–20 years	1.4	1.32	15

Qualifying factor: The foods that supply adequate amounts of these minerals usually carry other necessary minerals.

Vitamins:

Amount:

	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid	Vitamin D*
	International Units	Micrograms	Micrograms	Milligrams	Milligrams	International Units
Adults: Moderate activity						
Man	5000	1800	2700	18	75	
Woman	5000	1500	2200	15	70	
Children:						
Under 1 year	1500	400	600	4	30	400–800
1–3 years	2000	600	900	6	35	
4–6 years	2500	800	1200	8	50	
7–9 years	3500	1000	1500	10	60	
10–12 years	4500	1200	1800	12	75	
Girls:						
13–15 years	5000	1400	2000	14	80	
16–20 years	5000	1200	1800	12	80	
Boys:						
13–15 years	5000	1600	2400	16	90	
16–20 years	6000	2000	3000	20	100	

* The amount of Vitamin D needed has not been determined for adults and older children, but should be provided up to the minimum amount recommended for infants.

Qualifying factor: These amounts are supplied by the foods of the protective diet.

Fluid:

Amount:

Adult: Equivalent to 6–8 glasses of water per day.

Child: Equivalent to 3–4 glasses of water in addition to milk per day.

Qualifying factor: Foods as well as beverages supply fluid.

Foods:

Milk: 1 quart daily for the child. 1 pint daily for the adult.

Milk provides, liberally, protein containing all the essential amino acids, carbohydrate that is readily utilized, and fat that is especially valuable as a carrier of vitamin A. Its distinctive contribution is calcium, one quart per day supplying, in full, the calcium requirement of the child. It provides liberal amounts of phosphorus, and its content of iron, though low proportionately, is of excellent quality. Ascorbic acid is present in raw milk to a limited degree, and is not entirely destroyed by pasteurization. The small amount of vitamin D in milk can be greatly increased by various methods. Milk adds to the thiamine content of the diet and is an excellent, almost necessary source of riboflavin and a good source of niacin. Its contribution of these many food constituents gives milk a preeminent place in a protective diet.

Protein foods: At least 60 to 105 grams of protein per day.*

Each of these foods supplies about 7 grams of protein:

Complete Protein	*Incomplete Protein*
1 ounce meat	½ cup dried beans, peas, lentils (cooked)
1 egg	2 large potatoes
1½ ounces fish	1 cereal dish cereal
1 glass milk	2½ slices bread
1 ounce cheese	1 ounce nuts
1½ tablespoons soy beans, dried	

An ounce of American cheese contains approximately the same amount of calcium and phosphorus as 1 cup of milk, cream cheese only half as much, and cottage cheese almost no calcium. Cheese is also a good source of protein, fat and the vitamins.

Meat and eggs supply protein of excellent quality, phosphorus and iron, thiamine, riboflavin and niacin. The glandular organs and eggs are also sources of vitamin A. Liver and egg yolk contribute vitamin D, but in small amounts. Fish supplies protein, phosphorus and some thiamine, riboflavin and niacin. Legumes contribute carbohydrate as well as calcium, iron, thiamine, riboflavin and niacin. The protein of legumes lacks certain essential amino acids, but these can be supplied by supplementing the legumes with foods containing complete protein.

Butter and fats: 9 teaspoons of fat per day including butter, fortified oleomargarine and other kinds of fat.

Fats provide energy. Butter, fortified oleomargarine and cream contribute also the fat-soluble vitamin A. Fish oils furnish fat-soluble vitamins A and D in liberal amounts and for this reason are used for medication. The vegetable fats, unless fortified, and the oils supply only energy.

Vegetables and Fruits: At least two servings of vegetables every day. For safety use a green or yellow vegetable to ensure vitamin A. Potato in addition to other vegetables if desired. At least 2 servings of fruit every day. For safety use a citrus fruit daily to ensure ascorbic acid.

Vegetables and fruits are important sources of minerals and vitamins. They vary in their content of these food constituents, both as to kinds and amounts, as will be seen on reference to the Tables. The leafy and the yellow vegetables are especially good sources of vitamin A, the seed vegetables, containing the embryo, of thiamine, and the citrus fruits and vegetables that are eaten uncooked, of ascorbic acid. The canned vegetables, cooked under mechanical processes, also retain the greater part of their ascorbic acid content.

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* At least half the amount of protein must be complete protein.

Both vegetables and fruits are desirable sources of carbohydrate, contained in varying amounts, and good sources of cellulose. They add to the alkaline reserve of the body. The organic acids of fruit aid bowel elimination. Dried fruits are of high energy value because of their concentration of sugar, and contribute also vitamins and minerals.

Bread, cereals, flour and flour products: Use 8 or more servings per day.

The cereal products (as well as the potato) are the main sources of carbohydrate for most people. They contain some protein also, but of a type lacking the essential amino acids,—a deficiency which can be made up by combining the cereals with milk or another food containing complete protein. The refined cereal product contributes little else than carbohydrate and a small amount of protein; but the whole grain or restored or enriched product supplies minerals—iron, in particular—thiamine, riboflavin and niacin.

Sugar or sweets: Not more than ½ pound a week of sugar. Other sweets as desired.

Sugar and some other concentrated sweets such as jellies, honey and most kinds of candy contribute little besides carbohydrate. They are pleasing to the taste, but before satisfying the palate with these "one-sided foods" sufficient amounts of other foods should be given to fulfill the protein, mineral and vitamin needs of the body. Dried fruits furnish also vitamins and minerals, and molasses is a good source of calcium and an excellent source of iron, and these foods can be made into attractive candies.

Coffee and tea should not be allowed to displace essential foods. Without cream or sugar they have no food value.

Meals:

The number of meals should follow the established routine of the patient, provided the food intake is adequate in quantity and quality to fulfill the body's needs. It may be desirable that the younger children especially, and some adults as well, should have three small meals with intermediate feedings. For all children the evening meal should be light.

Environmental factors that influence the effectiveness of the diet:

Effective dietetic treatment requires conditions of living favorable to the practice of good habits of personal hygiene, both physical and mental. Regular habits of sleep, rest and activity, and regularity of bowel elimination are essential. Matters pertaining to income, the occupation, the necessaries of life, and to racial and religious customs exert an important influence on the carrying out of the diet.

Education of the patient:

To carry out his diet intelligently the patient should understand the relation of food to the body, and he should know the kinds and amounts of food that will fulfill his needs for growth and health. He should know the equivalent values of foods, to be able to adapt his diet to tastes, desires, habits, income and other environmental conditions, and at the same time fulfill his food requirements. He will acquire this knowledge the more surely through methods of visual education.

FOOD ALLERGY

Dietary Outline

Body part affected: Skin and mucous membrane, especially of the respiratory and gastro-intestinal tract.

Physiology: Foods are assimilated and used normally, without evidence of sensitivity on the part of the body toward any particular food or foods.

Pathological physiology: Hypersensitivity of the body cells to certain foods (i.e., to a protein that is specific to the food).

Usually a familial tendency to food sensitiveness, symptoms often varying in different members of the family.

Contributing factors: Climate, season, sunshine, moisture, heat, cold.

Dust, smoke, fumes, air conditions.

Clothing, furs, feathers, emanations and substances from plants and animals, toilet accessories, antiseptics and detergents, tobacco.

Neighborhood, school, occupation, recreation.

Household furniture and furnishings.

Emotional disturbances.

Infections.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.

Radiographs to rule out other respiratory and gastrointestinal conditions that may produce the same symptoms that arise in food allergy.

Tests for diagnosis: Various types of tests (skin and mucous membrane) made with the protein extracts of the commonly used foods.

Elimination diets.

Dietetic Treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. Treatment may include one or more of the following procedures, depending upon the practice of the physician: complete elimination of the foods to which skin tests show the patient to be allergic; routine restriction, without tests, of foods that commonly give rise to unfavorable symptoms; omission of foods that belong to the same biologic group as the food to which the patient is found to be allergic; use of the elimination diet, the choice of foods being guided by the results obtained; avoidance of foods that are significant causes of symptoms as indicated by the patient's history. When the foods allowed cannot supply adequate amounts of the food constituents it will be necessary to supplement the diet by medication. Care should be taken that the medication does not contain a substance to which the patient is allergic.

The Food Constituents:

Carbohydrate:

Amount: Normal.

Qualifying factor: An excess amount of concentrated sweets may produce fermentation in the gastrointestinal tract and should be avoided.

Protein:

Amount: Normal.

Qualifying factor: If the patient is sensitive to many of the foods containing complete protein, liberal amounts of the foods that are allowed are given to insure the adequacy of the diet.

Fat:

Amount: Normal.

Qualifying factor: Easily digested fats of low melting point should be chosen.

Minerals:

Amount: Normal.

Qualifying factor: When foods that would supply the mineral requirement have to be omitted, medication must be prescribed.

Vitamins:

Amount: Normal.

Qualifying factor: If amounts supplied by food are inadequate, medication should be prescribed. Care should be taken that the patient is not allergic to the foods chosen for their high vitamin content.

Foods:

A. Foods to which the patient is sensitive are determined by skin tests or trial food tests, and by the personal history of food sensitiveness. They must be entirely eliminated until the patient has been symptom free for a satisfactory period. The foods may then be re-introduced into the diet, one at a time, and in very small amounts, until it becomes clear in what amounts, if any, they can be tolerated.

B. Foods that are to be restricted, without tests, according to various authorities:

Very hot and very cold foods.
Condiments and spices and richly spiced foods.
Concentrated sweets: candy, jam, jelly.
Fried foods, pastries and hot breads.
Various kinds of fish, especially shell-fish, the oyster excepted.
Certain kinds of meat: turkey, veal, pork, ham, bacon, liver and other organs.
Highly flavored cheeses.
Vegetables and fruits that form gas.
Nuts.
Cocoa and chocolate.

C. Foods for the diet:

Milk is one of the foods to which many people are sensitive. If it must be eliminated, special thought must be given to the adequacy of the diet, in particular with respect to the growing child. In such case the calcium, phosphorus and vitamins supplied by the diet may have to be supplemented by the use of other foods which are good sources of these food constituents, or by medication. Frequently the patient who is sensitive to milk is found to tolerate it when it is rendered hypoallergic through heating processes, as in the case of boiled, evaporated, or dried milk. Milk from animals other than the cow may be substituted if the tests are negative. Cheese, if tolerated, helps greatly to fulfill the requirements for calcium and phosphorus. Proprietary foods are offered as milk substitutes but cannot be used when they contain any of the foods forbidden to the patient.

Meat, fish and poultry of the kinds allowed should be carefully evaluated and given in amounts needed to make an adequate contribution to the diet.

Eggs, a valuable source of many food constituents, are common offenders. When they have to be excluded from the diet careful thought must be given to the selection of foods equivalent in food value. Medication may have to be prescribed.

Fats: Usually butter is tolerated, but if not, the fat must be supplied by other foods and care must be taken to secure sufficient vitamin A from food or by medication. Heavy cream, which may be diluted if desired, is often tolerated even though the patient is sensitive to milk. Only easily digested fats of low melting point should be used. The oils and fats derived from foods to which the patient is sensitive should not be used in any way.

Vegetables and fruits: Various vegetables and fruits may have to be eliminated. Liberal amounts of those that are allowed, especially the seed vegetables, should be given, to ensure sufficient minerals and vitamins and to increase the carbohydrate content of the diet. The soybean and its various preparations are excellent sources of protein and fat, minerals and vitamins. They sometimes are used as substitutes for meat, milk and egg in the diet. When oranges and tomatoes are eliminated, special care must be taken to ensure adequate amounts of ascorbic acid by the use of other foods or by medication.

Breads and cereals: The grains—wheat, oats, rye, rice, corn, barley and buckwheat—are common offenders. Wheat is the only cereal flour that makes a good raised bread. Breads made from other cereal flours are not so palatable and are not eaten so freely. When wheat is not allowed, therefore, care must be taken to see that sufficient amounts of minerals and vitamins are supplied from other food sources or by medication.

Sugar and concentrated sweets, such as candy, jam and jelly, should not be allowed in large amounts as they tend to produce fermentation in the gastro-intestinal tract.

Nuts may not be found by any of the tests to be the cause of food allergy, but they may provoke irritation, with coughing.

Meals:

The number of meals should follow the established routine of the patient. The food should be so distributed that there will be no excess at any meal. It is advisable, especially for children, to have the main meal at noon time. If the adult desires food at bedtime, only a small amount of food that is digestible, and of a kind allowed by the diet, should be taken.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, both physical and mental, should be established.

If many of the commonly used and less expensive foods are eliminated, foods may have to be prescribed that will necessarily increase the cost of the diet.

Medication should be taken only under the direction of a physician. If the patient is sensitive to such substances as animal emanations, he should avoid contact with them. If pollens from trees or grasses affect him unfavorably, he should be desensitized to them.

The nutritional history of the patient is of great importance in revealing factors, emotional and environmental as well as clinical, that are direct causes of, or predisposing to, symptoms.

Education of the patient:

The patient should learn the meaning of food allergy and its relation to his condition. He should understand that strict adherence to the diet is necessary to evaluate the effectiveness of the diet. He should learn that by taking larger amounts of the foods that he can tolerate and by including in his diet foods with which he may be unfamiliar or unaccustomed but which are allowed, he can help to fulfill his requirements of food constituents and calories.

In addition to verbal instruction he should be given printed material to take home. This should include:

Lists of foods that he is *not* to eat, including the "hidden" foods,—those containing even minute amounts of a forbidden food that is not visible or revealed by taste or descriptive name.

Lists of foods that he *can* eat (including only the foods to which he is not sensitive) with the amounts necessary to fulfill normal food requirements.

Lists of equivalents within the food groups allowed, to help him to vary his meals.

Recipes which contain only foods that are allowed,—for example, recipes for bread that contain only the cereals allowed.

All of these instructions must be adapted to the intelligence of the patient.

Abnormal conditions and diseases that may be found in association with food allergy:

Acne.
Angioneurotic edema.
Bronchial asthma.
Certain rheumatic conditions.
Constipation.
Eczema.
Gastrointestinal disturbances.
Hay fever.
Migraine.
Nasal obstructions.
Pruritis.
Purpura.
Sinus conditions.
Skin eruptions.
Upper respiratory infections.
Urticaria.
Vasomotor rhinitis.

ATONIC CONSTIPATION

Dietary Outline

Body part affected: The gastrointestinal tract, particularly the colon.

Physiology: Formation of feces that are soft but firm in consistency, and which contain undigested residue of food, unabsorbed secretions, water and bacteria; elimination of feces, sufficient in quantity and at regular frequency—daily or at least every forty-eight hours. Absorption of water.

Abnormal conditions: Regular action of the bowels is deranged:

Irregularity, infrequency and difficulty of defecation.
Stools insufficient in quantity.
Stools abnormally hard and dry.
Lack of muscle tone of the intestine.
Redundant colon sometimes present.

Contributing factors: Faulty food habits.
Insufficient fluid intake.
Insufficient food intake, in either kind or amount or in both.
Insufficient activity.
Type of occupation.
Unfavorable environment:
Inadequate toilet facilities.
Sense of hurry.
Body fatigue.
Poor posture.
Excessive use of cathartics.
Emotional strain.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.
Radiographs of the intestine are desirable to determine the type of constipation, to rule out organic obstruction and to confirm diagnosis.
Examination of feces.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The diet should include sufficient water, and sufficient but not excessive bulk, to help to restore the normal muscle tone of the intestine and the regular bowel elimination.

The food constituents:

Carbohydrate:
Amount: Normal.
Qualifying factor: Sufficient but not excessive bulk or cellulose should be provided to stimulate elimination.

Protein:
Amount: Normal.

Fat:
Amount: Normal.
Qualifying factor: Unabsorbable inorganic oil is used as an intestinal lubricant. Excessive use of mineral oil should be avoided, however, as it interferes with the absorption of carotene.

Minerals:
Amount: Normal.

Vitamins:
Amount: Normal.
Qualifying factor: There should be liberal amounts of foods containing thiamine to promote the tonicity of the digestive tract. Medication is prescribed, when needed, to increase the thiamine content.

Fluid:
Amount: Normal, 6 to 8 glasses daily.
Qualifying factor: Foods as well as beverages supply fluid.

Foods:

Milk adds to the thiamine content of the diet. It is also a good source of other vitamins, and of protein, calcium and phosphorus, carbohydrate and fat.

Meat, fish, poultry and egg provide efficient protein and varying amounts of minerals and vitamins. The glandular organs, fish roe and eggs add to the thiamine content of the diet.

Butter, fortified oleomargarine and cream provide vitamin A besides adding to the fat content of the diet. Vegetable oils and fats that have not been fortified are lacking in vitamin A.

Vegetables and fruits also contribute thiamine, and their cellulose and organic acids have laxative properties. They tend to form gas and act as a slight stimulant by breaking up hard masses in the intestine. They supply other vitamins, as well as minerals and carbohydrate in varying amounts. Three to four servings of vegetables and two to three servings of fruit should be taken daily for the necessary cellulose.

Whole grain bread and cereals are excellent sources of thiamine and of cellulose, as well as of carbohydrate. Their mineral content also is high. At least one serving of a whole grain product should be taken at each meal.

Candy and concentrated starches and sweets should not be allowed to the extent of excluding from the day's food intake the foods necessary to supply vitamins and minerals in adequate amounts.

Meals:

Meals may follow the established routine of the patient but must include the total amount of food necessary to fulfill the food prescription. Eating between meals is not desirable, except when intermediate feedings at regular hours are necessary. Fluids taken before and after meals, particularly the breakfast, often facilitate the bowel movement.

Environmental factors that influence the effectiveness of the diet:

Sufficient amounts of rest and sleep, a liberal intake of water, the establishment of a regular time for the daily bowel movement and freedom from mental and emotional distress assist bowel elimination. Comfortable toilet facilities should be available with satisfactory conditions of heat, light and ventilation. Exercises to increase muscle tone and to improve posture should be directed by the physician. Dental defects should be corrected, for proper mastication.

Education of the patient:

The patient should be shown a picture or chart of the intestine or colon. He should understand what its function is, and that in his body its functioning is faulty, needing to be "toned up." He should understand that the purpose of his diet is to stimulate the intestine, or colon, through a food intake that is adequate both in kind and amount. He should understand that proper habits of hygiene are of great importance in cultivating daily bowel elimination—in particular the visit to the toilet at a regular time and so planned that there will be no sense of hurry; also, that the response to the call for defecation should not be delayed lest the desire pass away.

Abnormal conditions and diseases that may be found in association with atonic constipation:

Avitaminosis.
Gastric disturbances.
Headache.
Malaise.
Poor posture.
Psychoneurosis.
Symptoms of fatigue.

SPASTIC CONSTIPATION

Dietary Outline

Body part affected: The gastrointestinal tract, particularly the colon.

Physiology: Formation of feces that are soft but firm in consistency and which contain undigested residue of food, unabsorbed secretions, water and bacteria; elimination of feces, sufficient in quantity and at regular frequency—daily or at least every forty-eight hours. Absorption of water.

Abnormal conditions: Spasm, or alternating spasm and atony.
Redundant colon, in some cases.
Extreme sensitivity to any type of stimulation.

Contributing factors: Hyperirritability of the colon due to:
Excessive use of cathartics.
Too liberal use of coarse foods.
Immoderate use of foods that are chemically stimulating.
Immoderate use of tobacco and alcohol.
Emotional disturbances.
Body fatigue.
A combination of these various factors.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.

Radiographs of the intestine to determine type of constipation and to rule out organic obstructions.

Examination of feces.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The foods supplied must be smooth in consistency and as nearly as possible non-irritating to the gastrointestinal tract (see Peptic Ulcer, p. 178).

The food constituents:

Carbohydrate:

Amount: Normal.

Qualifying factor: Concentrated sweets and coarse foods should be omitted to avoid irritation.

Protein:

Amount: Normal.

Fat:

Amount: Normal.

Minerals:

Amount: Normal.

Qualifying factor: If amounts supplied by food are insufficient, medication should be prescribed.

Vitamins:

Amount: Normal.

Qualifying factor: Foods should supply thiamine in liberal amounts, to improve the tonicity of the digestive tract. When foods do not supply sufficient amounts of thiamine, medication is prescribed.

Fluid:

Amount: Normal.

Qualifying factor: The desired amount may be supplied by foods as well as by beverages.

Foods:

A. Consistency:

The diet must be smooth and bland. Any residue should be soft and non-irritating. Fruits and vegetables should be cooked and strained or mashed to soften the cellulose, and as much of the cellulose as possible should be removed. Refined cereals should be used, but whole grain cereals are permitted if very finely ground, or cooked and strained. Only meat of short fiber, and fish or chicken should be given, and in some conditions they are entirely omitted. Under these circumstances the mineral and vitamin intake may be inadequate and medication must be prescribed.

Variety in food, as to kind and consistency, is increased gradually as the patient's condition improves, until the normal diet can again be used.

B. Foods to be avoided as causing irritation because they increase motility, stimulate the gastric juice, contain undigested fiber, or tend to form gas:

Fruits, vegetables, whole grain cereals and nuts, that contain appreciable amounts of cellulose.

Foods that ferment readily and form gas—concentrated sweets and foods high in cellulose.

Highly seasoned foods.

Tea, coffee and cocoa.

Alcohol, used sparingly, if at all.

C. Foods for the diet:

Milk, a bland food containing no cellulose and contributing richly to body needs, may be used as the basis of this diet. It provides a good quality of protein that is non-stimulating, easily digested carbohydrate and fat, liberal amounts of calcium and phosphorus and varying amounts of the vitamins.

Meat, fish and poultry, valuable for their protein, mineral and vitamin content, should be given as soon as possible, using first the kinds that are of short fiber. The glandular organs, and fish roe and oysters are sources of thiamine, riboflavin and niacin.

Eggs are usually well tolerated. They are a good source of protein, phosphorus, iron and most of the vitamins.

Butter and cream provide fat which carries vitamin A, whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A.

Vegetables and fruits, which supply minerals and vitamins, as well as carbohydrate in varying amounts, should be added to the diet as soon as they can be tolerated. Strained orange juice and tomato juice may be given early in treatment, and as the condition of the patient improves, vegetables containing least cellulose, and tender vegetables, such as young beets and carrots, the tender leaves of spinach, squash, string beans, asparagus tips, and others of like consistency, may be given without straining.

White bread and refined cereals that have been enriched may be used as they carry vitamins and minerals.

Sugar and concentrated sweets, which ferment easily and produce gas and consequently are irritating, should be included only in very small amounts.

Meals:

Meals may be adjusted to the established routine of the patient, provided the amount and kinds of food eaten fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, both physical and mental, are exceedingly important,—in particular the habit of the regular bowel movement adapted to the daily routine. Medication should be used only as prescribed by the physician.

Education of the patient:

The patient should be shown a picture or chart of the intestine, in both normal and spastic conditions. He should understand the function of the intestine and that his condition is due to irregular spasms of the colon.

He should understand that the purpose of his diet is to overcome this irritability and help to restore the normal movement of the bowel by using foods that are soft and smooth in consistency and non-irritating.

He should be shown the refined cereal, and the use of the sieve or strainer to remove the roughage in his servings of fruit, vegetables and whole grain cereal. He should be given a list of the types and kinds of food that he should avoid. He should have recipes to help him to vary his diet.

He should recognize that sufficient rest periods and sleep, and a regular time for the bowel movement under conditions of leisure and serenity, are helpful in establishing the habit of daily bowel elimination.

Abnormal conditions and diseases that may be found in association with spastic constipation:

Avitaminosis.
Gastric disturbances.
Headache.
Poor posture.
Psychoneurosis.
Symptoms of fatigue.

COLITIS

Dietary Outline

Body part affected: The large intestine.

Physiology: Formation and elimination of the feces which contain indigestible food residue, unabsorbed digestive secretions, water, and bacteria.

Abnormal conditions: Changes in secretion (mucous type).
Changes in motility (spastic and atonic types).

Pathological physiology: Destructive ulcerating lesions involving the colon, wholly or in part, with marked inflammation.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.
Examination of the feces.
Proctoscopic examination.
Bacteriological examination of secretions from lesions in the colon.
Radiographic studies.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. The food must be non-irritating to the digestive tract.

The food constituents:

Carbohydrate:
Amount: Normal.
Qualifying factor: Cellulose, which is an irritant, and concentrated sweets, which may form gas and produce irritation, should be excluded.

Protein:
Amount: Normal.
Qualifying factor: Meats of long fiber, irritating to the colon, should not be given.

Fat:
Amount: Normal.

Minerals:
Amount: Normal.
Qualifying factor: If sufficient amounts are not supplied by food, medication should be prescribed.

Vitamins:
Amount: Normal.
Qualifying factor: Some authorities give a high vitamin diet. If sufficient amounts are not provided by food, medication is prescribed.

Foods:

A. Consistency:
The diet should be smooth, with as little residue as possible. Fruits and vegetables should be cooked and strained, to soften the cellulose and to remove as much of it as possible. Cereal products must be of such a consistency as to avoid irritation. White bread and crackers are generally used, but those made from very finely ground whole grain flour are allowed. Cereals should be refined, but whole grain cereals are permitted if very finely ground, or cooked and strained.

B. Foods to be avoided as causing irritation because they increase motility, stimulate the gastric juice, contain undigested fiber, or tend to form gas:
Fruits, vegetables and whole grain cereals that contain appreciable amounts of cellulose.
Meats containing long fiber.
Concentrated sweets which ferment easily and produce gas.
Condiments and spices,—pepper, vinegar, mustard, and other sources.
Extractives from meat,—broths, soups and gravies.
Very hot or very cold foods, especially the latter.
Nuts.
Tea, coffee and cocoa.

C. Foods for the diet:
Milk, a bland food without cellulose and with rich contributions for body needs, can be used freely in most cases.
Meat, fish and chicken are valuable for their protein, iron and vitamins and should be added to the diet as soon as tolerated, the most tender kinds being given first. Eggs are a good source of protein, fat, phosphorus, iron and most of the vitamins.
Butter and cream provide fat which carries vitamin A, whereas vegetable oils and fats are lacking in the vitamin unless they have been fortified with vitamin A.

Vegetables and fruits supply minerals and vitamins and should be added to the diet as soon as possible. Strained tomato or orange juice may be given first, then cooked and strained vegetables and fruits, and when the condition is greatly improved, well-cooked, tender, young vegetables, without straining,—young beets and carrots, the tender leaves of spinach, squash, string beans, asparagus tips, and others of like consistency.

White bread and refined cereals that have been enriched may be used as they carry vitamins and minerals.

Sugar and concentrated sweets tend to ferment, producing gas, and should be given only in very small amounts.

Tea, coffee or cocoa should be used only in small amounts for flavoring.

Meals:

Several small meals are usually better tolerated by the patient than three large meals.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, both physical and mental, should be established,—in particular the habit of the regular bowel movement adjusted to the daily routine. Fatigue and mental and emotional strain should be avoided. Cathartics should be used only as prescribed by the physician.

Education of the patient:

The patient should be shown a picture of the colon and helped to understand its function and the reason for its dysfunction in his body.

He should understand that to overcome the abnormal condition caused by changes in secretion or motility (see spastic constipation), or the pathological condition of the ulcerating lesions, his diet must consist of foods that are smooth in consistency and nonirritating.

He should know what these foods are. He may be shown refined cereals and finely ground whole grain cereals, and the use of sieve or strainer for removal of the roughage of fruits, vegetables and whole grain cereals. Samples of commercially strained foods will indicate to him that strained fruits, vegetables and cereals can be purchased.

He should understand the restriction necessary with respect to meat, and that when his condition is so improved that meat is allowed, he should eat first only short fibered kinds, or fish or chicken; that to place least strain on the digestive tract, meat should be scraped, minced or chopped, stewed or roasted,—never fried.

He should be helped to plan a regime,—sufficient rest and sleep, proper conditions for meals and recreation,—that will relieve him as much as possible from physical and mental strain.

Abnormal conditions and diseases that may be found in association with colitis:

Anemia.
Avitaminosis.
Psychoneurosis.
Underweight.

PEPTIC ULCER

Dietary Outline

Body part affected: The stomach or the duodenum.

Physiology: Stomach: the softening and breaking of food by mechanical action and the digestion of protein by pepsin and hydrochloric acid.

Duodenum: digestion of carbohydrate, protein and fat.

Pathological physiology: Ulceration to varying depths, associated with inflammation of the surrounding mucosa, occasionally with hemorrhage and perforation.

Change in motility, with or without spasm.

Hydrochloric acid often present in excess. Achlorhydria possible in gastric ulcer.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.

Radiographic studies.

Examination of the gastric contents to determine the presence of acid and the amount of free acid.

Examination of the feces for occult blood.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. To ensure adequacy of iron the cereals high in iron should be used. Orange juice should be given to provide ascorbic acid. According to present figures, until the diet allows meat, it is difficult to supply sufficient niacin. The foods must be of smooth consistency, those stimulating to the gastric secretion or chemically, mechanically or thermally irritating, to be excluded. Since the amount of fat used is increased for therapeutic purposes, the amount of carbohydrate is sometimes decreased to low normal to maintain the desired caloric intake. At present no accepted method of treatment can be given for dietary regime during gastric or duodenal hemorrhage. There are those who adhere to orthodox measures of giving nothing by mouth until the bleeding has stopped, and those who follow the lead of Meulengracht who feeds patients generously during the period of bleeding.

The food constituents:

Carbohydrate:

Amount: Normal.

Qualifying factor: Concentrated sweets should be excluded to avoid irritation.

Protein:

Amount: Normal.

Qualifying factor: Meats of long fiber should be excluded to avoid irritation, and meat extractives to avoid stimulation.

Fat:

Amount: Increased.

Qualifying factor: To lessen irritation by repressing the flow of hydrochloric acid. Easily digested fats, of low melting point, should be chosen.

Minerals:

Amount: Normal.

Qualifying factor: If the amounts provided by food are insufficient, medication should be prescribed.

Vitamins:

Amount: Normal.

Qualifying factor: If the amounts supplied by food are insufficient, medication should be prescribed.

Foods:

A. Consistency:

The diet should be smooth, with as little roughage as possible. Fruits and vegetables are strained to remove skin and fiber as well as seeds. Refined cereals should be used, or whole grain cereals that are very finely ground or strained as when prepared for infants.

Chicken, fish and meat are withheld until the condition is improved, and then given in the order named.

B. Foods to be avoided as causing irritation because they increase motility, stimulate the gastric juice, contain undigested fiber, or tend to form gas:

Extractives from meat,—broths, soups and gravies.

Condiments and spices,—pepper, vinegar, mustard and other sources.

Meats containing long fiber.

Fruits, vegetables, whole grain cereals and nuts that contain appreciable amounts of fiber.

Foods that ferment readily, forming gas—concentrated sweets and foods high in cellulose.

Tea, coffee and cocoa.

Acid-tasting foods. Orange juice or tomato juice should be given as soon as possible for their ascorbic acid content. If taken after other food or diluted with water, they are usually tolerated.

Very hot or very cold foods.

C. Foods for the diet:

Milk, a bland food without cellulose, combining readily with the hydrochloric acid in the stomach, forms the basis of the diet. It contributes greatly to the adequacy of the diet, providing protein of good quality, carbohydrate and fat that

are easily utilized, liberal amounts of calcium and phosphorus, and vitamins in varying amounts. Cream, the fat content of milk, provides vitamin A. If the patient must be kept for a long period on a diet restricted to milk and cream, as in the early stages of treatment, medication should be prescribed to secure sufficient amounts of iron, thiamine and ascorbic acid.

Meat, fish and poultry contain fiber that is irritating and consequently are omitted from the diet until the patient is convalescent. Chicken and fish, having short fibers, are given first, and later, tender cuts of meat. Meat broths, chowders and gravies also should be omitted since they contain extractives that are stimulating. When meat is excluded from the diet it is necessary to provide iron and vitamins from other food sources or by medication. If legumes are used as a substitute for meat they must be sieved.

Eggs provide efficient protein, fat and most of the vitamins, and are a good source of phosphorus and iron. They are usually well tolerated and help to vary the diet.

Butter, fortified oleomargarine and cream help, with their fat content, to suppress the flow of hydrochloric acid. They also provide vitamin A.

Vegetables and fruits add carbohydrate, and are also important for their contributions of vitamins and minerals. These foods must be strained to remove the cellulose and seeds. Orange juice and tomato juice, strained, are given early in the treatment for their ascorbic acid content. As stated above, when taken after other foods, or diluted with water, these are usually well tolerated. When the patient is convalescent, such tender vegetables as young carrots, beets, string beans, squash, asparagus tips, and lettuce are gradually added, without removal of the cellulose.

White bread and refined cereals that have been enriched may be used as they carry vitamins and minerals.

Sweets in concentrated form are irritating. Sugar, therefore, is included only in small amounts for flavoring.

Meals or feedings:

The practice of the physician and the condition of the patient will determine the degree in which the diet is increased in kinds and amounts of food. Monotony in the diet can be avoided by using different combinations of the foods and the flavorings allowed.

Small meals are given frequently and regularly, at intervals of one, two or three hours, depending upon the acuteness of the condition, in order that food may be present in the stomach at all times to combine with the hydrochloric acid and decrease the amount of free acid.

The chart on page 181 illustrates the rate of progress in meals and feedings. This sequence, however, is not arbitrary.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, physical and mental, are essential, with avoidance of fatigue and emotional disturbances. Focal infections, as diseased teeth, tonsils and sinus, should be treated. Smoking is limited or prohibited by most physicians, and alcohol is not allowed in any amount. All carbonated and soft drinks should be excluded.

Education of the patient:

The patient should be helped, with pictures, to visualize the condition of the body part affected, and to see that the ulcer is a sore, indicating that his food must be non-irritating and contain no roughage. He should be given a list of foods to be avoided. He may need to have explained and demonstrated to him the preparation and use of strained foods —vegetables, cereals and fruits.

He should have recipes, especially for ways of using milk. To help him to vary his diet he should be given a list of equivalents, carefully chosen in view of the limited number of foods that he can take, and the restrictions as to method of preparation.

Abnormal conditions and diseases that may be found in association with peptic ulcer:

Anemia.
Avitaminosis.
Psychoneurosis.
Underweight.

RATE OF PROGRESS IN MEALS AND FEEDINGS

At rest *Hourly, per day*		*Ambulatory* *6 Feedings or 3 Meals with Intermediate Feedings, per day**						
Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk	Milk
Cream	Cream	Cream	Cream	Cream	Cream	Cream	Cream	Cream
	Egg	Egg	Egg	Egg	Egg	Egg	Egg	Egg
		Cereal, refined or strained	Cereal, refined or strained	Cereal, refined or strained	Cereal, refined or strained	Cereal, refined or strained	Cereal, refined or strained	Cereal, refined or strained
		Orange juice	Orange juice	Orange juice	Orange juice	Orange juice	Orange juice	Orange juice
			Toast or Crackers, white	Toast or Crackers, white	Toast or Crackers, white	Toast or Crackers, white	Toast or Crackers, white	Toast or Crackers, white
			Butter	Butter	Butter	Butter	Butter	Butter
				Cheese, mild	Cheese, mild	Cheese, mild	Cheese, mild	Cheese, mild
					Potato	Potato	Potato	Potato
						Fruits, cooked and strained	Fruits, cooked and strained	Fruits, cooked and strained
							Vegetables, strained	Vegetables, strained
								Chicken
								Fish
								Meat, tender

* Foods in last column may be used when bleeding ulcer is present and treated by the Meulengracht method.

UNDERWEIGHT

Dietary Outline

Body part affected: Body tissue.

Physiology: Normal storage of body tissue to meet the standard of average weight for growth, development and maintenance of normal body functioning.

Abnormal condition: Loss of body weight due to insufficient food intake in kind and amount.

Pathological physiology: Disturbed metabolism, as a result of physical defects and disease affecting the appetite and the proper utilization of food.

Contributing factors: Faulty food habits.
Fatigue.
Faulty personal hygiene—physical.
Insufficient rest or sleep.
Excessive activity.
Poor mental hygiene due to unsatisfactory environmental conditions or social maladjustment.
Poor community hygiene.
Unhealthy environment:
Lack of sunshine, fresh air, and play.
Lack of proper facilities for personal hygiene.
Body build in relation to heredity and environment.

Laboratory data: Routine urine and blood studies as required in a complete medical examination. Special tests: hemoglobin, blood sugar, tuberculin test, basal metabolism, radiograph, examination of feces.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and attain desired weight. The caloric intake in the form of energy foods, carbohydrate and fat, should be increased sufficiently above the normal requirements to provide an excess to be deposited as adipose tissue. Increase of vitamins to stimulate appetite is desirable, and if an increase of carbohydrate is given, increased thiamine must be given for the extra carbohydrate metabolism.

The food constituents:

Carbohydrate:

Amount: Increased.

Qualifying factor: Foods with concentrated carbohydrate are used, such as bread and cereals, vegetables and fruits (15 per cent and 20 per cent carbohydrate) and sugars. Concentrated sweets should be used cautiously, since they cloy the appetite.

Protein:

Amount: Normal.

Fat:

Amount: Increased.

Qualifying factor: Concentrated fats,—butter, oleomargarine, oil, cream and mayonnaise,—should be given, but not in such amounts as to destroy the appetite for other foods.

Minerals:

Amount: Normal.

Vitamins:

Amount: Normal.

Qualifying factor: Foods should be high in thiamine because of the high normal or increased carbohydrate.

Foods:

A. Consistency:

In acute conditions that require much rest, the diet may consist solely of reinforced fluids, such as eggnogs with lactose; but soft and solid foods should be added as soon as they can be tolerated. It is difficult, with only fluids, to give an adequate diet, and difficult also to avoid monotony in the fluid diet.

B. Foods for the diet:

Milk in liberal amounts helps greatly to make adequate provision of the essential food constituents; but too large an intake of milk may destroy the appetite for other necessary foods.

Meat, fish and poultry provide protein of excellent quality, as well as phosphorus, iron and some vitamins, and add flavor and interest to the diet. Eggs also contain excellent protein, iron and phosphorus, easily digested fat and vitamins in significant amounts.

Fats, as butter, fortified oleomargarine, and cream, and the fish oils, provide the fat-soluble vitamins and help to increase the caloric content of the diet. The vegetable oils do not contain vitamins.

Vegetables and fruits are important sources of the minerals and vitamins. They also supply carbohydrate. The adequacy of the diet can be better ensured by the use of foods high in carbohydrate and low in bulk, that do not give too great a feeling of fullness.

White bread and cereals that have been enriched, and whole grain bread and cereals add carbohydrate, contributing to the caloric requirement, and increasing the mineral and vitamin content as well.

Candy and concentrated sweets have a place in the diet, but should be given preferably at the end of a meal so that they may not displace the essential foods.

Beverages such as tea and coffee should never be allowed to replace milk.

Meals:

In acute conditions, where only liquids are given, it may be necessary to give feedings at intervals of one to two hours. Ordinarily, three meals with intermediate feedings will supply the day's requirement. If the intermediate feeding lessens the appetite for the meal, it may be omitted and larger amounts of food taken at meals.

Regular habits of eating and pleasant conditions at meal time help to increase the amount of food eaten. A feeling of hurry tends to lessen the food intake. Rest before and after meals should be considered in relation to the individual patient.

Environmental factors that influence the effectiveness of the diet:

A hygienic routine that provides sufficient amounts of rest and sleep, proper recreation in sunlight, pleasant meal times and freedom from physical and mental strain, is all-important for effective dietetic treatment. Physical defects should be corrected.

When insulin is used, it should be taken only under the direction of a physician and after a careful medical review and a thorough study of the patient's health habits and food intake.

Education of the patient:

With the help of illustrative material, both child and adult should be led to see that food is used for the body's activity, and that rest periods and sleep assist in maintaining a proper balance between the food intake and body activity. They should understand that because of their underweight they must have more rest and sleep and eat larger amounts of food than normal, to allow for storage of adipose tissue.

The achievement of an adequate food intake and proper habits of hygiene should be emphasized as their goal, the increase of weight being but the evidence of accomplishment.

When the child is the patient, the mother must be encouraged to organize the home to meet the child's needs, in recognition of the influence of hygienic living conditions, mental as well as physical, on the successful outcome of the diet. She should guard against habit forming with relation to drinking tea and coffee, lest milk become displaced, and she should encourage the child to eat larger amounts of food and to enlarge his menu, if advisable, by introducing new foods.

Printed material helpful for purposes of visualization and emphasis should be given the patient, and reading matter according to his mentality.

The waiting time for treatment could be used to develop the child's knowledge and application of the principles of health, by giving him attractive materials with which to picture desirable food and health practices.

Abnormal conditions and diseases that may be found in association with underweight:

Anemia.
Avitaminosis.
Cancer.
Colitis.
Diabetes.
Endocrine disturbances.
Febrile conditions.
Lack of physical vigor.
Liver diseases.
Lowered resistance to infection.
Occupational diseases.
Poor posture.
Psychoneuroses.
Rheumatic fever.
Syphilis.
Tuberculosis.
Ulcer.

OBESITY

Dietary Outline

Body part affected: Adipose tissue.

Physiology: Normal storage of body tissue to meet the standards of average weight.

Abnormal condition: Excessive deposition of fat due to immoderate food intake or lack of sufficient physical activity, or in many cases to both causes.

Pathological physiology: Impaired function of the endocrine glands.

Hereditary, constitutional obesity or the influence of emotional factors as noted in the literature.

Laboratory data: Routine urine and blood studies as required by a complete medical examination.

Basal metabolism test.

Other studies to determine the presence of endocrine disturbances.

Dietetic treatment: Foods to supply the food constituents in amounts to fulfill body needs and attain desired weight. The normal requirements for protein, minerals and vitamins should be maintained. The caloric value of the intake is reduced so that the body will burn its own adipose tissue. The loss of weight after the first weeks should average one to two pounds per week. There may be periods of no weight loss due to the maladjustment of the water balance.

The food constituents:

Carbohydrate:

Amount: Decreased.

Qualifying factor: Sufficient amounts should be given to avoid acidosis.

Protein:

Amount: Normal.

Qualifying factor: There should be sufficient complete protein.

Fat:

Amount: Decreased.

Qualifying factor: There should be sufficient amounts of the foods that supply vitamin A.

Minerals:

Amount: Normal.

Qualifying factor: When amounts supplied by food are insufficient, which may occur in an extremely low caloric diet, medication should be prescribed.

Vitamins:

Amount: Normal.

Qualifying factor: When amounts supplied by food are insufficient, which may occur in an extremely low caloric diet, medication should be prescribed.

Foods:

Milk and cheese, though rich in fat, are used because they are high in calcium and phosphorus, furnish an excellent quality of protein and the vitamins in varying amounts. Skimmed milk or buttermilk, from which the fat has been removed, may be given and the amount of butter or cream increased proportionately.

Lean meat and poultry are good sources of iron, thiamine, riboflavin and niacin, as well as protein, and do not add appreciably to the fat content of the diet. Lean fish provides a good quality of protein, phosphorus and some of the vitamins, without adding fat. Eggs, although they contain fat, should be used for their valuable contributions of protein, iron and vitamins.

Butter, fortified oleomargarine, and cream supply vitamin A, and the use of butter in particular is advisable but should be restricted to the amount allowed by the diet. Vegetable oils and fats do not carry vitamins.

Vegetables and fruits (5 per cent and 10 per cent carbohydrate) should be used freely. Their caloric value is low, they provide minerals and vitamins and help to satisfy the appetite.

Breads and cereals because of their high carbohydrate content must be carefully prescribed. The whole grain or enriched products should be used for their content of minerals and vitamins.

Sugar and other concentrated sweets, such as jellies, honey and candy should be avoided, as they contain essentially little else than carbohydrate.

Tea and coffee (without cream, milk or sugar) have no food value, and fat-free broth has very little.

Meals:

The number of meals may conform to the usual daily routine of the patient, but the amount of food eaten must be kept within the limits of the food prescription. Intermediate feedings, if taken, should consist of foods with little or no food value; any other food taken must be counted as a part of the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, physical and mental, should be established.

Exercise beyond the usual amount should be directed by the physician.

The patient should be cautioned concerning the danger of patent reducing machines and medicines. Glandular medication should be taken only under the supervision of the physician.

If the patient has been on a normal diet there will be no increase in the cost of the obesity diet; but if his diet has been inadequate, consisting largely of concentrated carbohydrate foods, with little fruits or vegetables, the addition of these will increase the cost.

Education of the patient:

Pictures and charts should be used to help the patient to contrast his overweight with the normal weight for his height and age, and to realize the excess amount he is carrying. He should be shown, with graph or picture, that the prognosis for health and longevity is less favorable for the obese individual and that reduction in weight would promote health as well as comfort and appearance.

He should understand that his intake of foods supplying fuel should be in accordance with the demands of his activity; that his obesity is due primarily to the intake of larger amounts of fuel foods than his activity requires, the excess being stored in his body as fat. He should see, then, that the purpose of his diet is to limit the food intake, in particular with respect to foods of high fuel value, so that he will use his body fat as well as his food intake to supply his energy requirement.

He should be cautioned that with any reduction in food intake the diet must provide protein, vitamins and minerals in amounts adequate for growth and health.

The fuel value of some of the common foods should be demonstrated to him, especially those of concentrated carbohydrate.

He should be helped to vary his diet through a knowledge of equivalents, always keeping within the limits of the diet.

His understanding of the theory of his diet, and his experience in carrying the plan to a successful issue, should enable him always to maintain a proper balance between his food intake and his energy requirements.

Abnormal conditions and diseases that may be found in association with obesity:

Avitaminosis.
Cardiovascular diseases.
Constipation.
Diabetes.
Gall bladder disturbances.
Hypertrophic arthritis.
Psychoneuroses.

DIABETES

Dietary Outline

Body part affected: Islands of Langerhans of the pancreas.

Physiology: Secretion of a hormone, insulin, which bears an important relationship to the metabolism of glucose and fat. Evidence that the secretions of the endocrine glands, particularly the pituitary and the adrenals, and possibly the thyroid, balance the action of insulin in the metabolism of glucose.

Pathological physiology: Deficiency of insulin secretion by the Islands of Langerhans, causing a deficient glycogen storage and deficient glucose oxidation and utilization. Derangement of the balance between insulin and the secretions of the endocrine glands which tends to produce an abnormal blood sugar. Inheritance of the disease.

Laboratory data: Routine urine and blood studies as required by a complete medical examination.

Special laboratory tests, for diagnosis and treatment:

Urine analysis:

Specific gravity—usually high.
Sugar—present in varying amounts.
Diacetic acid or acetone bodies—denoting acidosis when present.
Albumin—present in renal involvement.
Examination of sediment.

Blood sugar—higher than normal:

Test taken fasting or at a specified time after meal.

Test for glucose tolerance used to diagnose borderline or mild cases.

Blood Cholesterol:

Usually higher than normal when disease is not under control, or when there are associated diseases involving the metabolism of fat.

Dietetic treatment: For the adult, foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. It is advisable that the diabetic patient maintain his normal weight, or even remain slightly below normal. When the caloric value of the intake is kept below the normal over a period of time, and the basal metabolic rate lowered thereby, the body's food requirement will be decreased. The amounts of the food constituents, carbohydrate, protein and fat, in the diet are determined by the different theories of diet therapy held by various authorities. For the child, a normal diet to maintain desired weight and growth, and sufficient insulin to utilize this diet.

The food constituents:

Carbohydrate:

Amount: Decreased.

Qualifying factor: When carbohydrate sufficient to help to maintain the desired weight is not tolerated, medication, insulin, is prescribed.

Concentrated sweets are not given, their content of carbohydrate being too readily available, flooding the blood stream with glucose which overflows into the urine.

Protein:

Amount: Normal.

Qualifying factor: Some physicians increase the protein above the normal.

Fat:

Amount: Normal—low or high depending on the practice of the physician.

Qualifying factor: Some authorities believe that there is a relation between the amount of cholesterol in the blood and the metabolism of glucose; therefore they decrease the fat content of the diet in order to decrease the cholesterol in the blood.

Minerals:

Amount: Normal.

Qualifying factor: If food does not meet the requirements, medication should be given.

Vitamins:

Amount: Normal.

Qualifying factor: If food does not meet the requirements, medication should be given.

Diet for Children.

For normal growth and development, children require a normal diet with sufficient insulin to utilize it. Concentrated sweets, such as candy and sugar, are not given, their content of carbohydrate being too readily available, flooding the blood stream with glucose which overflows into the urine.

Foods:

Milk or cheese should be included in the various types of diabetic diets for their calcium content. While milk is an excellent source of protein and fat, it must be kept in mind that it is comparatively high in carbohydrate. It is a good source of phosphorus and vitamins. Cottage cheese or skimmed milk may be used to decrease the fat, or whole milk if the fat is kept within the limits of the diet.

Meat, fish, poultry and eggs add to the protein of the diet, and to the mineral and vitamin content in varying amounts. If legumes are used their high carbohydrate content must be considered.

Butter, fortified oleomargarine and cream provide vitamin A as well as fat, while the vegetable oils are lacking in this vitamin. If vegetable oils are used care must be taken to make adequate provision of the vitamin.

Vegetables and fruits (5 per cent and 10 per cent carbohydrate) provide varying amounts of carbohydrate, add to the mineral and vitamin content of the diet and help to satisfy the appetite by giving a feeling of fullness. 15 per cent and 20 per cent vegetables may be given, with discretion, but their use limits the amounts of vegetables of lower carbohydrate content. The potato can be used interchangeably with bread or cereal for carbohydrate.

Enriched and whole grain bread and cereal are valuable for their mineral and vitamin content but should not be given in amounts to cause the carbohydrate to exceed the requirement. The diabetic diet of today is liberal enough to obviate the need of "diabetic foods," such as special bread substitutes.

Concentrated sweets, such as desserts, are excluded from the diet. Ice cream may be given occasionally, but its food value must be estimated and included in the food prescription.

Meals:

The number of meals may conform to the usual daily routine, provided the food eaten is within the limits of the food prescription. When insulin is taken provision should be made for food before bed time to avoid a possible reaction.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene are important. It is essential to guard against infection, and, for this reason, to give proper care to the feet and teeth and to have prompt treatment for "colds" and all skin lesions.

Education of the patient:

The patient should have an understanding of the pathology of his condition, and learn how he can cooperate to the fullest extent in treatment. Whenever possible he should be given printed material to help him to carry out the treatment at home. He should be shown the sizes and amounts of the servings of foods allowed him, so that he can follow his diet without finding it necessary to weigh his food. His knowledge of food equivalents should enable him to vary his diet, and in case of acute illness, to change it to a soft or liquid consistency.

As a check on his diet he should know how to test his urine, and to record the results. He should be able to administer insulin to himself, and in order to safeguard daily treatment another member of the family should be taught the procedure. The patient should be able to recognize the symptoms of an insulin reaction and to know the treatment for it. He should be given an identification card.

He should understand the importance of a careful, hygienic regime, both physical and mental, and the necessity of reporting "colds" and infections promptly to the physician.

Abnormal conditions and disease that may be found in association with diabetes:

Cardio-vascular diseases.
Gall bladder diseases.
Goiter.
Liver disorders.
Obesity, often a precursor to diabetes.
Tuberculosis.
Underweight.

LIVER DISORDER

Dietary Outline

Body part affected: The liver.

Physiology: Intermediary metabolism—storage, disintegration, transformation and redistribution —of the various food constituents, as follows:

Carbohydrate: Storage of glycogen in the liver and formation of glucose for the demands of the body,—regulating the amount of glucose that passes into the blood stream.

Protein: Deaminization of amino acids, with formation of ammonium carbonate—the precursor of urea; synthesis of urea; detoxification of harmful end products of protein which enter the blood stream and are excreted by the kidneys. Storage of protein in the liver.

Fat: Deposition of fat in relation to the amount of glycogen present in the liver. Disintegration of fat in connection with carbohydrate metabolism.

Minerals: Storage and metabolism of minerals, particularly of iron.

Vitamins: Concerned with the absorption, storage and utilization of the various vitamins. Carotene is absorbed in the presence of bile and is converted into vitamin A in the liver.

Formation and secretion of bile, which facilitates the digestion and absorption of fat and the absorption of carotene in the body, removes waste material from the liver and acts as a regu-

lator of intestinal putrefaction. The principal constituents of bile are mucin, bile salts, lipoids (cholesterol, lecithin and other phospholipins) and bile pigments (bilirubin and biliverdin).

Secretion into the bile of the products of the disintegration of the hemoglobin (bilirubin).

Detoxification of harmful products, due to ingestion of toxic substances and noxious products of putrefaction and metabolism.

Production of prothrombin.

Pathological physiology: Disturbance of one or several of the above functions as a result of degenerative and inflammatory changes in the cells, alterations in the circulatory system, infections (chronic and acute), toxic processes, disorders affected by diseases of the biliary tract, and tumors, benign and malignant. (See abnormal conditions and diseases that may be found in association with liver disorders.) In generalized liver damage, vitamin A storage in the liver is reduced. The deficiency is due to biliary obstruction and failure of absorption of vitamin A, or failure of conversion of carotene into vitamin A resulting from liver function impairment. Thiamine may not be utilized in severe liver damage of alcoholic cirrhosis. Liver cirrhosis may be helped by a high protein diet with generous supply of the vitamin B complex according to some authorities. There seems to be a hemorrhagic tendency in patients with liver disease which may be characteristic of ascorbic acid deficiency.

Laboratory data: Routine urine and blood studies as required in a complete medical examination. "There is no one test available that will measure all the manifold functions of the liver." The following are special laboratory tests to determine the particular functions of the liver that are impaired.

Galactose tolerance test to indicate the ability of the liver to build glycogen.

Determination of the urea in the blood, which defines the condition of the liver and its relation to protein metabolism.

Hippuric acid test to determine the detoxifying activity of the liver.

Bromsulphalein test to determine the liver's ability to push out abnormal substances.

Prothrombin test for indicating hemorrhagic condition of the liver.

Determination of cholesterol and cholesterol esters to establish the ratio between them as indicative of the liver disorder.

Tests for the concentration of bile pigments and their derivatives.

Numerous other tests for proof of the secretory functions of the liver cells.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. The type and extent of the impairment of the liver function give direction for the amounts and kinds of food constituents to be used. The diet should be bland, non-irritating and non-stimulating.

A high carbohydrate intake has a prophylactic as well as a therapeutic value.

According to recent clinical research a normal protein is given, and even an increase above the normal, according to some authorities, as it is found that the protein protects the liver.

Other authorities still restrict protein in liver disorders. The only types of animal protein allowed in these disorders are those obtained from the dairy products, and in hypercholesterolemia only foods from vegetables sources are permitted by some authorities, (no milk is allowed).

The fat is usually decreased to low normal in chronic conditions. In acute disorders, also in impaired functions of the liver that affect the bile and in liver disturbances affected by or due to disease of the biliary tract, the fat is drastically reduced. In hypercholesterolemia some authorities reduce the fat and use only vegetable sources.

The vitamins seem to have a protective action for the liver. Therefore, additional vitamins, especially thiamine, riboflavin and niacin, are given to prevent liver cell damage, to compensate for any loss due to decreased absorption, and for the maintenance of normal liver structure and function.

The food constituents:

A. Acute Liver Disorder.

Carbohydrate:

Amounts: Increased to approximately 50 per cent above the normal.

Qualifying factors: Carbohydrate in the diet must usually be increased by sugar concentrates, such as dextrose and lactose.

Protein:

Amount: Normal.

Qualifying factor: Authorities who prescribe low protein usually restrict animal protein.

Fat:

Amount: Decreased to 50 per cent below the normal.

Qualifying factors: Animal fat (dairy products) is restricted by certain authorities to 50 per cent of the total intake of fat.

Minerals:

Amount: Normal.

Qualifying factor: If amounts supplied by food are inadequate, medication should be prescribed by the physician.

Vitamins:

Amount: Increased amounts, particularly of vitamin A, thiamine, riboflavin and niacin.

Qualifying factor: Medication will be necessary to supplement the diet.

Fluids:

Amount: Normal.

B. Chronic Liver Disorder.

Carbohydrate:

Amount: Increased to approximately 50 per cent above the normal.

Qualifying factor: Sugar concentrates, dextrose and lactose, may be used to increase the carbohydrate.

Protein:

Amount: Normal or increased.

Qualifying factor: Authorities who prescribe a lower protein usually restrict animal protein.

Fat:

Amount: Decreased.

Qualifying factor: Animal fat (dairy products) is restricted by certain authorities to 50 per cent of the total intake of fat.

Minerals:

Amount: Normal.

Qualifying factor: If amounts supplied by food are inadequate, medication should be prescribed by the physician. In ascites certain authorities restrict salt.

Vitamins:

Amount: Increased amounts, particularly of vitamin A, thiamine, riboflavin and niacin.

Qualifying factor: Medication will be necessary to supplement the diet.

Fluids:

Amount: Normal.

Qualifying factor: In ascites the fluid is restricted.

C. Hypercholesterolemia (Diet by certain authorities).

Carbohydrate:

Amount: Increased to approximately 50 per cent above the normal.

Qualifying factor: The carbohydrate must be obtained from vegetable sources only. Sugar concentrates, dextrose and lactose, may be used to increase the carbohydrate.

Protein:

Amount: Low normal.

Qualifying factor: Vegetable sources only are used (no milk).

Fat:

Amount: Decreased—$\frac{3}{4}$ gram per kilogram.

Qualifying factor: Vegetable sources only are used. The sterols of plants are not absorbed and so are not estimated for their cholesterol content.

Minerals:

Amount: Normal.

Qualifying factor: On this restricted diet the amounts supplied by the foods are inadequate, and medication, especially calcium, should be prescribed by the physician.

Vitamins:

Amount: Increased.

Qualifying factor: On this restricted diet the amounts of the vitamins are inadequate and medication should be prescribed by the physician.

Fluids:

Amount: Normal.

Foods:

Milk is used in the diet only when food from animal sources is permitted. Since at least one-half pint (1 cup) of milk daily is necessary even to approximate the calcium requirement without using medication, when milk is restricted entirely, as in hypercholesterolemia, calcium medication must be prescribed. Moreover, in such conditions foods must be chosen carefully to provide vitamins in adequate amounts. In addition to protein and calcium, milk supplies some fat and is a good source of phosphorus and vitamins. If skimmed milk is used in place of whole milk, the fat may be replaced by butter or cream.

Meat, fish and poultry are given as in the normal diet unless the protein prescribed is low.

Butter or cream (animal fat) is limited to a greater degree in acute conditions. Vegetable fats—such as corn, cotton seed and olive oils, and oleomargarine and hydrogenated fats manufactured from them—are allowed.

Vegetables are given in large amounts for their carbohydrate, mineral and vitamin content. Seed vegetables and the potato make valuable contributions to the protein of the diet, when animal protein is limited or entirely restricted. When a gastrointestinal disturbance is associated with the liver disorder, the vegetables given should be of kinds that are easily digested and low in residue (See Peptic Ulcer, p. 178).

Fruits are given in restricted amounts in diets for acute and chronic disorders and in hypercholesterolemia. They furnish minerals, vitamins and carbohydrate. Fruit juices reinforced by sugar concentrates such as dextrose and lactose may be used for nourishment between meals. They prevent the feeling of hunger which is the usual result of diets when restricted in protein or fat, and obviate the necessity of taking abnormal amounts of carbohydrate at meal times.

Breads and cereals increase the vitamin and mineral content of the diet, as well as the carbohydrate. Their content of protein is the only factor that limits their use when protein is restricted.

Sugars and sweets may be given in as large amounts as the patient can tolerate. Such sweets as candies, jellies and marmalades are pleasing forms with which to increase the carbohydrate content of the diet. Dextrose and lactose are used in the preparation of foods, to help further to fulfill the high requirements of this food constituent.

Coffee and tea should be used in great moderation, and alcohol is not permitted.

Meals:

The diet may follow the patient's customary routine. However, feedings between meals are usually given, again to help fulfill the high carbohydrate requirement.

Environmental conditions:

Good habits of hygiene, physical and mental, are essential.

Education of the patient:

A diagram may be shown the patient, with which to explain the digestive processes and how the products of digestion are carried to the liver, where they are stored and made ready for use by the body tissues or sent to other organs to be disposed of as waste. Such a diagram will help the patient to realize that "every kind of food ingested demands activity on the part of the liver." The patient should understand how his diet will help to compensate for his particular liver disorder and, further, will protect the liver and keep it in as satisfactory condition as possible. He should be impressed with the importance of keeping within the limits of his diet, and of avoiding forbidden foods and overindulgence in protein and fat.

Abnormal conditions and diseases that may be found in association with liver disorders:

Anemias.
Ascites.
Avitaminosis.
Biliary tract diseases.
Cholecystitis.
Constipation.
Febrile diseases.
Gastrointestinal disturbances.
Infections.
Menstruation.
Nephritis.
Obesity.
Pregnancy.
Underweight.

KETOGENIC DIET

Used in Certain Types of Epilepsy

Body part affected: Symptoms are being treated, not a disease.

Physiology: Not known.

Pathological physiology: Pathological changes in the central nervous system.

Functional instability of the nerve cells.
Disturbance somewhere in the extracerebral metabolism, as in respiration or digestion.
Disturbance of the water metabolism, with a positive water balance causing a cerebral hydrated state.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.

Neurological examination to rule out birth injury.
Blood and spinal fluid examinations to rule out syphilis.
Determination of blood calcium and phosphorus and muscle irritability to rule out tetany.
Radiographs to rule out brain injury, trauma or increased pressure. A repetition of these, as a later examination may often reveal a disturbance which did not appear at first.
Frequent urine analyses, when patient is under treatment, to determine whether there is a negative nitrogen balance or ratio, and to see if a ketosis has developed.

Dietetic Treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain the desired weight. The carbohydrate must be reduced and the fat increased until a ratio is established that will maintain the body in a state of ketosis (Table 55). In the dehydration diet the fluid intake is reduced until a balance is obtained between the intake and the outgo.

The food constituents:

Carbohydrate:

Amount: Decreased to lowest amount possible.
Qualifying factor: Through a greatly decreased carbohydrate, the fat is incompletely oxidized, producing a ketosis.

Protein:

Amount: Adult,—low normal: ⅔ gram per kilogram average weight.
Child: 1 gram per kilogram average weight.
Qualifying factor: Sufficient amounts of complete protein should be provided.

Fat:

Amount: Increased.
Qualifying factor: The fat should be in excess of the amount that can be completely oxidized.

Minerals:

Amount: Normal.
Qualifying factor: If sufficient amounts are not provided by food, medication must be prescribed.

Vitamins:

Amount: Normal.

Qualifying factor: If sufficient amounts are not provided by food, medication must be prescribed.

Fluid:

Amount: Ketogenic Diet: Normal.

Dehydration Diet: Decreased to 600 cc. in 24 hours.

Foods:

Milk cannot be used because of the amount of carbohydrate that it contains. The calcium content of the diet, therefore, is inadequate. Cream is used for its high fat and low carbohydrate content, and it contributes some calcium. Cheese also supplies calcium, and contains very little or no carbohydrate. However, it is usually necessary to prescribe calcium medication, particularly for children.

Meat, fish, chicken and eggs may be given, but since the protein is usually kept at low normal the amounts used must be small. This affects the content of iron and phosphorus in the diet, and to some extent the vitamin content.

Butter or fortified oleomargarine is given liberally, which ensures sufficient amounts of vitamin A. Oils are sometimes given to help supplement the fat content of the diet, but vegetable oils supply no vitamins.

Vegetables and fruits, averaging 5 per cent to 10 per cent carbohydrate, are used, but cannot be given in liberal amounts since the carbohydrate content of the diet must be kept extremely low. This affects the mineral and vitamin content of the diet materially, and medication may be necessary to supplement the food.

Breads and cereals are usually eliminated because of their high carbohydrate content. The exclusion of the whole grain or enriched bread and cereal decreases the mineral and vitamin content of the diet.

No sugar or sweets of any kind are allowed since carbohydrate is so drastically restricted. Saccharine, which has no food value, is used to sweeten prepared foods such as custards, and very sour fruits such as rhubarb. The elimination of sugar and sweets is also favorable in the dry diet, as they increase thirst and favor water storage. This is also true of salt.

Agar and well washed bran may be used to replace the bulk usually supplied by fruits, vegetables and whole grain cereals. They help to give a feeling of fullness or satisfaction and to keep the patient from breaking his diet. Agar may be combined with the fruit juice allowed, and served with cream as a dessert. Well washed bran may be used, with cream, as a cereal, or may be made into wafers.

If fluids are not restricted, clear broth may be given, which helps to give a feeling of satisfaction.

Meals:

Meals may follow the established routine of the patient, provided that the food eaten is within the limits of the food prescription. However, the amounts prescribed *for each meal* must be definitely followed.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, both physical and mental, should be established, and the daily routine carefully followed. Medication should be taken only under the direction of the physician.

Education of the patient:

The patient should understand that his diet establishes a very delicate balance between carbohydrate and fat. It is explained that because of the low carbohydrate, the fat will be only partially burned and its products will appear in the urine. He should understand that the purpose of his diet is to produce this condition; that the intake of even a very small amount of carbohydrate beyond that which the diet allows would defeat this purpose, and that he must, therefore, adhere closely to his diet.

He should learn how to test his urine and should understand that the test is a check on the effectiveness of the diet.

The sizes of servings of food allowed should be demonstrated, to ensure correctness of amounts in a diet so limited, and the scales should be used when exact measurements are required.

The patient should be given printed directions to help him to carry out his diet at home, with recipes (including recipes for fillers such as agar jelly and bran wafers) and lists of equivalents to enable him to vary his diet by using different foods. Gauss suggests that in the "dry" diet, thirst may be alleviated by the use of hot, stringent gargles, chewing gum, chewing of bitters, such as orange peel, or the slow sipping of grapefruit juice.

The patient should take frequent rest periods. He should avoid emotional stress, and should be encouraged and helped not to be conscious of his condition but to lead as nearly as possible a normal life, with pleasurable activity.

When the child is the patient, the mother should understand the treatment and help to make environmental conditions favorable to good mental and physical hygiene.

Abnormal conditions and diseases that may be found in association with epilepsy:

Constipation.

In the treatment of pyelitis, migraine, and acute chorea, the ketogenic diet is also used by some authorities.

NEPHRITIS

Dietary Outline

Body part affected: The kidneys.

Physiology: Excretion of the end products of protein metabolism.

Pathological physiology: Due to altered kidney function, the end products of protein metabolism are not excreted as well as normally, and in the terminal stages may even accumulate in the body. There is a depletion of the alkaline reserve of the body in order to compensate for the failure of the kidney to maintain the proper acid-base balance.

Laboratory data: Routine urine and blood studies as required in a complete medical examination:

Urine analysis:

Volume—variable but greater increase above normal shown at night than during the day.

Reaction—increased acidity.

Albumin—none to large amounts.

Specific gravity—variable; diminished with decreased renal function.

Microscopic examination—cells, casts, or bacteria may be present.

Phenolsulphonephthalein test—to show impairment of kidney function.

Urea or other clearance tests—to show degree of renal impairment.

Blood:

Retention of end products of protein metabolism, shown by increased non-protein nitrogen and urea.

Chlorides—increased in some types of nephritis.

Total protein.

Hemoglobin.

Dietetic Treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs. The protein content of the diet depends upon the type of nephritis; and the treatment of edema, when present, is according to the theory held by the physician.

The food constituents:

A. Acute Nephritis.

Carbohydrate:

Amount: Normal or increased.

Qualifying factor: Liberal amounts should be given, as it spares the body protein more effectively than fat.

Protein:

Amount: Low normal or decreased.

Qualifying factor: Many physicians restrict animal protein to a minimum and some omit it from the diet entirely.

Fat:

Amount: Normal.

Qualifying factor: Liberal amounts should be given to spare body protein and to help to meet body needs.

Minerals:
Amount: Normal.
Vitamins:
Amount: Normal.
Fluids:
Amount: Restricted.
Qualifying factor: Amount is dependent upon previous day's output of urine.

B. Chronic Nephritis.
Carbohydrate:
Amount: Normal.
Protein:
Amount: Normal.
Fat:
Amount: Normal.
Minerals:
Amount: Normal.
Vitamins:
Amount: Normal.
Fluids:
Amount: Increased.
Qualifying factor: Controlled by output of urine.

C. Nephritis of the Nephrotic Type.
Carbohydrate:
Amount: Normal.
Protein:
Amount: High normal or increased.
Qualifying factor: To compensate for the loss of protein.
Fat:
Amount: Decreased.
Qualifying factor: A low fat diet is thought by some to effect a reduction in the blood cholesterol, if that is high.
Minerals:
Amount: Normal.
Qualifying factor: In the presence of edema some authorities recommend administration of acid salts, together with a neutral diet or one containing a preponderance of acid ash. Some authorities restrict sodium chloride.
Vitamins:
Amount: Normal.
Fluids:
Amount: Restricted.
Qualifying factor: Usually restricted to one quart daily.

Foods:

Milk: At least one-half pint daily is necessary even to approximate the calcium requirement without the use of medication. When the amount of protein given is decreased to the low level, the calcium requirement cannot be fulfilled by milk and medication must be prescribed. In addition to protein, milk supplies some fat and is a good source of vitamins and phosphorus. The cream contains, besides fat, an appreciable amount of protein, calcium, phosphorus and vitamin A. When cream is diluted to the consistency of milk, thereby lowering its content of protein and minerals, including sodium chloride, it may be used to advantage when these food constituents are to be decreased.

When the amount of meat, fish or eggs used is limited because of the restriction in protein, care must be taken to fulfill the iron and vitamin requirement. Medication may be necessary. Meat broths and gravies are omitted as they contain extractives in concentrated form.

Butter is a concentrated fat and contributes to the vitamin A content of the diet. It does not contain protein in an appreciable amount, whereas cream does.

Vegetables, except potatoes and dried legumes, contain only small amounts of protein. They are good sources of minerals and vitamins. The soy bean is valuable as a vegetable source of complete protein.

Fruits add minerals and vitamins as well as carbohydrate to the diet, but contain only insignificant amounts of protein.

Whole grain or enriched bread and cereals are good sources of minerals and of some of the vitamins; but they contain an appreciable amount of protein, and this must be carefully evaluated in the diet, especially if the protein is restricted. When supplemented with milk the protein becomes of satisfactory biological value.

Sugar, syrups, cornstarch and tapioca are concentrated carbohydrates without protein. They lack minerals and vitamins.

Coffee, tea and cocoa should be omitted from the diet.

If salt-free bread and sweet butter are used and no salt is added in the cooking, the diet will contain two grams or less of salt.

Meals:

Meals may be taken at habitual times, provided that the food intake fulfills the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, both physical and mental, are important.

Education of the patient:

The patient should have an understanding of the normal functions of the kidneys to be able to recognize the fallacy of some popular beliefs concerning them. He should know that except in the acute stage protein foods are used as in the normal diet and are not harmful or destructive. In particular the misconception concerning "red" meat should be corrected.

The patient should realize that in observing the protective diet he will have an alkaline ash diet. In the use of "acid therapy" (the neutral diet plus acid salts) the content of acid and alkaline ash-forming foods should also be explained.

In edematous conditions, the reason for the restriction of sodium chloride should be explained, the content and preparation of food should be described and recipes given.

The patient should be given lists of foods to meet the requirement of the diet and again recipes for the preparation of food. The sizes of servings should be given—in particular protein equivalents when the protein content of the diet is increased or decreased.

The patient should understand the importance of guarding against infections and colds.

Abnormal conditions and diseases that may be found in association with nephritis:

Anemia.

Cardiovascular diseases.

Obesity.

Retinitis.

PREGNANCY

Dietary Outline

Body part affected: Maternal and fetal tissues.

Physiology: Normal functioning of the maternal organism adjusted to meet the demands of the developing fetus.

Contributing factors: Increased demand on the maternal metabolism by the presence of the fetus.

Laboratory data: Routine urine and blood studies as required in a complete medical examination. Routine urine analysis at frequent intervals to determine whether the kidneys function normally and to detect the presence of sugar.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs of the mother and the developing fetus, and to maintain the desired body weight. It may be necessary to increase the caloric value of the intake after the fourth month. The lack of sufficient calcium, phosphorus and vitamin D may produce rickets in the infant (see Rickets, p. 207–208):

The food constituents:

A. Normal.

Carbohydrate:

Amount: Normal.

Qualifying factor: Carbohydrate is usually better tolerated than fat.

Protein:

Amount: Normal.

Fat:

Amount: Normal.

Minerals:

Amount: Increased, Calcium—1.5 grams; Phosphorus—2 grams; Iron—15 milligrams.

Qualifying factor: If sufficient amounts are not supplied by food, medication should be prescribed.

Vitamins:

Amount: Increased, Vitamin A—6000 I.U.: Thiamine—1800 micrograms; Riboflavin—2500 micrograms; Niacin—18 milligrams; Ascorbic Acid—100 milligrams; Vitamin D—400–800 I.U.

Qualifying factor: If sufficient amounts are not provided by food, medication should be prescribed.

Fluid:

Amount: Normal, 6 to 8 glasses.

B. Pernicious vomiting.

Carbohydrate:

Amount: Increased.

Qualifying factor: Carbohydrate is usually better tolerated than fat. It is desirable that the patient should have a liberal glycogen reserve.

Protein:

Amount: Normal.

Fat:

Amount: Normal or decreased.

Qualifying factor: Frequently fat is not well tolerated. When the carbohydrate is increased the fat may be decreased to keep the calories at the normal requirement.

Minerals:

Amount: Increased, Calcium—1.5 grams; Phosphorus—2 grams; Iron—15 milligrams.

Qualifying factor: If sufficient amounts are not provided by food, medication should be prescribed.

Vitamins:

Amount: Increased, Vitamin A—6000 I.U.; Thiamine—1800 micrograms; Riboflavin—2500 micrograms; Niacin—18 milligrams; Ascorbic Acid—100 milligrams; Vitamin D—400–800 I.U.

Qualifying factor: If sufficient amounts are not provided by food, medication should be prescribed.

Fluid:

Amount: Decreased.

Qualifying factor: Given in smallest possible amounts between feedings. Means other than oral are sometimes used to meet the body demands.

C. With kidney complications.

Carbohydrate:

Amount: Normal.

Qualifying factor: Carbohydrate has a protein-sparing action.

Protein:

Amount: Low normal.

Qualifying factor: This decreases the burden on the kidneys.

Fat:

Amount: Normal.

Qualifying factor: Fat is not so well tolerated as carbohydrate.

Minerals:

Amount: Increased, Calcium—1.5 grams; Phosphorus—2 grams; Iron—15 milligrams.

Qualifying factor: If sufficient amounts are not provided by food, medication should be prescribed.

Vitamins:

Amount: Increased, Vitamin A—6000 I.U.; Thiamine—1800 micrograms; Riboflavin—2500 micrograms; Niacin—18 milligrams; Ascorbic Acid—100 milligrams; Vitamin D—400–800 I.U.

Qualifying factor: If sufficient amounts are not provided by food, medication should be prescribed.

Fluids:

Amount: Decreased.

Qualifying factor: Restricted to the level of the patient's output of urine, especially in edema. Some authorities force fluids.

Foods:

Milk—One quart daily ensures sufficient calcium and phosphorus. In addition, milk provides a protein of excellent quality and easily utilized carbohydrate and fat, and it is a good source of the vitamins. The amount of vitamin D can be greatly increased by various methods. An ounce of American cheese contains approximately the same amount of calcium and phosphorus as one cup of milk. Skimmed milk or buttermilk may be used, and additional butter or cream given. If milk is not tolerated, calcium medication must be prescribed.

When protein foods which carry iron, such as eggs and meat, must be restricted because of kidney complications, it is difficult to fulfill the iron requirement by food and medication must be prescribed.

Butter, fortified oleomargarine, and cream contain a liberal amount of vitamin A, but their fat content must be evaluated in the fulfillment of the food prescription.

Vegetables and fruits provide minerals and vitamins, and carbohydrate in varying amounts. They are valuable also for their laxative properties.

Whole grain and enriched breads and cereals provide carbohydrate as well as minerals and vitamins. When the caloric value of the intake is restricted, only moderate amounts of these foods can be used.

Meals:

The number of meals may follow the established routine of the patient provided all the foods are used that are required to fulfill the food prescription. In the last two or three months of pregnancy, four or five small meals are often more satisfactory in relation to appetite and digestion. In cases of pernicious vomiting, six or seven small meals are often better tolerated than three large ones, and fluids are omitted or limited at meal time and given in small amounts between meals.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene, mental and physical, are especially important. Emotional strain should be avoided. Exercise should be taken as directed by the physician.

Education of the patient:

The patient should understand the extra demand upon her body for caring for the growth and development of the fetus. She should understand her need for increased amounts of minerals and vitamins over the amounts supplied by the protective diet for normal needs, and the adjustment of fuel foods necessary for maintenance of desired weight.

She should appreciate the importance of milk, as well as vegetables and fruit, as carriers of calcium, phosphorus and the vitamins, and should be given recipes for the use of milk. She should be encouraged to add new foods, if needed, and given lists of food equivalents for varying the diet, always maintaining proper food values.

She should realize that her diet is a protection to her own health, as well as to that of the fetus, and that it helps her to maintain proper weight and safeguards her from conditions of obesity, dental decay, constipation, acidosis and anemia.

She should appreciate the importance of a careful hygienic regime, mental and physical, and the saving of mental and physical strain to be gained by conserving time and energy.

Abnormal conditions and diseases that may be found in association with pregnancy:

Acidosis.
Anemia.
Avitaminosis.
Constipation.
Dental caries.
Glycosuria.
Hypertension.
Iodine deficiency.
Kidney disturbances.
Obesity.
Underweight.

VITAMIN A DEFICIENCY

Dietary Outline

Body part affected: Entire body in terms of growth; Eyes; Skin; Mucous membrane of gastro-intestinal and respiratory tracts; Teeth and bones; Questionable relation to organs of reproduction and lactation.

Physiology: Essential for growth and health at all ages. Maintains healthful condition of the skin and the mucous membrane of the gastro-intestinal and respiratory tracts and thus makes them more resistant to disease. Acts with calcium to build teeth. Promotes normal vision; especially important for vision in dim light as it helps to restore the visual purple which is a compound of vitamin A and a protein. Most of the vitamin is stored in the liver. The change from carotene to vitamin A takes place in the liver.

Pathological physiology: Mild deficiency—Retarded growth in children; Listlessness; Lowered resistance to infection, especially of the mucous membranes; Increased incidence of respiratory infection; Inflammation and infection of gastro-intestinal tract; Dryness and scaliness of the skin; Night blindness.

Extreme deficiency—Ophthalmia (xerophthalmia, conjunctivitis, keratomalacia); Urinary and gall bladder calculi are still questionable; Sterility.

Contributing factors: Faulty food habits.
Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication.
Impairment of appetite.
Food idiosyncrasies.
Inadequate income.
Lack of knowledge concerning the value of vitamin A.
Insufficient availability of food containing vitamin A.
Destruction of the vitamin by oxidation and prolonged heat in preparation and storage.
Certain factors affecting the absorption, such as an excess of mineral oil, chronic diarrhea, pancreatic dysfunction, celiac disease or sprue.
Lack of certain amount of fat which prevents the absorption.
Diseases of any part of the gastro-intestinal tract.
Incapacity of the liver to convert carotene into vitamin A.
Chronic infections.

Laboratory data: Dark-adaptation test.
Biomicroscopic examination of conjunctivae under slit lamp illumination.
Blood test for determination of the amount of vitamin A and carotene.

Test for Diagnosis: Diagnosis is aided by a knowledge of the diet, clinical response to vitamin A, and close clinical observation.

Dietetic treatment: A normal diet includes the amount of vitamin A needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of vitamin A deficiency the amount should be increased by food through careful selection of foods high in vitamin A content. If the deficiency is extreme, the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of vitamin A in food preparation and storage must be given consideration as the loss is affected by oxidation and prolonged heat.

The food constituents:

Carbohydrate:

Amount: Normal.

Qualifying factor: Limit carbohydrate foods low in vitamin content so that sufficient foods containing vitamin A can be used.

Protein:

Amount: Normal.

Fat:

Qualifying factor: Special attention should be given to choosing fats that carry vitamin A.

Minerals:

Amount: Normal.

Vitamins:

Amount: Increase of vitamin A. Normal amount of other vitamins and an increase of the amount if other conditions require it.

Qualifying factor: If sufficient amounts of vitamin A are not provided by food, medication should be prescribed.

Foods:

Milk and cheese that have the fat retained should be given in liberal amounts for their valuable contribution of vitamin A. Skim milk and cottage cheese made from skim milk, due to their lack of fat, have no vitamin A content.

Eggs should be used in any form for the vitamin A content of the yolks.

Glandular organs are high in vitamin A content. Muscle meats contain insignificant amounts of the vitamin.

Fish liver oils furnish vitamin A in liberal amounts and for this reason are used in medication. Labels on the containers should be consulted for the vitamin A content.

Butter should be used liberally in the diet as it is an excellent source of vitamin A. Its content of vitamin A varies in different seasons, according to the feed of the animal. Oleomargarine that has been fortified with sufficient amounts of vitamin A may be used in place of butter. Vegetable oils and fats if not fortified are poor sources of the vitamin.

Vegetables, particularly the green leafy and yellow vegetables should be used liberally as they are, with certain exceptions, good sources of carotene, the precursor of vitamin A. In conditions where the fat must be lowered, lessening the vitamin A content, the vegetable sources of vitamin A may be used toward the required allowance.

Fruits: Fresh yellow fruit such as cantaloup and peaches, and the dried apricots and prunes contain valuable amounts of vitamin A. Care should be taken in the preparation of fruits and vegetables that the vitamin is not lost.

Cereal grains and nuts are poor sources of vitamin A.

Meals:

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of hygiene are important.

Knowledge and consideration of food values helps to prevent the deficiency.

The vitamin A content of the diet may be affected by various social factors including nationality, income, food outside the home, preparation and choice of food, availability of food, and mental attitude concerning food.

Education of the patient:

The patient should be taught the food values of the foods and particularly the good sources of vitamin A, the purpose of vitamin A in the body, and the amount needed.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another.

Attention should be called to the danger of extreme reduction of fats from the diet in an effort to lose weight.

The importance of reading labels should be shown, to learn the amount of the vitamin present in foods, such as oleomargarine that has been fortified with vitamin A.

Abnormal conditions and diseases that may be found in association with Vitamin A deficiency:

Chronic diarrhea.
Chronic infections.
Constipation.
Diseases of the liver.
Diseases of the respiratory tract.
Gastro-intestinal disorders.
Obesity.
Other avitaminoses.
Underweight.

THIAMINE DEFICIENCY

Dietary Outline

Body part affected: Entire body in terms of growth and carbohydrate metabolism: The gastro-intestinal tract; Muscles: The nervous system; The heart; Organs of reproduction and lactation.

Physiology: Part of a co-enzyme system; Essential to the metabolism of carbohydrates; Essential to the proper nutrition and function of the nervous and muscular systems, contributing to good muscle tone; Maintains and stimulates the appetite; Aids the regular bowel movement; Essential for growth, reproduction and lactation.

Pathological physiology: Mild deficiency—Muscular weakness; Ease of fatigue; Vague generalized aches and pains; Loss of weight; Disturbances of the central nervous system—fretfulness, irritability; Peripheral neuritis; Digestive disturbances—indigestion, constipation; Loss of appetite; Faulty carbohydrate metabolism which produces toxicity; Circulatory disturbances.

Extreme deficiency—Beri-beri; Polyneuritis with edema; Wasting; Impaired lactation; Mental changes; Sterility is still questionable.

Contributing factors: Faulty food habits.

Reduction in food intake due to voluntary or prescribed dietary restrictions when not supplemented by medication.

Impairment of appetite.

Food idiosyncrasies.

Inadequate income.

Lack of knowledge concerning the value of thiamine.

Destruction of the vitamin through improper preparation of food.

Need for daily intake as thiamine is not stored in the body.

Interference with absorption due to excessive use of alcohol or alkali or to such conditions as diarrhea.

High carbohydrate in the diet, increasing the need of thiamine.

Extensive use of refined foods that have not been enriched with thiamine.

Laboratory data: Estimation of thiamine in the urine by biological or chemical methods.

Measurement of intermediate products of carbohydrate metabolism in blood.

Test for diagnosis: Diagnosis is aided by knowledge of the diet and close clinical observation.

Dietetic treatment: A normal diet includes the amount of thiamine needed as recommended by the National Research Council Committee on Food and Nutrition as well as sufficient of all the other food constituents. However, when there are symptoms of thiamine deficiency the amount should be increased through careful selection of foods high in thiamine content. If the deficiency is extreme and the diet cannot supply sufficient amounts it will need to be supplemented by medication. In dietetic treatment the conservation of thiamine in food preparation must be given careful consideration in view of the ease with which thiamine is affected by heat, oxygen, solubility in water and alkalinity.

The food constituents:

Carbohydrate:

Amount: Normal.

Qualifying factor: Limit carbohydrate foods low in thiamine content so that sufficient foods containing thiamine can be used.

Protein:

Amount: Normal.

Fat:

Amount: Normal.

Minerals:

Amount: Normal.

Vitamins:

Amount: Increase of thiamine. Normal amount of other vitamins, and an increase of the amount if other conditions require it, particularly of the vitamins that are included in the "B complex".

Qualifying factor: If sufficient amounts of thiamine are not provided by food, medication should be prescribed.

Foods:

Milk should be given as in the normal diet, for its important contribution to the total thiamine requirement. Other dairy products—cheese and eggs—contain thiamine in moderate amounts, but as they are commonly used they aid in meeting the requirement.

Meat, and especially lean pork, heart, liver and kidney, contribute relatively important amounts of thiamine to the diet.

Fruits, particularly the orange and banana should be used for their thiamine content.

Vegetables, particularly the leafy vegetables, are good sources of thiamine. The legumes, including lentils, dried peas, beans and soy beans, are outstanding sources of the vitamin.

Breads and cereals which are whole grain or enriched with thiamine should be used in the diet.

Nuts and peanut butter are also good sources of thiamine.

Meals:

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of hygiene are important.

Knowledge and consideration of food values help to prevent the deficiency.

The thiamine content of the diet may be affected by nationality, income, food outside the home, organization of meal time, preparation and choice of food, availability of food and mental attitude concerning food.

Education of the patient:

The patient should be taught the food values of the foods, and particularly the good sources of thiamine, the purpose of thiamine in the body and the amount of thiamine needed, particularly in view of the relative difficulty in obtaining a diet adequate in thiamine.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another. This is especially important in thiamine as there is no one food to ensure the daily requirement, such as is true of some other vitamins.

Attention should be called to the importance of reading labels to know the amount in foods as well as in vitamin concentrates.

The patient should be acquainted with the value of enriched breads and cereals.

Abnormal conditions and diseases that may be found in association with thiamine deficiency:

Anorexia due to physical condition.
Chronic alcoholism.
Chronic debilitating diseases.
Diabetes.
Febrile diseases.
Gastro-intestinal diseases.
Hyperthyroidism.
Other avitaminoses.
Pernicious vomiting of pregnancy.
Psychoneuroses.

RIBOFLAVIN DEFICIENCY

Dietary Outline

Body part affected: Entire body in terms of growth; Body cells; Skin; Eyes; Tongue.

Physiology: Promotes growth; Helps to keep the skin healthy; Essential for transportation of oxygen to the cells; Helps eyesight; Concerned with carbohydrate metabolism; Exerts sparing action on thiamine; Part of one of the essential enzyme systems.

Pathological physiology: Burning and itching sensations of eyes; Microscopic changes in eye as seen with slit lamp; Lesions of mucous membranes and skin; Inflammation of lips; Fissures at the corner of the mouth (cheilosis); Smoothness of tongue: Nervous depression; General weakness and lowering of body tone; Diminished luster and loss of hair; Increased susceptibility to certain infections; Expectancy of life shortened; Digestive disturbances; Anorexia; Retardation of growth; Loss of weight.

Contributing factors: Faulty food habits.
Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication.
Impairment of appetite.
Food idiosyncrasies.
Inadequate income.
Lack of knowledge concerning the value of riboflavin.
Destruction of the vitamin, as it deteriorates when exposed to sunlight.
Loss of the vitamin due to solubility in water.
Faulty absorption or utilization of food due to disorders of gastro-intestinal tract or chronic alcoholic addiction.
Increased requirement during periods of rapid growth in children, during pregnancy and lactation, hyperthyroidism and fevers which increase the metabolic needs.

Test for diagnosis: Diagnosis depends upon recognition of characteristic lesions and symptoms, and is aided by a knowledge of the diet.

Dietetic treatment: A normal diet includes the amount of riboflavin needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of riboflavin deficiency the amount should be increased by careful selection of foods high in riboflavin content. If the deficiency is extreme, the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of riboflavin in food preparation must be given consideration as the loss is affected by solubility in water and exposure to sunlight.

The food constituents:

Carbohydrate:
Amount: Normal.

Protein:
Amount: Normal.

Fat:

Amount: Normal.

Minerals:

Amount: Normal.

Vitamins:

Amount: Increase of riboflavin. Normal amount of other vitamins and an increase in amount if other conditions require it, particularly an increase of the vitamins that are included in the "B complex".

Qualifying factor: If sufficient amounts of riboflavin are not provided by food, medication should be prescribed.

Foods:

Milk should always be included in the diet as the recommended riboflavin cannot be met by food without the amount of milk prescribed in the normal diet. Cheese and eggs also give valuable contributions to the riboflavin content of the diet.

Meat that is lean, and particularly liver, is an important source of riboflavin.

Fruits that are dried are fair sources of riboflavin, but fruits should be given as in the normal diet for their contribution of other food constituents.

Vegetables, particularly the green leafy and seed vegetables, are valuable sources of riboflavin.

Breads and cereals which are whole grain should be used in the diet. At present only some breads and cereals are enriched with riboflavin.

Meals:

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of hygiene are important.

Knowledge and consideration of food values help to prevent the deficiency.

The riboflavin content of the diet may be affected by various social factors including nationality, income, food outside the home, organization of meal time, preparation and choice of food, availability of food and mental attitude concerning food.

Education of the patient:

The patient should be taught the food values of the foods, and particularly the good sources of riboflavin, the purpose of riboflavin in the body, and the amount of riboflavin needed.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another.

Attention should be called to the importance of reading labels to know the amount of the vitamin in foods as well as in vitamin concentrates.

Abnormal conditions and diseases that may be found in association with riboflavin deficiency:

Anemias.

Night blindness.

Other avitaminoses.

Pellagra.

NIACIN DEFICIENCY

Dietary Outline

Body part affected: Skin; Gastro-intestinal tract: Mucous membrane; Nervous system; Other body cells.

Physiology: Necessary to keep tissues normal and healthy through normal cell metabolism; Part of one of the essential enzyme systems.

Pathological physiology: Mild deficiency—Loss of appetite; Loss of weight; General muscular weakness; Irritability; Depression; Memory loss; Headache; Insomnia; Dermatitis; Soreness and burning of mouth and tongue; Functional disorders of the gastro-intestinal tract, including indigestion and diarrhea.

Extreme deficiency—Pellagra.

Contributing factors: Faulty food habits.
Reduction in food intake due to self directed or prescribed dietary restrictions when not supplemented by medication.
Impairment of appetite.
Food idiosyncrasies.
Inadequate income.
Lack of knowledge concerning the value of niacin.
Insufficient availability of food containing niacin.
Destruction of niacin through improper preparation of food.
Diseases of the gastro-intestinal tract.
Alcoholism.

Test for diagnosis: Knowledge of the diet necessary for diagnosis: Results of therapeutic trial helpful.

Dietetic treatment: A normal diet includes the amount of niacin needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of niacin deficiency the amount should be increased through careful selection of foods high in niacin content. If the deficiency is extreme, the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of niacin in food preparation must be given consideration as the loss is affected by solubility in water.

The food constituents:

Carbohydrate:
Amount: Normal

Protein:
Amount: Normal

Fat:
Amount: Normal

Minerals:
Amount: Normal

Vitamins:
Amount: Increase of niacin. Normal amount of other vitamins and an increase in amount if other conditions require it, particularly an increase of the vitamins that are included in the "B complex".
Qualifying factor: If sufficient amounts of niacin are not provided by food, medication should be prescribed.

Foods:

Milk, cheese and eggs should be included as in the normal diet, although of slight value to the niacin content of the diet.
Meat and chicken are good sources of niacin. Liver and salmon are particularly high in the vitamin.
Fruits are neglible sources of niacin but should be included in the diet for their contribution of other vitamins and minerals.
Vegetables, particularly the green leafy vegetables, dried beans, lentils and soy beans are valuable sources of niacin.
Breads and cereals that are whole grain or enriched are good sources of niacin. Yeast furnishes niacin in such liberal amounts that it is often used as medication.
Peanuts and peanut butter contain niacin in significant amounts.

Meals:

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of hygiene are important.
Knowledge and consideration of food values help to prevent the deficiency.
The niacin content of the diet may be affected by nationality, income, food outside the home, organization of meal time, preparation and choice of food, availability of food, and mental attitude concerning food.

Education of the patient:

The patient should be taught the food values of the foods and particularly the good sources of niacin, the purpose of niacin in the body, and the amount of niacin needed.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another.

Attention should be called to the importance of reading labels to know the amount in foods as well as in vitamin concentrates.

The patient should be acquainted with the value of enriched breads and cereals.

Abnormal conditions and diseases that may be found in association with niacin deficiency:

Anemia.
Chronic alcoholism.
Chronic diarrhea.
Mental disorders.
Other avitaminoses (particularly thiamine and riboflavin).
Skin infections.
Stomatitis.
Ulcerative colitis.

ASCORBIC ACID DEFICIENCY

Dietary Outline

Body part affected: Teeth and bones: Gums; Connective tissue; Capillaries: Entire body in terms of growth.

Physiology: Helps to build and maintain the strength of the walls of the capillaries; Essential for normal development and nutrition of bones, teeth and gums; Essential for normal growth; Essential for maintaining integrity of connective tissue.

Pathological physiology: Mild deficiency—Irritability; Loss of appetite; Failure of wound healing; Indolent ulcers; Vague digestive disorders; Lack of stamina; Lowered resistance to infections; Retarded growth; Various pathological conditions involving tissue metabolism; Decalcification of bones and teeth; Lesions of gums; Development of so-called rheumatism; Damage to heart muscle; Degeneration of muscle structure (diminished muscular power); Latent scurvy; Injury to sex organs; Hemorrhages anywhere in the body.

Extreme deficiency—Scurvy.

Contributing factors: Faulty food habits.
Food idiosyncrasies.
Inadequate income.
Sensitivity to certain foods which may contribute to an inadequate ascorbic acid intake.
Insufficient availability of food containing ascorbic acid.
Loss of the vitamin in preparation as it is destroyed by oxidation, heat, alkalinity, solubility and improper methods of storage and handling.
Increased metabolism (such as infections and fevers) which increases the need of the vitamin.
Relatively small store of ascorbic acid maintained in the body.

Laboratory data: Determination of ascorbic acid excretion in urine.
Determination of ascorbic acid concentration in blood.
"Load" or saturation test.
Capillary resistance test.

Test for diagnosis: Radiographic studies. Diagnosis is aided by a knowledge of the diet and close clinical observation.

Dietetic treatment: A normal diet includes the amount of ascorbic acid needed as recommended by the National Research Council Committee on Food and Nutrition and is also sufficient in all the other food constituents. However, when there are symptoms of ascorbic acid deficiency the amount should be increased through careful selection of foods high in ascorbic acid content. If the deficiency is extreme, the diet cannot supply sufficient amounts and it will need to be supplemented by medication. In dietetic treatment the conservation of ascorbic acid in food preparation must be given consideration as the loss is affected by oxidation, heat, solubility and alkalinity.

The food constituents:

Carbohydrate:

Amount: Normal

Qualifying factor: Limit carbohydrate foods low in ascorbic acid content so that sufficient foods containing ascorbic acid can be used.

Protein:

Amount: Normal

Fat:

Amount: Normal

Minerals:

Amount: Normal

Vitamins:

Amount: Increase of ascorbic acid. Normal amount of other vitamins and an increase in amount if other conditions require it.

Qualifying factor: If sufficient amounts of ascorbic acid can not be provided by food, medication should be prescribed.

Foods:

Milk, cheese, eggs and other dairy products are poor sources of ascorbic acid. However, they are such good sources of the other food constituents that they should be included as in the normal diet.

Fruits, particularly the citrus fruits, are outstanding sources of ascorbic acid and should be used generously in the diet. The canned and frozen fruits retain their ascorbic acid content.

Vegetables, particularly raw vegetables and the tomato, raw or cooked, are good sources of ascorbic acid. Most vegetables lose a large per cent of their content of ascorbic acid in the process of cooking.

Meals:

Meals may be adjusted to the established routine of the patient, or adjusted to the prescription of the doctor if related diseases exist, but must provide all the vitamins necessary to fulfill the food prescription.

Environmental factors that influence the effectiveness of the diet:

Good habits of hygiene are important.

Prevention of the deficiency is possible through knowledge and consideration of food values.

The ascorbic acid content of the diet may be affected by various social factors including nationality, income, food outside the home, preparation and choice of food, availability of food and mental attitude concerning food.

Education of the patient:

The patient should be taught the food values of the foods and particularly the good sources of ascorbic acid, the purpose of ascorbic acid in the body and the amount needed.

The patient should know how to plan the food for the day and the methods of buying, preparing and serving the foods to best retain the vitamin.

The patient should know the food value of equivalents so that he can substitute one food for another.

Abnormal conditions and diseases that may be found in association with ascorbic acid deficiency:

Anemia.

Dental caries.

Other avitaminoses.

RICKETS

Dietary Outline

Body part affected: The skeletal structure. Many authorities also include the teeth and the blood.

Physiology: Adequate utilization of calcium and phosphorus for proper development of the skeletal structure, and for proper concentration and ratio in the blood either in the prenatal period or in infancy.

Pathological physiology: Faulty metabolism of calcium and phosphorus.

Contributing factors: Dietary deficiency,—insufficient amounts or abnormal interrelationship of calcium, phosphorus and vitamin D.

Lack of sunshine:

Climate and season.

Habitation.

Interfering media, such as dust or smoke, fog, clouds, clothes, windows.

Race pigmentation affecting utilization of the ultra-violet rays.

Laboratory data: Routine urine and blood studies as required in a complete medical examination.

Radiographic studies to determine the extent of the damage done to the skeletal structure.

Chemical analysis of the blood for calcium and phosphorus content.

Studies of electrical conductivity.

Dietetic treatment: Foods to supply the food constituents in amounts adequate to fulfill body needs and maintain desired weight. Vitamin D must be increased in sufficient amounts to correct the disturbed mineral metabolism.

The food constituents:

Carbohydrate:

Amount: Normal.

Protein:

Amount: Normal.

Fat:

Amount: Normal.

Minerals:

Amount: Normal.

Qualifying factor: If amounts supplied by food are inadequate, medication should be prescribed.

Vitamins:

Amount: Normal, plus increase of vitamin D.

Qualifying factor: Medication, under the direction of the physician, is given in the form of ultra-violet light from sunlight or a "sun lamp," fish liver oils ("bottled sunshine"), irradiated sterols, or milk and other foods that are irradiated to serve as carriers of vitamin D.

Foods:

Milk (one quart per day) supplies sufficient calcium and phosphorus for the normal requirements of the child. Its content of vitamin D is low but can be increased by various methods depending upon the producer. The three principal ways of increasing the vitamin D content of milk are:

(1) exposing milk directly to the rays of an ultra-violet lamp,—irradiated milk;

(2) adding vitamin D concentrates, such as fish liver oil, to the milk;

(3) feeding the cow irradiated yeast, which is rich in vitamin D,—usually called metabolized milk.

From 135–400 International Units of vitamin D can be added to a quart of milk by these methods and the amount contained can be learned by reading the labels.

Meat, fish and chicken afford no protection from rickets. They supply efficient protein, fat, minerals in varying amounts and vitamins—muscle meat being a good source of iron, thiamine, riboflavin and niacin, while the glandular organs contain vitamin A as well. Both meat and fish are high in phosphorus.

Egg yolk is of protective value in rickets in that it is a source of vitamin D as well as of calcium and phosphorus. It is also rich in iron. The white of the egg contains only protein and has no antirachitic value.

Butter, an excellent source of vitamin A, has only a slight vitamin D content. Fish liver oils are excellent sources of vitamin D, but vegetable oils, unless irradiated, do not contain it.

Vegetables and fruits supply minerals and vitamins but are poor sources of vitamin D.

Whole grain or enriched cereals add to the mineral content of the diet. Some authorities consider that when cereals are given in too large amounts they disturb the normal metabolism of calcium.

Sweets may have a place in the diet but should not be allowed to displace foods containing essential food constituents.

Meals:

Meals may follow the routine to which the patient is accustomed, provided all the food necessary to fulfill the food prescription is taken. With younger children it may be desirable to give several small meals rather than three large ones.

Environmental factors that influence the effectiveness of the diet:

Good habits of personal hygiene should be established.

Sufficient sunlight, shining directly on the bare skin of the infant and growing child, is an important factor in the prevention and treatment of rickets. Sun bathing is as beneficial on the city roof as at the beach. During the winter the sun bath can be given indoors at an open window. The child's clothing and covering are important considerations, as the ultraviolet ray does not penetrate many kinds of material.[2]

Education of the patient:

The mother should be aware of the factors that are the primary causes of rickets. She should appreciate the importance to childhood of giving these careful consideration and be helped so far as possible to obviate them.

She should know what the ultra-violet rays of sunlight are and their value to the body, and how to adapt clothing, and housing and climatic conditions to secure their beneficial effects. She should understand the interrelationship of calcium, phosphorus and vitamin D in the development of the skeletal structure, and the importance of milk as a carrier of these food constituents. She should be informed concerning the vitamin D value of fish liver oils, and of irradiated foods, especially milk, as substitutes for sunlight or to supplement it. Her understanding of these considerations should help her to appreciate the protection against rickets afforded by the protective diet with the addition of sunlight and other sources of vitamin D.

Abnormal conditions and diseases that may be found in association with rickets:

Anemia.

Avitaminosis.

Increased susceptibility to pneumonia and other infections in infants, as reported by some authorities.

Malnutrition.

Organic or functional disturbances in adult life, especially pelvic and oral bone malformation.

Retarded dentition.

Tetany.

[2] Definite directions for sun baths are given by the Children's Bureau, U. S. Department of Labor, Folder No. 5, 1931.

PART IV

TYPICAL DIETS AND MENUS

FOREWORD

In this part a series of typical diets, both normal and therapeutic, primarily for the use of the ambulatory patient, is arranged in the order followed in the Dietary Outlines (Part III). The therapeutic diets are seen to be a modification of the normal diet, constructed on the basis summarized in Part I, Chapter 3, p. 29. Throughout these diets, the figures for body weight and the daily food requirements of the body are those stated in the "Summary of Body Requirements in Terms of Food Constituents" (Part I, Chapter 1, p. 5). When any of the therapeutic diets are inadequate in minerals or vitamins, medication must be prescribed.

The same foods are listed under each therapeutic diet. They are the foods used in the normal diet computed in Part I, Chapter 2, p. 13 to p. 16, to fulfill the food prescription given in Part I, Chapter 1, p. 5. Any change required in them to meet the needs of the various diseases can be easily observed. In this way again, necessary modifications from the normal diet are emphasized. This presentation will also show how the foods of the family meal can be utilized with few changes or modifications.

It should be understood that these diets are *suggestive and not arbitrary.* They can be varied in many ways with the help of the tables of equivalents (Tables 21–45) and the table of racial foods and food habits (Table 4).

Opposite the page of each diet will be found a meal plan and menus based on the computation of the typical diet. *These again are not an arbitrary arrangement, but are to suggest* how the foods required in the diet can be prepared and utilized in meals, in various combinations. The heavy meal for children is planned for noon time. The menus are arranged on the basis of two levels of cost,—moderate and liberal.

At the end of this part the data contained in the diets and menus are summarized.

NORMAL

Typical Diet

(Adult)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	¼ c.	120	6	4	24	0.112	0.096	0.2	1416	40	200		
Butter	6 t.	30			24	0.004	0.004		810				
Mayonnaise	3 t.	15	0.5		11	0.002	0.005	0.1	30	4	10		
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
whole wheat	2 sl.	60	30	6	1	0.030	0.090	1.2		192	108	1.24	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers	2	8	6	1	1	0.002	0.008	0.2					
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	9 t.	45	45										
Jelly	6 t.	40	30										
Desserts													
Cake, plain	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Gelatin	½ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			365.5	99.5	131	1.336	1.749	17	14,350	1936	2705	19.15	150

Total Calories 3039

NORMAL

TYPICAL DIET

(ADULT)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Strawberries, 10
	Cream		Cream, 4 tablespoons
	Sugar	Sugar, 3 teaspoons	
	Egg (bacon if desired)	Egg, soft cooked, 1	Egg, poached, 1
	Bread or toast	Toast, enriched, 2 slices	Muffins, 2 small
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Jelly	Jelly, 2 tablespoons	Marmalade, 2 tablespoons
	Beverage	Coffee	Coffee
	Cream	Cream, 2 tablespoons	Cream, 2 tablespoons
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
Noon	Main dish	Macaroni and cheese	Creamed chicken and mushrooms in macaorni ring
	Cereal or potato	Macaroni, ¾ cup	Macaroni, ¾ cup
	Cheese, egg, or milk	Cheese, 2 tablespoons	Chicken, diced, ⅓ cup
			Mushrooms, diced, 2 tablespoons
		Milk, ½ cup	Milk, ½ cup
		Flour, 1 tablespoon	Flour, 1 tablespoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Vegetables, cooked or in salad	Tomato and lettuce salad	Stuffed tomato salad
		Tomato, 1	Tomato, 1
		Lettuce, 3 leaves	Lettuce, 3 leaves
			Celery, chopped, 2 tablespoons
		Mayonnaise, 1 tablespoon	French dressing, 1 tablespoon
	Bread	Bread, whole wheat, 2 slices	Rolls, 2
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Baked apple with cream	Apple Snow
	Fruit, pudding, or cake	Apple, 1 medium	Apple, 2 tablespoons
			Egg white, ½
		Sugar, 2 teaspoons	Sugar, 2 teaspoons
		Cream, 2 tablespoons	
	Beverage	Milk, 1 glass	Milk, 1 glass
Night	Soup	Bouillon	Consomme
	Crackers	Crackers, 2	Crackers, 2
	Meat, fish, or poultry	Roast beef	Planked sirloin steak
	Potato or cereal	Baked potato, 1 large	Parsley potato balls
			Potato, 1 large
			Parsley, chopped, 1 teaspoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Vegetables, cooked or in salad	String beans, buttered, 1 sauce dish	Carrots, glazed
			Carrots, 1 sauce dish
		Carrots buttered, 1 sauce dish	Sugar, 1 teaspoon
			Butter, 1 teaspoon
		Butter for vegetables, 1 teaspoon	Hearts of escarole
			Roquefort cheese dressing, 1 tablespoon
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Fruit gelatin with cream	Milk fruit sherbet, 6 heaping tablespoons
	Fruit, cake, pudding, pastry, or gelatin	Banana, ½ medium	Fruit juice, 4 tablespoons
		Gelatin, ¼ tablespoon	Sugar, 2 teaspoons
		Sugar, 2 teaspoons	Milk, ½ cup
		Cream, 2 tablespoons	Cup cake, 1
		Cake, plain, 1 piece	
	Beverage	Coffee	Coffee
		Cream, 2 tablespoons	Cream, 2 tablespoons
		Sugar, 2 teaspoons	Sugar, 2 teaspoons

NORMAL

Typical Diet

(Child)

Male. Age, 9 Years. Average Body Weght, 30 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk, whole	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese	1 T.	15	0.5	3.5	5	0.140	0.105	0.2	225	4	83	0.03	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	2 oz.	60		10	13	0.006	0.100	1.4		90	120	4.72	
Cream													
Butter	3 t.	15			12	0.002	0.002		405				
Mayonnaise	1 t.	5			4	0.001	0.002		10	1	3		
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 sm.	100	19	2		0.011	0.057	1.3	30	100	40	1.18	10
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar	5 t.	25	25										
Jelly	3 t.	20	15										
Desserts													
Cake, plain	1½″ cu.		19.5	1.5	3	0.014	0.024	0.2	116	47	52	0.15	
Gelatin	½ T.	3		2									
Beverages													
Totals of the Food Constituents			275	80.5	85.5	1.592	1.704	13.2	13,138	1736	3177	12.32	146

Total Calories 2192

NORMAL

TYPICAL DIET (CHILD)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Milk, ½ cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
			Strawberries, 10
	Egg	Egg, soft boiled, 1	Bacon, 2 strips
	Bread	Toast, 1 slice	Toast, 1 slice
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
		Jelly, 3 teaspoons	Jelly, 3 teaspoons
	Milk	Milk, 1 glass	Milk, 1 glass
Noon	Meat, fish, or poultry	Roast beef, small serving	Planked sirloin steak, small serving
	Potato or cereal	Baked potato, 1 small	Buttered macaroni
			Macaroni, ⅜ cup
			Butter, 1 teaspoon
	Vegetables	String beans, 1 sauce dish	String beans, 1 sauce dish
		Carrots, 1 sauce dish	Carrots, 1 sauce dish
		Butter, ½ teaspoons	Butter, ½ teaspoon
	Bread	Bread, 1 slice	Bread, 1 slice
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Fruit Gelatin	Milk fruit sherbet, 4 heaping tablespoons
		Banana, ½ medium	Fruit juice, 4 tablespoons
		Gelatin, ¼ tablespoon	Sugar, 2 teaspoons
		Sugar, 2 teaspoons	Milk, ½ cup
		Cake, plain, 1 small piece	Cup cake, 1 very small
	Milk	Milk, ½ cup	Milk, 1 cup
Night	Main dish	Macaroni and cheese	Egg in fluffy potato nest
	Cereal or potato	Macaroni, ⅜ cup	Egg yolk, 1
	Cheese, egg, or milk	Cheese, grated, 2 tablespoons	Egg white, 1 beaten
		Milk, ½ cup	Potato, 1 small, combined with egg white
		Flour, ½ tablespoon	
		Butter, 1 teaspoon	
	Vegetables, cooked or in salad	Tomato and lettuce salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 small
		Lettuce, 3 leaves	Lettuce, 3 leaves
			Celery, 2 tablespoons
	Salad dressing	Salad dressing, 1 teaspoon	Salad dressing, 1 teaspoon
	Bread	Bread, 1 slice	Roll, whole grain, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Fruit	Baked apple	Apple snow
		Apple, 1 medium	Apple, 2 tablespoons
		Sugar, 2 teaspoons	Sugar, 2 teaspoons
			Egg white, ½
	Milk	Milk, 1 glass	Milk, 1 glass

ALLERGY

Typical Diet

(Adult)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
**Milk													
**Cheese													
**Egg													
Meat, fish, or poultry	6 oz.	180		30	39	0.018	0.300	4.2		270	360	14.16	
Cream, heavy	¾ c.	160	5.5	5.5	61.5	0.128	0.102	0.3	3602	48	224		
Butter	6 t.	30			24	0.004	0.004		810				
**Mayonnaise													
Oil	3 t.	15			15								
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
10 per cent—grapefruit	½ m.	100	10	0.5		0.021	0.020	0.3	21	75	60	0.21	40
**15 per cent—apple													
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
**10 per cent—carrots													
10 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
Peas, dried	4 T.	60	37	15	1	0.046	0.246	3.6	450	316	180	0.60	
**Potato, white													
Potato, sweet	1 m.	150	42	3	0.5	0.045	0.078	1.5	5250	135	113	1.94	30
**Bread, whole wheat													
Bread, corn pone	6 sm. cakes	60	44	5	2	0.010	0.092	0.6	450	270	78	0.60	
**Flour, wheat													
Crackers													
**Wheat													
Ry-Krisps	6	42	30	6		0.024	0.168	7.2		138	36	0.66	
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
**Macaroni, cooked													
Rice, brown, cooked	1 hp. s. d.	190	23	2.5	0.5	0.020	0.101	0.6		68	24	2.07	
Sugar	5 t.	25	25										
Jelly	3 t.	20	15										
Desserts													
**Cake, plain													
Gelatin	¼ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			285	86	146	0.455*	1.343	22.5	14,483	1847	1428*	22.39	181

Total Calories 2798

* Below the normal.

** Forbidden foods.

ALLERGY

Typical Diet

(Adult)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	
	Cereal	Rolled oats, 1 sauce dish	Rice Krispies, 1 sauce dish
	Cream	Cream, 2 tablespoons	Cream, 2 tablespoons
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
			Strawberries, 10 large
	Bread	Corn pone, 2 small cakes	Corn pone, 2 small cakes
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
			Jelly, 2 teaspoons
	Beverage	Coffee, 1 cup	Coffee, 1 cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cream	Cream, 2 tablespoons	Cream, 2 tablespoons
Noon	Soup	Pea soup	Cream of pea soup
	Vegetable allowed	Peas, 4 tablespoons	Peas, 4 tablespoons
		Water, 1 cup	Water, ¾ cup
		Cream, 2 teaspoons	Cream, 1 tablespoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Main dish	Salmon loaf	Boiled salmon with cream sauce
		Salmon, 4 tablespoons	
	Fish, small portion	Rice, 3 tablespoons	Salmon, fresh, small portion
		Cream, 1 teaspoon	Cornstarch, 1½ teaspoons
		Butter, 1 teaspoon	Cream, 1 tablespoon
			Butter, 1 teaspoon
	Vegetable, cooked or in salad	Lettuce and tomato salad with dressing	Stuffed tomato with rice
		Lettuce, 1 leaf	Tomato, 1 medium
		Tomato, 1 medium	Rice, cooked, 1 heaping sauce dish
		Oil allowed, 1 tablespoon	Butter, 1 teaspoon
	Bread	Ry-Krisps, 4	Ry-Krisps, 4
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Fruit gelatin with cream	Fruit mousse
	Fruit gelatin	Banana, ½ medium	Banana, ½ medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
		Sugar, 1 teaspoon	Sugar, ½ teaspoon
		Cream, 2 teaspoons	Whipped cream, 1 tablespoon
	Beverage	Tea or coffee, 1 cup	Tea or coffee, 1 cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cream	Cream, 2 tablespoons	Cream, 2 tablespoons
Night	Soup	Bouillon	Consomme
	Cracker	Ry-Krisp, 2	Ry-Krisp, 2
	Main Dish	Pot roast	Roast chicken
	Meat or poultry, average portion		
	Potato or cereal	Baked sweet potato	Candied sweet potato
	Butter	Butter, ½ teaspoon	Brown sugar, 1 teaspoon
			Butter, ½ teaspoon
	Vegetable, cooked or in salad	String beans, 1 sauce dish	String beans, 1 sauce dish
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
		Grapefruit salad with whipped cream	Hearts of lettuce salad with dressing
		Lettuce, 2 leaves	Oil allowed, 1 tablespoon
		Grapefruit, sectioned, ½	Lettuce, 3 leaves
		Whipped cream, 1 tablespoon	
	Bread	Corn pone, 4 small cakes	Corn pone, 4 small cakes
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Rice cakes, 2	Orange sherbet
	Fruit, cake or ices	Jelly, 1 tablespoon	Orange juice, 1 orange
			Sugar, ½ teaspoon
	Beverage	Tea or coffee	Tea or coffee
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cream	Cream, 2 tablespoons	Cream, 2 tablespoons

ALLERGY

Typical Diet

(Child)

Male, Age 9 Years. Average Body Weight, 30 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
**Milk													
**Cheese													
**Egg													
Meat, fish, or poultry	3 oz.	90		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream, heavy	¾ c.	160	5.5	5.5	61.5	0.128	0.101	0.3	3602	48	224		
Butter	6 t.	30			24	0.004	0.004		810				
**Mayonnaise													
Oil	1 t.	5			5								
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
10 per cent—grapefruit	½ m.	100	10	0.5		0.021	0.020	0.3	21	75	60	0.21	40
**15 per cent—apple													
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
**10 per cent—carrots													
10 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
Peas, dried	4 T.	60	37	15	1	0.046	0.246	3.6	450	316	180	0.60	
**Potato, white													
Potato, sweet	1 m.	150	42	3	0.5	0.045	0.078	1.5	5250	135	113	1.94	30
**Bread, whole wheat													
Bread, corn pone	6 sm. cakes	60	44	5	2	0.010	0.092	0.6	450	270	78	0.60	
**Flour, wheat													
Crackers													
Ry-Krisps													
**Wheat													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
**Macaroni, cooked													
Rice, brown, cooked	¾ c.	190	23	2.5	0.5	0.020	0.101	0.6		68	24	2.07	
Sugar	5 t.	25	25										
Jelly	3 t.	20	15										
Desserts													
**Cake, plain													
Gelatin	½ T.	3		2									
Beverages													
Cocoa	2 t.	6	2	1	1	0.006	0.036	0.2					
Totals of the Food Constituents			257	60	117.5	0.428*	1.060*	13.4	14,483	1574	1212*	14.65	181

Total Calories 2326

* Below the normal

** Forbidden foods.

ALLERGY

Typical Diet

(Child)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	
	Cereal	Rolled oats, 1 sauce dish	Cornflakes, 1 sauce dish
	Cream	Cream, 2 tablespoons	Cream, 1 tablespoon
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
			Strawberries, 10 large
	Bread	Corn pone, 2 small cakes, or Ry-Krisps, 3	Corn pone, 2 small cakes
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Beverage	Cocoa, 1 cup	Cocoa, 1 cup
		Water, ¾ cup	Water, ¾ cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cream	Cream, 3 tablespoons	Cream, 3 tablespoons
		Cocoa, 1 teaspoon	Cocoa, 1 teaspoon
Noon	Main dish	Pot roast	Creamed chicken
	Meat, fish or poultry, average serving		Chicken, diced, ½ cup
			Cream, 1 tablespooon
			Water, 3 tablespoons
			Butter, 1 teaspoon
	Potato or cereal	Baked sweet potato, 1 medium	Candied sweet potato
			Sweet potato, 1 medium
	Butter	Butter, 1 teaspoon	Brown sugar, 1 teaspoon
	Vegetable, cooked or in salad	String beans, 1 sauce dish	Butter, ½ teaspoon
		Butter, 1 teaspoon	String beans, 1 sauce dish
	Bread	Corn pone, 2 small cakes, or Ry-Krisps, 3	Rice muffin, 1
	Butter	Butter, 1 teaspoon	Butter, ½ teaspoon
	Dessert	Fruit gelatin with cream	Fruit mousse
	Fruit Gelatin	Banana, ½ medium	Banana, ½ medium
		Gelatin, ½ tablespoon	Gelatin, ½ tablespoon
		Sugar, 2 teaspoons	Sugar, 2 teaspoons
		Cream, 2 tablespoons	Whipped cream, 1 tablespoon
Night	Soup	Pea soup	Cream of pea soup
		Peas, 4 tablespoons	Peas, 4 tablespoons
		Water, 1 cup	Water, 1 cup
		Cream, 1 teaspoon	Cream, 2 teaspoons
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Cereal allowed	Baked brown rice and tomato	Brown rice ring
		Rice, 1 heaping sauce dish	Rice, 1 heaping sauce dish
		Cream, 2 teaspoons	Cream, 1 teaspoon
			Butter, ½ teaspoon
		Butter, 1 teaspoon	Grilled tomato
		Tomato, 1 medium	Butter, ½ teaspoon
	Vegetable, cooked or in salad	Lettuce salad with dressing	Tomato, 1 medium
		Lettuce, 3 leaves	Grapefruit salad
		Olive oil, 1 teaspoon	Lettuce, 3 leaves
			Grapefruit, sectioned, ½
			Whipped cream, 1 tablespoon
			Sugar, 1 teaspoon
	Bread	Corn pone, 2 small cakes	Ry-Krisps, 3
	Butter (molasses)	Jelly, 3 teaspoons	Butter, 1 teaspoon
	Dessert	Grapefruit cup	Jelly, 1 teaspoon
	Fruit or cake	Grapefruit, ½	
	Beverage	Cocoa, 1 cup	Cocoa, 1 cup
		Water, ¾ cup	Water, ¾ cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cream	Cream, 3 tablespoons	Cream, 3 tablespoons
		Cocoa, 1 teaspoon	Cocoa, 1 teaspoon

SPASTIC CONSTIPATION

Typical Diet

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	½ c.	120	6	4	24	0.112	0.096	0.2	1416	40	200		
Butter	12 t.	60			48	0.008	0.008		1620				
Mayonnaise													
Fruit													
10 per cent—orange juice	1 sc. c.	200	26	1		0.048	0.036	0.8	450	220	100	0.44	108
20 per cent—apple sauce	1 s. d.	100	26.5	0.5		0.005	0.009	0.3	72	27	30		4
20 per cent—banana	1 m.	100	23	1		0.008	0.028	0.6	350	50	75	0.61	10
Vegetables, strained													
5 per cent—tomato, strained	6 T.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans, strained	6 T.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
10 per cent—carrots, strained	6 T.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	5 sl.	150	80	12.5	2.5	0.100	0.150	1.5		330	260	1.35	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	6 t.	30	30										
Jelly	3 t.	20	15										
Desserts													
Cake, plain	2" cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Gelatin	¼ T.	3		2									
Beverages													
Totals of the Food Constituents			361.5	91	142	1.345	1.724	16.5	13,994	1951	2718	18.22	199

Total Calories 3088

SPASTIC CONSTIPATION

Typical Diet

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit, strained or juice	Orange juice, strained, 1 scant cup	Orange juice, strained, 1 scant cup
	Cereal, refined or strained	Rolled oats, strained, 1 sauce dish	Baby Ralston, cooked in milk, 1 sauce dish
	Milk		Milk, ¼ glass
	Cream	Cream, 4 tablespoons	Cream, 4 tablespoons
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
	Egg	Egg, soft cooked, 1	Egg, poached, 1, on Toast
	Bread, white	Toast, white, 2 slices	Toast, white, 2 slices
	Butter	Butter, 3 teaspoons	Butter, 2 teaspoons
		Jelly, 3 teaspoons	Jelly, 3 teaspoons
	Beverage	Milk, 1 small glass	Milk, flavored with coffee
	No coffee, tea, or cocoa, except as flavoring		Milk, ½ glass
			Sugar, 1 teaspoon
			Coffee, 1 tablespoon
Noon	Main dish	Macaroni and cheese	Creamed chicken in macaroni ring
	Cereal, or potato	Macaroni, ¾ cup	Macaroni, ¾ cup
	Egg, mild cheese, milk, chicken, or fish	Cheese, grated, 4 tablespoons	Chicken, diced, ⅓ cup
		Milk, ½ cup	Milk, ½ cup
		Flour, 1 tablespoon	Flour, 1 tablespoon
		Butter, 2 teaspoons	Butter, 2 teaspoons
	Vegetables, strained, buttered, scalloped, souffle, or in milk soup	Tomato juice, ½ cup, scant	Molded tomato
			Tomato, strained, 6 tablespoons
			Gelatin, ¼ tablespoon
	Bread, white	Bread, white, 2 slices	Bread, white, 2 slices
	Butter	Butter, 2 teaspoons	Butter, 2 teaspoons
	Dessert	Apple Sauce, 1 sauce dish	Apple snow
	Strained fruit, plain cake, simple pudding, or jello	Sugar, 2 teaspoons	Apple, 2 tablespoons
			Egg white, ½
			Sugar, 1 teaspoon
	Milk	Milk, 1 small glass	Milk, ½ cup
Night	Milk soup		Carrot soup
			Carrots, strained, 6 tablespoons
			Milk, ¼ cup
			Butter, 2 teaspoons
	Chicken or fish	Baked haddock	Planked haddock
	Potatoes	Baked potato, 1 large	Buttered potato balls
			Potato, 1 large
			Butter, 1 teaspoon
	Vegetables, strained, buttered, scalloped, souffle, or in milk soup	Carrots, strained	Creamed string beans
		String beans, strained,	String beans, strained, 6 tablespoons
		Butter, for vegetables, 3 teaspoons	Butter, 1 teaspoon
			Cream, 1 tablespoon
	Bread, white	Bread, white, 1 slice	Toast points, 1 slice, white
	Butter	Butter, 2 teaspoons	Butter, 2 teaspoons
	Dessert	Fruit gelatin with cream	Molded banana with cream
	Custard, cereal, puddings, plain cake, jello, or strained fruits	Banana, ripe, ½ medium	Banana, ripe ½ medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
		Sugar, 2 teaspoons	Sugar, 2 teaspoons
		Cream, 4 tablespoons	Cream, 3 tablespoons
		Cake, plain, 1 piece	Cup cake, 1

COLITIS**

Typical Diet

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese, American	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	Two	100		14	10	0.054	0.224	3	1000	150	250	0.06	
Meat, fish, or poultry													
Cream, light	½ c.	120	6	4	24	0.112	0.096	0.2	1416	40	200		
Butter	4 T.	60			48	0.008	0.008		1620				
Mayonnaise													
Fruit													
Vegetables													
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	6 sl.	180	96	15	3	0.120	0.180	1.8		396	312	1.62	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers	6	36	18	3	3	0.006	0.024	0.6					
Cereals													
Cream of wheat, cooked	1 s. d.	175	20.5	3.5	0.5	0.143	0.168	12		150			
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	5 t.	25	25										
Jelly													
Desserts													
Cake, plain	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Totals of the Food Constituents			305.5	89	141	1.901	1.999	23.3	6544	1546*	3186	5.38*	32*

Total Calories 2847

* Below the normal.

** When process is healing the diet is similar to the ambulatory ulcer diet #2.

COLITIS

Typical Diet

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Cereal, refined or strained Milk Cream Sugar Bread, white Butter Beverage, no tea, coffee, or cocoa, except as flavoring	Cream of wheat, 1 sauce dish Milk, ½ cup Cream, 4 tablespoons Sugar, 1 teaspoon Toast, white, 2 slices Butter, 3 teaspoons No tea, coffee or cocoa, except as flavoring	Cream of wheat, 1 sauce dish, cooked in milk Milk, ½ cup Cream, 4 tablespoons Sugar, 1 teaspoon Toast, white, 2 slices Butter, 3 teaspoons No tea, coffee or cocoa, except as flavoring
Mid-morning	Milk Crackers, white Butter	Milk, ½ glass Crackers, 2 Butter, 1 teaspoon	Vanilla junket Milk, ½ cup Vanilla junket powder Crackers, 2 Butter, 1 teaspoon
Noon	Main dish Cereal or potato Cheese, egg, or milk Bread, white Butter Dessert Custard, simple, puddings, or plain cake	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, 4 tablespoons Milk, ½ cup Flour, 1 tablespoon Butter, 1 teaspoon Bread, white, 2 slices Butter, 3 teaspoons Custard Egg, 1 Sugar, 2 teaspoons Milk, ½ cup	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, 4 tablespoons Milk, ½ cup Flour, 1 tablespoon Butter, 1 teaspoon Toast, white, 2 slices Butter, 2 teaspoons Floating island Egg, 1 Sugar, 1 teaspoon Milk, ½ cup
Mid-afternoon	Milk Crackers, white	Cornstarch pudding Cornstarch, 1 tablespoon Milk, ½ cup Sugar, 2 teaspoons Cream, 4 tablespoons Crackers, 2	Molded cornstarch pudding Cornstarch, 1 tablespoon Milk, ½ cup Sugar, 2 teaspoons Coloring Cream, 2 tablespoons Crackers, 2
Night	Egg or mild cheese Potato or cereal, refined Bread Butter Dessert Custard, simple pudding, or plain cake Milk	Egg, poached, 1 Baked potato, 1 large Butter, 2 teaspoons Bread, white, 2 slices Butter, 2 teaspoons Cake, plain, 1 piece Milk, ½ glass	Eggs a la Suisse Egg, 1 Cream, 2 tablespoons Butter, 1 teaspoon Cheese, grated, 2 teaspoons on toast Baked stuffed potato Potato, 1 large Milk, 2 tablespoons Butter, 2 teaspoons Melba toast, white, 2 slices Butter, 1 teaspoon Cup cake, 1, without frosting Milk, ½ glass
Between night meal and bedtime	Milk Crackers, white	Milk, 1 glass Crackers, 2	Milk shake Milk, 1 glass Sugar, 1 teaspoon Vanilla Crackers, 2

ULCER

Typical Diet

(Ambulatory No. 1)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	3	150		21	15	0.081	0.336	4.5	1500	225	375	0.09	
Meat, fish, or poultry													
Cream, light	1 c.	240	12	8	48	0.224	0.192	0.4	2832	80	400		
Butter	12 t.	60			48	0.008	0.008		1620				
Mayonnaise													
Fruit													
10 per cent—orange juice	1 c. str.	200	26	1		0.048	0.036	0.8	450	220	100	0.44	108
Vegetables													
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	6 sl.	180	96	15	3	0.120	0.180	1.8		396	312	1.62	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers, uneeda	4	24	18	2	2	0.004	0.024	0.4					
Cereals													
Cream of wheat, enriched, cooked	1 s. d.	175	20.5	3.5	0.5	0.143	0.168	12		150			
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	3 t.	15	15										
Jelly													
Desserts													
Cake, plain	1½″ cu.		19.5	1.5	3	0.014	0.024	0.2	116	47	52	0.15	
Beverages													
Totals of the Food Constituents			321	99.5	168	2.082	2.235	25.5	8872	1866	3594	5.80*	140

Total Calories 3194

* Below the normal.

ULCER

Typical Diet

(Ambulatory No. 1)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Cereal, refined Milk Cream Sugar Bread, white Butter	Cream of wheat, 1 sauce dish Milk, ½ cup Cream, ¼ cup Sugar, 1 teaspoon Toast, white, 2 slices Butter, 3 teaspoons Orange juice, 1 cup strained	Cream of wheat, 1 sauce dish cooked in milk Milk, ½ cup Cream, ¼ cup Sugar, 1 teaspoon Toast, white, 2 slices Butter, 3 teaspoons Orange juice, 1 cup strained
Mid-morning	Milk and cream Crackers Butter	Milk, ½ cup Cream, 4 tablespoons Crackers, 3 Butter, 1 teaspoon	Vanilla junket with cream Milk, ½ cup Junket powder, vanilla Cream, 4 tablespoons Crackers, 3 Butter, 1 teaspoon
Noon	Main dish Cereal, refined Egg, mild cheese, or milk Bread, white Butter Dessert Custard, simple pudding, or plain cake Milk	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, 4 tablespoons Milk, ½ cup Flour, ½ tablespoon Butter, 1 teaspoon Toast, white, 2 slices Butter, 2 teaspoons Baked custard Egg, 1 Milk, ½ cup Sugar, 2 teaspoons Milk, ½ cup	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, 4 tablespoons Milk, ½ cup Flour, ½ tablespoon Butter, 1 teaspoon Toast points, white, 2 slices Butter, 2 teaspoons Floating Island Egg, 1 Milk, ½ cup Sugar, ½ teaspoon Milk, ½ cup
Mid-afternoon	Milk and cream Crackers Butter	Milk, ½ cup Cream, 4 tablespoons Crackers, 3 Butter, 1 teaspoon	Milk shake Milk, ½ cup Cream, 4 tablespoons Sugar, ½ teaspoon Vanilla Crackers, 3 Butter, 1 teaspoon
Night	Eggs and mild cheese Cereal, refined Bread, white Butter Dessert Custard, simple pudding, or plain cake	Eggs, soft cooked, 2 Butter, 1 teaspoon Potato, mashed Potato, 1 large Cream, 4 tablespoons Butter, 1 teaspoon Toast, white, 2 slices Butter, 2 teaspoons Cake plain, 1 piece	Omelet Eggs, 2 Butter, 1 teaspoon Creamed rice Rice, 1 sauce dish Cream, 2 tablespoons Butter, 1 teaspoon Toast, white, 2 slices Butter, 2 teaspoons Charlotte Russe Lady fingers Gelatin, ½ tablespoon Milk, 2 tablespoons Sugar, 1 teaspoon Cream, 2 tablespoons Vanilla
Between night meal and bedtime	Milk	Milk, 1 glass	Milk, 1 glass

ULCER

Typical Diet

(Ambulatory No. 2)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	1 c.	240	12	8	48	0.224	0.192	0.4	2832	80	400		
Butter	12 t.	60			48	0.008	0.008		1620				
Mayonnaise													
Fruit													
10 per cent—orange juice	1 c. str.	200	26	1		0.048	0.036	0.8	450	220	100	0.44	108
15 per cent—applesauce	1 s. d.	100	26.5	0.5		0.005	0.009	0.3	72	27	30		4
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato, canned	6 T. str.	100	4	1	0.5	0.007	0.021	0.3	1000	75	45	0.55	22
10 per cent—carrots, canned	6 T. str.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
10 per cent—squash	8 T. str.	100	9	1.5	0.5	0.019	0.028	0.6	3000	48	81		3
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	5 sl.	150	80	12.5	2.5	0.100	0.150	1.5		330	260	1.35	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers	4	24	18	2	2	0.004	0.024	0.4					
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	3 t.	15	15										
Jelly													
Desserts													
Cake	1½″ cu.		19.5	1.5	3	0.014	0.024	0.2	116	47	52	0.15	
Gelatin	½ T.	3		2									
Beverages													
Totals of the Food Constituents			363.5	111	186.5	1.973	2.252	16.6	18,119	2174	3881	17.64	178

Total Calories 3577

ULCER

Typical Diet

(Ambulatory No. 2)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit, strained or juice Cereal, refined or strained Milk Cream Sugar Egg Bread, white Butter Beverage No tea, coffee, or cocoa, except as flavoring	Orange juice, strained, 1 cup Rolled oats, strained, 1 sauce dish Milk, ½ cup Cream, 4 tablespoons Sugar, 1 teaspoon Egg, soft cooked, 1 Toast, white, 2 slices Butter, 2 teaspoons Milk, 1 small glass	Orange juice, strained, 1 cup Baby Ralston, strained, 1 sauce dish, cooked in milk Milk, ½ cup Cream, ¼ cup Sugar, 1 teaspoon Egg, poached, 1 Toast, white, 2 slices Butter, 2 teaspoons Milk, warm, flavored with a very small amount of coffee or cocoa, ¾ cup
Mid-morning	Milk and cream Crackers	Milk, ½ cup Cream, 3 tablespoons Cracker, 1	Vanilla junket with cream Milk, ½ cup Vanilla junket powder Cream, 3 tablespoons Cracker, toasted, 1
Noon	Main dish Cereal, refined, or potato Egg, mild cheese, milk, chicken, or fish Vegetables, strained, scalloped, souffle, or in milk soup, or buttered Bread, white Butter Dessert Fruit, strained, pudding, plain cake, or gelatin Milk	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, or cream cheese, 4 tablespoons Milk, ½ cup Flour, 1 tablespoon Butter, 2 teaspoons Tomato juice, ½ cup, scant Bread or toast, white, 2 slices Butter, 2 teaspoons Apple sauce, ½ cup Sugar, 1 teaspoon Milk, 1 small glass	Creamed chicken in macaroni ring Macaroni, ¾ cup Chicken, diced, ½ cup Milk, ½ cup Flour, 1 tablespoon Butter, 1 teaspoon Molded tomato Strained tomato, 6 tablespoons Gelatin, ½ tablespoon Melba toast, 2 slices Butter, 3 teaspoons Apple Snow Apple strained, 2 tablespoons Egg white, ½ Sugar, ½ teaspoon Milk, ½ cup
Mid-afternoon	Milk and cream Crackers	Milk, ½ cup Cream, 3 tablespoons Cracker, 1	Milk shake Milk, ½ cup Cream, 3 tablespoons Sugar, ½ teaspoon Melba toast, ½ slice
Night	Soup Chicken or fish, small serving Potato, baked, boiled, mashed, or creamed Vegetables, strained Bread, white Butter Dessert Custard, cereal, puddings, plain cake, Jello, or strained fruits	Baked haddock Baked potato, 1 large Butter, 2 teaspoons Carrots, strained, buttered Squash, strained, buttered Butter, 3 teaspoons Bread or toast, white, 1 slice Butter, 1 teaspoon Fruit gelatin with cream Banana, ripe, ½ medium Gelatin, ¼ tablespoon Sugar, 1 teaspoon Cream, 3 tablespoons Cake, plain, 1 piece	Carrot soup Carrots, strained, 6 tablespoons Milk, ½ cup Butter, 1 teaspoon Planked halibut with buttered potato balls Halibut, small serving Potato, 1 large Butter, 4 teaspoons String beans with cream String beans, strained, 6 tablespoons Cream, 1 tablespoon Toast points, ½ slice of bread each Butter, 1 teaspoon Molded banana with cream Banana, ripe, ½ medium Gelatin, ¼ tablespoon Sugar, 1 teaspoon Cream, 2 tablespoons Cup cake without frosting, 1
Between night meal and bedtime	Milk and cream Crackers	Milk, ½ cup Cream, 3 tablespoons Crackers, 2	Milk toast Milk, ½ cup Cream, 3 tablespoons Toast, white, ½ slice

UNDERWEIGHT

Typical Diet

(Adult)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	3 c.	720	36	24	28.5	0.849	0.669	1.5	1383	375	1569	0.66	9
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	1 c.	240	12	8	48	0.224	0.192	0.4	2832	80	400		
Butter	15 t.	75			60	0.010	0.010		2025				
Mayonnaise	6 t.	30	1		22	0.004	0.010	0.2	60	8	20		
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Whole wheat	2 sl.	60	30	6	1	0.030	0.090	1.2		192	108	1.24	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers, whole grain	2	20	15	2	2	0.004	0.040	0.4		20			
Crackers, 2″ square	2	8	6	1	1	0.002	0.008	0.2					
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	9 t.	45	45										
Jelly	6 t.	40	30										
Desserts, Cake	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Frosting	2 T.	30	30										
Gelatin	½ T.	7		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			429	113.5	213.5	1.743	2.119	18.2	17,472	2125	3438	19.37	153

Total Calories 4092

UNDERWEIGHT

Typical Diet

(Adult)

Meals for the Day

	Mean Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit Cereal Milk or cream Sugar Egg Bread Butter Jelly Beverage Cream Sugar	Orange, 1 medium Rolled oats, 1 sauce dish Cream, 4 tablespoons Sugar, 2 teaspoons Egg, 1 Bread, 2 slices Butter, 4 teaspoons Jelly, 1 heaping tablespoon Coffee Cream, 2 tablespoons Sugar, 2 teaspoons	Orange juice, 1 orange Shredded wheat, 1 biscuit Strawberries, 1 berries Cream, 4 tablespoons Sugar, 1 teaspoon Egg, soft boiled, 1 Muffins, 2 Butter, 4 teaspoons Marmalade, 1 tablespoon Coffee Cream, 2 tablespoons Sugar, 2 teaspoons
Mid-morning	Milk Crackers	Milk ½ glass Crackers, whole wheat, 1 Butter, 1 teaspoon	Orange junket Milk, ½ cup Orange junket powder Crackers, whole wheat
Noon	Main dish Cereal or potato Cheese, egg, or milk Vegetables, cooked or in salad Bread Butter Dessert, Fruit, pudding, or cake Milk	Macaroni and cheese Macaroni, ¾ cup Cheese, grated, 4 tablespoons Milk, ½ cup Flour, 1 tablespoon Butter, 1 teaspoon Tomato and lettuce salad Tomato, 1 medium Lettuce, 3 leaves Mayonnaise, 2 tablespoons Bread, whole wheat, 2 slices Butter, 3 teaspoons Baked apple with cream Apple, 1 medium Sugar, 2 teaspoons Cream, 4 tablespoons Milk, ½ glass	Creamed chicken and mushrooms in macaroni ring Macaroni, ¾ cup Milk, ½ cup Flour, 1 tablespoon Butter, 1 teaspoon Chicken, diced, ½ cup Stuffed tomato salad Tomato, 1 medium Lettuce, 3 leaves Celery, chopped, 2 tablespoons French dressing, 2 tablespoons Rolls, whole wheat, 2 slices Butter, 3 teaspoons Apple snow with cream Apple, 2 tablespoons Sugar, 2 teaspoons Egg white, ½ Cream, 4 tablespoons Milk, ½ glass
Mid-afternoon	Milk Crackers	Milk, ½ glass Crackers, whole wheat, 1 Butter, 1 teaspoon	Milk shake Cream, 4 tablespoons Milk, ½ cup Sugar, 1 teaspoon Flavoring as desired
Night	Soup Crackers Meat, fish, or poultry Potato or cereal Vegetables, cooked or in salad Bread Butter Dessert Fruit, cake, pudding, pastry, or gelatin dessert Beverage	Bouillon Crackers, 2 Roast beef Baked potato, 1 large Butter, 2 teaspoons String beans, buttered Carrots, buttered, 1 sauce dish Butter, 2 teaspoons Bread, 1 slice Butter, 1 teaspoon Fruit gelatin with cream Banana, ½ medium Gelatin, ¼ tablespoon Sugar, 1 teaspoon Cream, 4 tablespoons Cake with frosting, 1 serving Coffee Cream, 2 tablespoons Sugar, 2 teaspoons	Consomme Crackers, 2 Planked sirloin steak Parsley potato balls Potato, 1 large Butter, 2 teaspoons Parsley, chopped, 1 teaspoon Carrot, buttered, 1 sauce dish Butter, 2 teaspoons Hearts of escarole with Roquefort cheese dressing, 2 tablespoons Roll, 1 Butter, 1 teaspoon Milk fruit sherbet, ½ cup Fruit juice, 4 tablespoons Sugar, 1 teaspoon Milk, ¼ glass Frosted cup cake, 1 Coffee Cream, 2 tablespoons Sugar, 2 teaspoons
Between night meal and bedtime	Milk	Milk, 1 glass	Milk, ¾ glass

OBESITY

Typical Diet

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese	1 T.	15	0.5	3.5	5	0.140	0.105	0.2	225	4	83	0.03	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream													
Butter	3 t.	15			12	0.002	0.002		405				
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 sm.	100	14	0.5	0.5	0.007	0.012	0.4	72	40	30	0.50	6
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—cabbage	⅔ c.	100	5.5	1.5		0.046	0.034	0.4	55	105	100	0.29	70
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 sm.	100	19	2		0.011	0.057	1.3	30	100	40	1.18	10
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	¼ T.	2	1				0.001			6	4	0.02	
Crackers													
Cereals													
Macaroni, cooked	¼ c.	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar													
Jelly													
Desserts													
Gelatin	¾ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			168*	74.5	70*	1.042	1.228*	12	12,109	1374*	2202*	16.02*	207

Total Calories 1600*

* Below the normal.

Typical Diet

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1 medium	Orange juice, 1 orange
	Egg	Egg, soft cooked, 1	Egg, poached, 1
	Bread or cereal	Bread, 1 slice	Muffin, 1 small
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Beverage	Coffee	Coffee
	Milk	Milk, 2 tablespoons	Milk, 2 tablespoons
	No sugar	Milk, 1 small glass	Milk, 1 small glass
Noon	Main dish	Macaroni and cheese, very small serving	Celery soup
	Vegetables	Macaroni, ⅜ cup	Celery, ¼ cup
	Meat, egg, or cheese	Cheese, grated, 2 tablespoons	Milk, ¼ cup
		Milk, ¼ cup	Broth, ½ cup
		Flour, ¼ tablespoon	Creamed chicken and mushrooms in macaroni ring, 1 small serving
		Butter, ½ teaspoon	Macaroni, ⅜ cup
			Chicken, ⅛ cup, diced
			Mushrooms, diced, 1 tablespoon
			Milk, ¼ cup
			Flour, ¼ tablespoon
			Butter, ½ teaspoon
	Vegetables, cooked or in salad	Tomato and lettuce salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 medium
	Mineral oil dressing if desired	Lettuce, 3 leaves	Lettuce, 3 leaves
		Cabbage, steamed or raw	Celery, 2 tablespoons
	Bread	Bread, 1 slice	Roll, 1 small
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Baked apple, 1 small	Apple rings
	Fruit		Apple, 1 small
	Beverage	Milk, 1 small glass	Milk, 1 small glass
	No sugar	Tea or coffee	Tea or coffee
Night	Clear soup	Bouillon	Consomme
	Meat, fish, or poultry, lean	Roast beef	Planked sirloin steak
	Potato or cereal	Baked potato, 1 small	Parsley potato balls
			Potato, 1 small
			Chopped parsley, 1 teaspoon
		Butter, ½ teaspoon	Butter, ½ teaspoon
	Vegetables, cooked or in salad	Carrots, steamed, 1 sauce dish	Carrots, glazed, small serving
		String beans, 1 sauce dish	Carrots
		Butter, ½ teaspoon	Butter, ½ teaspoon
			Hearts of escarole
	Bread	Bread, 1 slice	Roll, 1 small
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Fruit gelatin	Baked banana, ½ small
	Fresh fruit	Banana, sliced, ½ medium	Lemon juice, 1 teaspoon
		Milk, 2 tablespoons	
		Gelatin, ½ tablespoon	
	Beverage	Tea or coffee	Tea or coffee
	No sugar		

DIABETES

Typical Diet

(Normal Fat)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	¼ c.	60	3	2	12	0.056	0.048	0.1	708	20	100		
Butter	3 t.	15			12	0.002	0.002		405				
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	½ m.	75	10.5	0.5	0.5	0.005	0.009	0.3	54	30	23	0.38	5
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vetegables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 sm.	100	19	2		0.011	0.057	1.3	30	100	40	1.18	10
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	¼ T.	2	1				0.001			6	4	0.02	
Crackers													
Cereals													
Macaroni, cooked	⅔ c.	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar													
Jelly													
Desserts													
Gelatin	¼ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			162.5*	78.5	87	1.189	1.344	11.7	12,969	1282*	2277*	15.64*	136

Total Calories 1747*

* Below the normal.

DIABETES

Typical Diet

(Normal Fat)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange juice, 1 orange	Orange juice, 1 orange
	Cereal		
	Milk		
	No sugar		
	Egg	Egg, soft cooked, 1	Egg, dropped, 1, on
	Bread	Toast, 1 slice	Toast, 1 slice
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Beverage	Coffee	Coffee
	No sugar	Cream, 2 tablespoons	Cream, 2 tablespoons
Noon	Main dish	Macaroni and cheese	Creamed chicken and mushrooms in macaroni ring
	Cereal or potato	Macaroni, ⅔ cup	Macaroni, ¾ cup
	Cheese, egg, or milk	Cheese, grated, 4 tablespoons	Chicken, diced, ⅓ cup
		Milk, ½ cup	Mushrooms, diced, 2 tablespoons
		Flour, ¼ tablespoon	Milk, ½ cup
		Butter, ½ teaspoon	Flour, ¼ tablespoon
			Butter, ½ teaspoon
	Vegetables, cooked or in salad	Tomato and lettuce salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 medium
		Lettuce, 3 leaves	Lettuce, 3 leaves
			Celery, 2 tablespoons
		Mineral oil dressing	Mineral oil dressing
	Bread	Bread, 1 slice	Rolls, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Fruit	Baked apple, ½ medium	Raw apple rings
		Milk, ½ cup	Apple, 1 medium
		Milk, 1 glass	Milk, 1½ glasses
Night	Soup, fat free	Bouillon	Consomme
	Crackers		
	Meat, fish, or poultry, lean	Roast beef	Planked sirloin steak
	Potato	Baked potato, 1 small	Parsley potato balls
			Potato, 1 small
			Parsley, chopped, 1 teaspoon
		Butter, ½ teaspoon	Butter, ½ teaspoon
	Vegetables, cooked or in salad	String beans	Carrots steamed
		Carrots, steamed	Hearts of escarole
		Butter for vegetables, ½ teaspoon	Mineral oil dressing
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Fruit gelatin	Fruit gelatin
	Fruit gelatin with saccharine	Banana, ½ medium	Banana, ½ medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
	Beverage	Coffee	Coffee
	No sugar	Cream, 2 tablespoons	Cream, 2 tablespoons

DIABETES

Typical Diet

(High Normal Fat)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz.	120		20	26	0.012	0.200	2.8		180	240	9.44	
Cream, light	½ c.	120	6	4	24	0.112	0.096	0.2	1416	40	200		
Butter	6 t.	30			24	0.004	0.004		810				
Mayonnaise	6 t.	30	1		22	0.004	0.010	0.2	60	8	20		
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	½ m.	75	10.5	0.5	0.5	0.005	0.009	0.3	54	30	23	0.38	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato													
Bread, white, enriched	1 sl.	30	16	2.5	0.5	0.020	0.030	0.3		66	52	0.27	
Flour	¼ T.	2	1				0.001			6	4	0.02	
Crackers													
Cereals													
Macaroni, cooked	¾ c.	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar													
Jelly													
Desserts													
Gelatin	½ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			103.5*	73	132	1.196	1.273*	9.8*	13,937	1053*	2215*	13.61*	121

Total Calories 1894*

* Below the normal.

DIABETES

TYPICAL DIET

(High Normal Fat)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Eggs or bacon	Egg, soft cooked, 1 Butter, 1 teaspoon	Egg, poached, 1
	Bread	Bread or toast, ½ slice	Toast, ½ slice
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Beverage	Coffee	Coffee
	Cream No sugar	Cream, 2 tablespoons	Cream, 2 tablespoons
Noon	Main dish	Macaroni and cheese, very small serving	Creamed chicken and mushrooms in macaroni ring, very small serving
	Egg, meat, or cheese	Cheese, grated, 2 tablespoons	Chicken, diced, ⅓ cup
	Cereal or potato	Macaroni, ⅜ cup Milk, ½ cup Flour, ¼ tablespoon Butter, 1 teaspoon	Macaroni, ⅜ cup Milk, ½ cup Flour, ¼ tablespoon Butter, 1 teaspoon Mushrooms, diced, 1 tablespoon
	Vegetables, cooked or in salad	Tomato and lettuce salad Tomato, 1 Lettuce, 3 leaves Mayonnaise, 2 tablespoons	Stuffed tomato salad Tomato, 1 Lettuce, 3 leaves Celery, chopped, 2 tablespoons French dressing, 2 tablespoons
	Bread	Bread, ½ slice, ¼″ thick	Roll, whole grain, ½ roll
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Baked apple with cream	Apple whip
	Fruit	Apple, ½ medium	Apple, ½ medium, strained
	No sugar	Cream, 4 tablespoons	Cream, whipped, 4 tablespoons Saccharine, to taste
	Beverage	Milk, 1½ glasses	Milk, 1½ glasses
Night	Soup	Bouillon	Consomme
	Meat, fish, or poultry	Roast beef	Planked sirloin steak
	Vegetables	String beans, buttered Carrots, buttered Butter for vegetables, 2 teaspoons	String beans, buttered Butter, 2 teaspoons Hearts of escarole, with Roquefort cheese
	Dessert	Gelatin with cream	Gelatin with cream
	Fruit; or combinations of fruit and cream; gelatin, sweetened with saccharine	Gelatin, ¼ tablespoon Saccharine Cream, 2 tablespoons	Gelatin, ¼ tablespoon Saccharine Cream, 2 tablespoons
	Beverage No sugar	Coffee	Coffee

DIABETES

Typical Diet

(Child)

Male. Age 9 Years. Average Body Weight, 30 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese	1 T.	15	0.5	3.5	5	0.140	0.105	0.2	225	4	83	0.03	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	2 oz.	60		10	13	0.006	0.100	1.4		90	120	4.72	
Cream													
Butter	3 t.	15			12	0.002	0.002		405				
Mayonnaise	1 t.	5			4	0.001	0.002		10	1	3		
Fruit													
10 per cent—orange	2 m.	200	22	2		0.048	0.036	0.8	450	220	100	0.44	108
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	1 L.	150	36	1.5		0.012	0.042	0.9	525	75	114	0.93	15
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 sm.	100	19	2		0.011	0.057	1.3	30	100	40	1.18	10
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	½ T.	4	2.5			0.001	0.004	0.1		13	9	0.05	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	⅔ c.	75	11	2		0.003	0.022	0.2		8		0.06	
Sugar													
Jelly													
Dessert													
Gelatin	½ T.	3		2									
Beverages													
Totals of the Food Constituents			248	80.5	82.5	1.610	1.723	14	13,597	1836	3242	12.97	210

Total Calories 2057

DIABETES

Typical Diet

(Child)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Oranges, 2	Orange juice, 2 oranges
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Milk, ½ cup
			Strawberries, 10 berries
	Egg	Egg, soft cooked, 1	Bacon, 2 strips
	Bread	Toast, 1 slice	Toast, 1 slice
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Milk	Milk, 1 glass	Milk, 1 glass
Noon	Meat, fish, or poultry, small serving	Roast beef	Planked sirloin steak
	Potato or cereal	Baked potato, 1 small	Parsley potato balls
			Potato, 1 small
			Parsley, 1 teaspoon, chopped
		Butter, ½ teaspoon	Butter, ½ teaspoon
	Vegetables	String beans	String beans
		Carrots, buttered	Carrots, buttered
		Butter, ½ teaspoon	Butter, ½ teaspoon
	Bread	Bread, 1 slice	Bread, 1 slice
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Fruit gelatin	Baked banana, with lemon juice
	Fruit or gelatin dessert without sugar	Banana, 1 large	
		Gelatin, ¼ tablespoon	
		Milk, 1 glass	Milk, 1 glass
Night	Main dish	Macaroni and cheese	Creamed chicken and mushrooms in macaroni ring
	Cereal or potato	Macaroni, ⅜ cup	Macaroni, ⅜ cup
	Cheese, egg, or meat	Cheese, grated, 2 tablespoons	Chicken, diced, ½ cup
			Mushrooms, diced, 2 tablespoons
		Milk, ½ cup	Milk, ½ cup
		Flour, ½ tablespoon	Flour, ½ tablespoon
		Butter, ½ teaspoon	Butter, ½ teaspoon
	Vegetables, cooked or in salad	Tomato and lettuce salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 small
		Lettuce, 3 leaves	Lettuce, 3 leaves
	Salad dressing	Salad dressing, 1 teaspoon	Celery, 2 tablespoons
			Salad dressing, 1 teaspoon
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Fruit	Baked apple	Baked apple
	No sugar	Apple, 1 medium	Apple, 1 medium
	Milk	Milk, 1 glass	Milk, 1 glass

LIVER DISORDER

Typical Diet

(Chronic)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese, cottage	2 T.	30	1	6		0.025	0.079	0.3	53		84		
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	8 oz. lean	240		52	20	0.032	0.488	7.2		384	552	17.84	
Cream													
Butter	2 t.	10			6								
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	1 m.	100	24	1		0.008	0.028	0.6	350	50	76	0.62	10
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
whole wheat	2 sl.	60	30	6	1	0.030	0.090	1.2		192	108	1.24	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers	2	8	6	1	1	0.002	0.008	0.2					
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	4 T.	60	60										
Jelly	8 T.	160	120										
Desserts													
Cake, plain	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Gelatin	½ T.	3		2									
Bouillon	1 c.	240		6									
Totals of the Food Constituents			476	127	62*	0.988	1.815	21.4	11,872	2114	2764	27.80	155

Total Calories 2970

* Below the normal.

LIVER DISORDER*

TYPICAL DIET

(CHRONIC)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1 medium	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Strawberries, 10
	Sugar	Sugar, 3 teaspoons	Milk, ½ cup
	Egg	Egg, soft cooked, 1	Egg, poached, 1
	Bread or toast	Toast, 2 slices	Muffins, 2 small
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Jelly	Jelly, 2 heaping tablespoons	Marmalade, 1 tablespoon
	Milk	Milk, whole, ½ glass	Milk, whole, 1 glass
Noon	Meat, fish, or poultry	Cold meat	Cold sliced chicken
	Cereal or potato	Macaroni, boiled	Baked macaroni
		Macaroni, ¾ cup	Macaroni, ¾ cup
		Tomato sauce, ½ cup	Tomato sauce, ½ cup
		Flour, 1 tablespoon	Bread crumbs, 3 tablespoons
	Vegetables, cooked or in salad	Cottage cheese salad	Cottage cheese salad
		Lettuce, 3 leaves	Lettuce, 3 leaves
		Cottage cheese, 2 tablespoons	Cottage cheese, 2 tablespoons
	Bread	Bread, 2 slices	Rolls, 2
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Jelly or jam	Jelly, 2 heaping tablespoons	Marmalade, 2 heaping tablespoons
	Dessert	Baked apple	Stuffed baked apple
	Fruit	Apple, 1 medium	Apple, 1 medium
		Sugar, 1 tablespoon	Sugar, 2 teaspoons
			Raisins, 2 teaspoons
	Milk	Milk, whole, 1 glass	Milk, whole, 1 glass
Night	Soup	Bouillon	Consomme
	Crackers	Crackers, 2	Crackers, 2
	Meat, fish, or poultry	Roast beef, lean	Planked sirloin steak, lean
	Potato or cereal	Baked potato, 1 large	Parsley potato balls
			Potato, 1 large
			Parsley, chopped, 1 teaspoon
	Vegetables, cooked or in salad	String beans, buttered, 1 sauce dish	Carrots, glazed
		Carrots buttered, 1 sauce dish	Carrots, 1 sauce dish
			Sugar, 1 teaspoon
		Butter for vegetables, ½ teaspoon	Butter, ½ teaspoon
			Hearts of escarole
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Jelly	Jelly, 1 heaping tablespoon	Jelly, 1 heaping tablespoon
	Dessert	Fruit gelatin	Jellied fruit cup
	Fruit, cake, pudding, pastry, or gelatin	Banana, 1 medium	Banana, 1 medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
		Sugar, 3 teaspoons	Sugar, 2 teaspoons
		Cake, plain, 1 piece	Frosted cup cake, 1

* Some of the carbohydrate foods may be used in intermediate feedings instead of at meal time.

LIVER DISORDER

Typical Diet

(Acute)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese													
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	4 oz. lean	120		26	10	0.016	0.244	3.6		192	276	8.92	
Cream													
Butter	3 t.	15			12	0.002	0.002	0.1	405				
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	1 m.	100	24	1		0.008	0.028	0.6	350	50	76	0.62	10
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
whole wheat	2 sl.	60	30	6	1	0.030	0.090	1.2		192	108	1.24	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers	2	8	6	1	1	0.002	0.008	0.2					
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	½ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	4 T.	60	60										
Jelly	8 T.	160	120										
Desserts													
Cake, plain	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Gelatin	½ T.	3		2									
Bouillon	1 c.	240		6									
Totals of the Food Constituents			475	95	58*	0.949	1.494	17.5	12,224	1922	2404*	18.88	155

Total Calories 2822

* Below the normal.

LIVER DISORDER*

Typical Diet

(Acute)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1 medium	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Sugar	Milk, ½ cup	Strawberries, 10
	Milk	Sugar, 3 teaspoons	Milk, ½ cup
	Bread	Bread, or toast, 2 slices	Muffin, 2 medium
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Jelly	Jelly, 2 heaping tablespoons	Jelly, 1 heaping tablespoon
	Milk	Milk, whole, ½ glass	
Noon	Main dish	Macaroni, boiled	Creamed chicken and mushrooms in macaroni ring
	Cereal	Macaroni, ¾ cup	Macaroni, ¾ cup
	Vegetables	Tomato sauce, ½ cup	Chicken, diced, ½ cup
		Flour, 1 tablespoon	Mushrooms, diced, 2 tablespoons
			Milk, ½ cup
			Flour, 1 tablespoon
			Butter, ½ teaspoon
	Vegetables, cooked or in salad	Lettuce salad with egg	Tomato and lettuce salad
		Lettuce, 3 leaves	Tomato, 1
		Egg, hard cooked, 1	Lettuce, 3 leaves
	Bread	Bread, 2 slices	Rolls, 2
	Butter	Butter, 1 teaspoon	Butter, ½ teaspoon
	Jelly	Jelly, 2 heaping tablespoons	Marmalade, 2 heaping tablespoons
	Dessert	Baked apple	Stuffed baked apple
	Fruit	Apple, 1 medium	Apple, 1 medium
		Sugar, 2 tablespoons	Sugar, 3 teaspoons
			Raisins, 2 teaspoons
	Milk	Milk, whole, 1 glass	Milk, whole, 1 glass
Night	Soup	Bouillon	Consomme
	Crackers	Crackers, 2	Crackers, 2
	Meat, fish, or poultry	Roast beef, lean	Planked sirloin steak, lean
	Potato or cereal	Baked potato, 1 large	Parsley potato balls
			Potato, 1 large
			Parsley, chopped, 1 teaspoon
			Butter, ½ teaspoon
	Vegetables, cooked or in salad	String beans, buttered, 1 sauce dish	Carrots, glazed
		Carrots buttered, 1 sauce dish	Carrots, 1 sauce dish
			Sugar, 1 teaspoon
		Butter for vegetables, 1 teaspoon	Butter, ½ teaspoon
			Hearts of escarole
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, ½ teaspoon
	Jelly	Jelly, 1 heaping tablespoon	Marmalade, 1 heaping tablespoon
	Dessert	Fruit gelatin	Jellied fruit cup
	Fruit, cake	Banana, 1 medium	Banana, 1 medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
		Sugar, 3 teaspoons	Sugar, 3 teaspoons
		Cake, plain, 1 piece	Cup cake, 1

* Some of the carbohydrate foods may be used in intermediate feedings instead of at meal time.

KETOGENIC DIET**

Typical Diet

(Child)

Ratio 3:1 (Protein—2 Grams per Kilogram). Male. 6 Years. Average Weight, 18 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk													
Cheese	1 oz.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, medium fat	1 oz.	30		5	6.5	0.003	0.050	0.7		45	60	2.36	
Cream, heavy	1 c.	240	8	8	92	0.192	0.152	0.4	5404	72	336		
Butter	12 t.	60			48	0.008	0.008		1620				
Oil	4 t.	20			20								
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
Vegetables													
5 per cent—tomato, fresh	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—cabbage	1 s. d.	100	5.5	1.5		0.046	0.034	0.4	55	105	100	0.29	70
5 per cent—lettuce	½ head	100	3	1		0.017	0.040	0.5	100	75	45	0.50	15
Potato													
Bread													
Flour													
Crackers													
Cereals													
Oats, rolled, cooked													
Macaroni, cooked													
Sugar													
Jelly													
Desserts													
Cake													
Gelatin													
Beverages													
Totals of the Food Constituents			40*	34*	182	0.668*	0.689*	6.2*	10,354	639*	1036*	4.68*	186

Total Calories 1934*

* Below the normal.

** Used in certain types of epilepsy.

KETOGENIC DIET
(CHILD)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Egg	Egg, soft cooked, 1	Scrambled egg Egg, 1 Cream, heavy, 1 tablespoon
	Butter	Butter, 1 tablespoon	Butter, 1 tablespoon
	Cream, heavy	Cream, heavy, 4 tablespoons	Cream, heavy, 3 tablespoons
Noon	Meat, fish, or poultry	Roast beef, very small serving	Chicken salad Chicken, diced, 1 ounce Lettuce, ¼ head, chopped Oil, 2 teaspoons
	Vegetables, cooked or in salad	String beans, buttered	String beans, buttered
	Butter	Butter, 2 tablespoons	Butter, 1 tablespoon
		Lettuce, ¼ head with French dressing	
	Oil	Oil, 2 teaspoons	
	Cream, heavy	Cream, heavy, ½ cup	Mousse Cream, heavy, ½ cup Vanilla Saccharine
Night	Cheese	Cheese, 1 ounce	Cabbage au Gratin
	Vegetables, cooked or in salad	Cabbage, buttered, 1 sauce dish	Cabbage, 1 sauce dish
		Butter, 1 tablespoon	Cream, 1 tablespoon Butter, 2 tablespoons Cheese, grated, 4 tablespoons
	Oil	Tomato with French dressing	Tomato salad with French dressing
		Tomato, 1	Tomato, 1 medium
		Oil, 2 teaspoons	Oil, 2 teaspoons
	Cream, heavy	Cream, heavy, 4 tablespoons	Ivory cream Heavy cream, 3 tablespoons Saccharine Agar Vanilla

Note: The addition of fish liver and other oils to the diet increases the fat intake.

NEPHRITIS

Typical Diet

(Low Protein)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	½ c.	120	6	4	5	0.141	0.111	0.3	231	63	262	0.11	1
Cheese													
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	2 oz.	60		10	13	0.006	0.100	1.4		90	120	4.72	
Cream, heavy	1 c.	240	8	8	92	0.192	0.152	0.4	5404	72	336		
Butter	6 t.	30			24	0.004	0.004		810				
Mayonnaise	3 t.	15	0.5		11	0.002	0.005	0.1	30	4	10		
Other fats													
Fruit													
10 per cent—orange	2 m.	200	22	2		0.048	0.036	0.8	450	220	100	0.44	108
15 per cent—apple	1 L.	200	28	1	1	0.014	0.024	0.8	144	80	60	1	12
20 per cent—banana	1 m.	100	23	1		0.008	0.028	0.6	350	50	75	0.61	10
Dried prunes	3 m.	30	21.5	0.5		0.018	0.024	0.9	420	60	105		
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	9 t.	45	45										
Jelly	9 t.	45	45										
Desserts													
Beverages													
Totals of the Food Constituents			352	59.5*	156	0.705*	1.092*	14.9	17,899	1645*	1802*	13.37*	207

Total Calories 3050

* Below the normal.

NEPHRITIS
Typical Diet
(Low Protein)
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange juice, 2 oranges	Orange juice, 2 oranges
		Prunes, 3 medium	Apricots, cooked, 6 halves
		Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Cream, heavy	Cream, heavy, 6 tablespoons	Cream, heavy, 6 tablespoons
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
	Bread	Bread, 1 slice	Muffin, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Jelly	Jelly, 2 heaping tablespoons	Jelly, 1 heaping tablespoon
	Beverage	Coffee	Coffee
	Cream	Cream, heavy, 2 tablespoons	Cream, heavy, 2 tablespoons
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
Noon	Cereal or potato	Creamed macaroni	Egg in fluffy potato nest
	Cheese, egg, or meat if none is used in evening meal	Macaroni, ¾ cup	Egg yolk, 1
		Milk, ½ cup	Egg white, beaten, 1
		Flour, 1 tablespoon	Potato, 1 large (combined with egg white)
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Vegetables, cooked or in salad	Tomato, egg and lettuce salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 medium
		Lettuce, 3 leaves	Lettuce, 3 leaves
		Egg, hard cooked, 1	Celery, chopped, 2 tablespoons
		Mayonnaise, 1 tablespoon	Mayonnaise, 2 teaspoons
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Fruit	Baked apple with cream	Apple porcupine with whipped cream
		Apple, 1 large	Apple, 1 large
		Sugar, 3 teaspoons	Sugar, 3 teaspoons
			Jelly or marmalade, 1 tablespoon
			Nuts, 4 halves, almonds
		Cream, 4 tablespoons	Cream, 4 tablespoons
Night	Meat, fish, or poultry 1 very small serving, if not used at noon	Roast beef	Creamed chicken and mushrooms in macaroni ring
			Macaroni, ¾ cup
			Milk, ½ cup
	Potato or cereal	Baked potato, 1 large	Flour, 1 tablespoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
			Chicken, diced, ⅓ cup, scant
			Mushrooms, diced, 2 tablespoons
	Vegetables, cooked or in salad	String beans, buttered, 1 sauce dish	Carrots, 1 sauce dish
		Carrots, 1 sauce dish	Butter, 1 teaspoon
		Butter, 1 teaspoon	Hearts of escarole
			French dressing, 1 teaspoon
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Fruit	Banana and cream	Banana and cream
		Banana, 1 medium	Banana, 1 medium
		Cream, heavy, 4 tablespoons	Cream, heavy, 4 tablespoons
		Sugar, 1 teaspoon	Sugar, 1 teaspoon

NEPHRITIS

Typical Diet

(Nephrotic Type)

Average Body Weight, 70 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	2 c.	480	24	16	19	0.566	0.446	1	922	250	1046	0.44	6
Cheese, cottage	2 oz.	60	2	12		0.050	0.158	0.6	106		168		
Egg	1	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry, lean	8 oz.	240		52	20	0.032	0.488	7.2		384	552	17.84	
Cream													
Butter	2 t.	10			8	0.002	0.002		270				
Mayonnaise													
Fruit													
10 per cent—orange	2 m.	200	22	2		0.048	0.036	0.8	450	220	100	0.44	108
15 per cent—apple	1 L.	200	28	1	1	0.014	0.024	0.8	144	80	60	1	12
20 per cent—banana	1 m.	100	23	1		0.008	0.028	0.6	350	50	75	0.61	10
Dried prunes	3 m.	30	21.5	0.5		0.018	0.024	0.9	420	60	105		
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	½ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	9 t.	45	45										
Jelly	9 t.	60	45										
Desserts													
Cake, angel	3½″ arc		48	5		0.007	0.020	0.2		52	114	0.21	
Gelatin	¼ T.	3		2									
Beverages													
Totals of the Food Constituents			411.5	124.5	58*	1.017	1.834	21.7	12,722	2102	2954	27.03	212

Total Calories 2666

* Below the normal.

NEPHRITIS

Typical Diet

(Nephrotic Type)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
		Prunes, 3 medium	Apricots, cooked, 6 halves
		Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Milk, ½ cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
	Eggs	Egg, 1 soft boiled	Egg, 1 poached
	Bread	Toast, 1 slice	Muffin, 1
	Butter	Butter, 1 teaspoon	Butter, ½ teaspoon
	Beverage	Coffee	Coffee
	Milk	Milk, 2 tablespoons	Milk, 2 tablespoons
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
Noon	Meat, fish, or poultry	Cold meat	Cold sliced chicken
	Cereal or potato	Macaroni and tomatoes	Macaroni in tomato sauce
	Vegetables, cooked or in salad	Macaroni, ¾ cup	Macaroni, ¾ cup
		Tomato, ½ cup	Tomato, ½ cup
		Flour, 1 tablespoon	Flour, 1 tablespoon
		Cottage cheese salad	Cottage cheese salad
		Cottage cheese, 4 tablespoons	Cottage cheese, 4 tablespoons
		Jelly, 1 tablespoon	Jelly, 1 tablespoon
		Lettuce, 3 leaves	Lettuce, 3 leaves
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Fruit	Baked apple	Apple surprise
		Apple, 1 large	Apple, 1 large
		Sugar, 3 teaspoons	Sugar, 3 teaspoons
		Jelly, 1 heaping tablespoon	Marmalade, 1 tablespoon
		Milk, 1 glass	Milk, 1 glass
Night	Meat, fish, or poultry	Roast beef	Planked sirloin steak
	Potato or cereal	Baked potato, 1 large	Parsley potato balls
			Potato, 1 large
			Butter, ½ teaspoon
			Parsley, chopped, 1 teaspoon
	Vegetables, cooked or in salad	String beans	Hearts of escarole
		Carrots, steamed or raw	Carrots, steamed or raw
	Bread	Bread, 1 slice	Roll, whole grain, 1
	Butter	Butter, ½ teaspoon	Butter, ½ teaspoon
	Dessert	Fruit gelatin	Fruit gelatin
	Fruit gelatin or cake without fat	Orange juice, 1 orange	Orange juice, 1 orange
		Banana, 1 medium	Banana, 1 medium
		Sugar, 2 teaspoons	Sugar, 2 teaspoons
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
		Cake, angel, 1 piece	Cake, angel, 1 piece
		Milk, 1 small glass	Milk, 1 small glass

PREGNANCY

Typical Diet

Average Body Weight, 60 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk	4 c.	960	48	32	38	1.132	0.892	2	1844	500	2092	0.88	12
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	3 oz.	90		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream													
Butter	6 t.	30			24	0.004	0.004		810				
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 m.	150	21	1	1	0.011	0.018	0.6	108	60	45	0.75	9
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato	1 L.	200	38	4		0.022	0.114	2.6	60	200	80	2.36	20
Bread, white, enriched	2 sl.	60	32	5	1	0.040	0.060	0.6		132	104	0.54	
whole wheat	2 sl.	60	30	6	1	0.030	0.090	1.2		192	108	1.24	
Flour	1 T.	7	5	0.5		0.001	0.007	0.1		26	18	0.09	
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Macaroni, cooked	¾ c.	150	22	4	0.5	0.006	0.044	0.4		15		0.11	
Sugar	6 t.	30	30										
Jelly													
Desserts													
Cake	2″ cu.		26	2	4	0.018	0.032	0.3	154	62	69	0.20	
Gelatin	½ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			316	103	107	1.763	2.006	16.5	13,826	2031	3429	16.96*	156

Total Calories 2639

* Below the normal.

PREGNANCY
TYPICAL DIET
Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk	Milk, ½ cup	Milk, 1 cup
	Sugar	Sugar, 2 teaspoons	Sugar, 2 teaspoons
	Egg	Egg, soft cooked, 1	Egg, 1 poached, on
	Bread	Toast, 2 slices	Toast, 2 slices
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Beverage	Coffee	Coffee
	Milk	Milk, ½ cup	Milk, ½ cup
	Sugar	Sugar, 1 teaspoon	Sugar, 1 teaspoon
Noon	Main dish	Macaroni and cheese	Creamed chicken and mushrooms in macaroni ring
	Cereal or potato	Macaroni, ¾ cup	Macaroni, ¾ cup
	Cheese, egg, or milk	Cheese, grated, 4 tablespoons	Chicken, diced, ⅓ cup
			Mushrooms, diced, 2 tablespoons
		Milk, ½ cup	Milk, ½ cup
		Flour, 1 tablespoon	Flour, 1 tablespoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Vegetables, cooked or in salad	Tomato salad	Stuffed tomato salad
		Tomato, 1 medium	Tomato, 1 medium
		Lettuce, 3 leaves	Lettuce, 3 leaves
			Celery, 2 tablespoons
	Mineral oil dressing		
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Baked apple, 1 medium	Apple snow
	Fruit, pudding, or cake	Sugar, 1 teaspoon	Apple, 2 tablespoons
		Milk, ½ cup	Egg white, ½
			Sugar, 1 teaspoon
	Milk, 1 glass	Milk, 1 glass	Milk, 1 glass
Night	Soup	Bouillon	Consomme
	Crackers		
	Meat, fish, and poultry, lean	Roast beef	Planked sirloin steak
	Potato or cereal	Baked potato, 1 large	Parsley potato balls
			Potato, 1 large
			Parsley, chopped, 1 teaspoon
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Vegetables, cooked or in salad	String beans, buttered	Carrots, buttered
		Carrots, buttered	Butter, 1 teaspoon
		Butter for vegetables, 1 teaspoon	Hearts of escarole
			Roquefort cheese dressing, 1 tablespoon
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Dessert	Fruit gelatin	Orange ice, 2 heaping tablespoons
	Fruit, cake, pudding, pastry, or gelatin	Banana, ½ medium	Fruit juice, 2 tablespoons
		Gelatin, ¼ tablespoon	Sugar, 2 teaspoons
		Sugar, 2 teaspoons	Cup cake, 1, plain
		Cake, 1 piece, plain	
Between night meal and bedtime	Milk, 1 glass	Milk, 1 glass	Milk, 1 glass

PREGNANCY

Typical Diet

(Low Caloric)

Average Body Weight, 60 Kgm.

Food	Household Measure	Grams	Grams					Milligrams	I.U.	Micrograms		Milligrams	
			Carbohydrate	Protein	Fat	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Milk, skim	4 c.	960	48	32	4	1.172	0.920	2.8	96	432	1920	0.88	12
Cheese	2 T.	30	1	7	10	0.279	0.210	0.3	450	7	165	0.06	
Egg	One	50		7	5	0.027	0.112	1.5	500	75	125	0.03	
Meat, fish, or poultry	3 oz.	90		15	19.5	0.009	0.150	2.1		135	180	7.08	
Cream													
Butter	6 t.	30			24	0.004	0.004		810				
Mayonnaise													
Fruit													
10 per cent—orange	1 m.	100	11	1		0.024	0.018	0.4	225	110	50	0.22	54
15 per cent—apple	1 sm.	100	14	0.5	0.5	0.007	0.012	0.4	72	40	30	0.50	6
20 per cent—banana	½ m.	50	12	0.5		0.004	0.014	0.3	175	25	38	0.31	5
Vegetables													
5 per cent—tomato	1 m.	100	4	1	0.5	0.007	0.021	0.6	1000	75	45	0.58	22
5 per cent—string beans	1 s. d.	100	7.5	2.5		0.065	0.044	1.4	1000	75	110	0.64	25
5 per cent—lettuce	3 lvs.	30	1	0.5		0.023	0.009		1500	23	45		5
5 per cent—cabbage	5 r. T.	100	5.5	1.5		0.046	0.034	0.4	55	105	100	0.29	70
10 per cent—carrots	1 s. d.	100	9.5	1	0.5	0.045	0.041	0.6	6000	100	90	1.47	4
Potato													
Bread, white, enriched	3 sl.	90	48	7.5	1.5	0.060	0.090	0.9		198	156	0.81	
Flour													
Crackers													
Cereals													
Oats, rolled, cooked	1 s. d.	180	18	5	2	0.016	0.126	1.5		219	65	0.40	
Sugar													
Jelly													
Desserts													
Gelatin	½ T.	3		2									
Beverages													
Bouillon	1 c.	240		6									
Totals of the Food Constituents			179.5*	90	67.5*	1.788	1.805*	13.2*	11,883	1619*	3119	13.27*	203

Total Calories 1686*

* Below the normal.

PREGNANCY

TYPICAL DIET

(LOW CALORIC)

Meals for the Day

	Meal Plan	Moderate Cost Menu	Liberal Cost Menu
Morning	Fruit	Orange, 1	Orange juice, 1 orange
	Cereal	Rolled oats, 1 sauce dish	Shredded wheat, 1 biscuit
	Milk, skim	Milk, skim, ½ cup	Milk, skim, ½ cup
	No sugar		
	Egg	Egg, soft cooked, 1	Egg, poached, 1, on
	Bread	Bread, 1 slice	Toast, 1 slice
	Butter	Butter, 2 teaspoons	Butter, 2 teaspoons
	Beverage	Coffee	Coffee
	Milk	Milk, skim, 4 tablespoons	Milk, skim, 4 tablespoons
	No sugar		
Noon	Cheese, egg, or milk	Cheese, American, 1 serving	Steamed cabbage with cheese
			Cabbage, 5 rounded tablespoons
			Cheese, grated, 4 tablespoons
			Butter, 1 teaspoon
	Vegetables, cooked or in salad	Cabbage, buttered	Stuffed tomato salad
		Butter, 1 teaspoon	Tomato, 1 medium
	Mineral oil dressing	Tomato and lettuce salad	Lettuce, 3 leaves
		Tomato, 1 medium	Celery, chopped, 2 tablespoons
		Lettuce, 3 leaves	Mineral oil dressing
		Mineral oil dressing	
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Fruit	Baked apple	Apple rings
		Apple, 1 small	Apple, 1 small
	No sugar	No sugar	No sugar
	Milk, skim	Milk, skim, 1½ glasses	Milk, skim, 1½ glasses
Night	Soup	Bouillon	Consomme
	Crackers		
	Meat, fish, or poultry, lean	Roast beef	Planked sirloin steak
	Vegetables, cooked or in salad	String beans, buttered	Hearts of escarole
			Salad dressing
	Mineral oil dressing	Carrots, buttered	Carrots, buttered
		Butter, 1 teaspoon	Butter, 1 teaspoon
	Bread	Bread, 1 slice	Roll, 1
	Butter	Butter, 1 teaspoon	Butter, 1 teaspoon
	Fruit or gelatin desserts	Fruit gelatin	Molded fruit gelatin
		Banana, ½ medium	Banana, ½ medium
		Gelatin, ¼ tablespoon	Gelatin, ¼ tablespoon
	No sugar	Saccharine	Scacharine
	Milk, skim	Milk, skim, 1 glass	Milk, skim, 1 glass
Between night meal and bedtime	Milk, skim	Milk, skim, 1 glass	Milk, skim, 1 glass

SUMMARY IN TERMS OF THE KIND AND A
NORMAL DIET AND THE VARIA

A tabulation in which the foods of the nor
down the page. Across the page is record
foods for each disease reviewed in the diet

Sum

Foods	Normal, Adult	Constipation, Spastic	Colitis	Ulcer, Ambulatory No. 1	Ulcer, Ambulatory No. 2	Underweight	Obesity	Diabetes, Normal Fat	Diabe Hig Norm Fa
	grams								
Milk	480	N	+480	+480	+480	+240	N	N	N
Cheese	30	N	N	N	N	N	−15	N	N
Egg	50	N	+50	+100	N	N	N	N	N
Meat, fish, or poultry	120	Fish or poultry	⊖	⊖	Fish or poultry	N	Lean	N	N
Cream, light	120	N	N	+120	+120	+120	⊖	−60	N
Butter	30	+30	+30	+30	+30	+45	−15	−15	N
Mayonnaise	15	⊖	⊖	⊖	⊖	+15	⊖	⊖	+15
Fruit 10%	100	Str. +100	⊖	Str. +100	Str. +100	N	N	N	N
15%	150	⊖	⊖	⊖	Str. −50	N	−50	−75	−75
20%	50	Str. +150	⊖	⊖	N	N	N	N	⊖
Vegetables 5%	230	Str. −30	⊖	⊖	Str. −130	N	+100	N	N
10%	100	Str.	⊖	⊖	Str. +100	N	N	N	N
Potato	200	N	N	⊖	N	N	−100	−100	⊖
Bread	150	White	White +30	White +30	White	N	−60	−60	−120
Flour	7	N	N	N	N	N	−5	−5	−5
Crackers	8	⊖	+28	+16	+16	+20 wh. grain	⊖	⊖	⊖
Cereal Oats, rolled, ck.	180	Str.	⊖	⊖	Str.	N	⊖	⊖	⊖
Macaroni, ck.	150	N	N	N	N	N	−75	−75	−75
			Cr. of Wheat 175	Cr. of Wheat 175					
Sugar	45	−15	−20	−30	−30	N	⊖	⊖	⊖
Jelly	40	−20	⊖	⊖	⊖	N	⊖	⊖	⊖
Desserts Cake	1 s.	N	N	1 sm. s.	1 sm. s	Frosted	⊖	⊖	⊖
Gelatin	3	N	⊖	⊖	N	N	N	N	N
Beverages Bouillon	240	⊖	⊖	⊖	⊖	N	N	N	N

Key: N = same as normal diet. ⊖ = eliminaton. + = increase. − = decrease.

NTS IN GRAMS OF FOOD IN THE TYPICAL
S FOR ABNORMAL CONDITIONS

iet, stated in kinds and amounts, are listed
increase or decrease or the elimination of
ttlines. The variations stand forth clearly.

No. 1

Liver Disorder Chronic	**Liver Disorder** Acute	**Nephritis** Acute	**Nephrosis**	**Pregnancy** Normal	**Pregnancy** Low Caloric	**Normal,** Child	**Diabetes** Child	**Ketogenic Diet,** Child	Foods
N	N	−360	N	+480	Skim +480	+480	+480	⊖	Milk
Cottage	⊖	⊖	Cottage +30	N	N	−15	−15	N	Cheese
N	N	N	N	N	N	N	N	N	Egg
an +120	Lean	−60	Lean +120	−30	−30	−60	−60	−90	Meat, fish, or poultry
⊖	⊖	Heavy +120	⊖	⊖	⊖	⊖	⊖	Heavy +120	Cream, light
−20	−15	−15	−20	N	N	−15	−15	+30	Butter
⊖	⊖	N	⊖	⊖	⊖	−10	−10	⊖	Mayonnaise
								oil +20	
N	N	+100	+100	N	N	N	+100	N	Fruit 10%
N	N	+50	+50	N	−50	N	N	⊖	15%
+50	+50	+50	+50	N	N	N	+100	⊖	20%
		Prunes 30	Prunes 30						
N	N	N	N	N	+100	N	N	+170	Vegetable 5%
N	N	N	N	N	N	N	N	⊖	10%
N	N	N	N	N	⊖	−100	−100	⊖	Potato
N	N	−60	−60	−30	−60	−60	−60	⊖	Bread
N	N	N	N	N	⊖	N	−3	⊖	Flour
N	N	⊖	⊖	⊖	⊖	⊖	⊖	⊖	Crackers
N	N	N	N	N	N	N	N	⊖	Cereal Oats, rolled, ck.
N	N	N	N	N	⊖	−75	−75	⊖	Macaroni, ck.
+15	+15	N	N	−15	⊖	−20	⊖	⊖	Sugar
+120	+120	+5	+20	⊖	⊖	−20	⊖	⊖	Jelly
N	N	⊖	Angel, 1 sl.	N	⊖	1 sm. s.	⊖	⊖	Desserts Cake
N	N	⊖	N	N	N	N	N	⊖	Gelatin
N	N	⊖	⊖	N	N	⊖	⊖	⊖	Beverages Bouillon

A SUMMARY OF THE AMOUNTS OF THE FOOD CONSTITUENTS IN THE TYPICAL NORMAL AND THERAPEUTIC DIETS

This summary lists the amounts of the food constituents and calories in each diet, for adult and child. The conditions where modifications from the normal occur can be readily seen.

Summary No. 2

Diets	Grams			Calories	Grams		Milligrams	I.U.	Micrograms	Micrograms	Milligrams	Milligrams
	Carbohydrate	Protein	Fat		Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Niacin	Ascorbic Acid
Adult												
Normal	365.5	99.5	131	3,039	1.336	1.749	17	14,350	1,936	2,705	19.15	150
Allergy	285	86	146	2,798	0.455*	1.343	22.5	14,483	1,847	1,428*	22.39	181
Constipation, spastic	361.5	91	142	3,088	1.345	1.724	16.5	13,994	1,951	2,718	18.22	199
Colitis	305.5	89	141	2,847	1.901	1.999	23.3	6,544	1,546*	3,186	5.38*	32*
Ulcer												
Ambulatory No. 1	321	99.5	168	3,194	2.082	2.235	25.5	8,872	1,866	3,594	5.80*	140
Ambulatory No. 2	363.5	111	186.5	3,577	1.973	2.252	16.6	18,119	2,174	3,881	17.64	178
Underweight	429	113.5	213.5	4,092	1.743	2.119	18.2	17,472	2,125	3,438	19.37	153
Obesity	168*	74.5	70*	1,600*	1.042	1.228*	12	12,109	1,374*	2,202*	16.02*	207
Diabetes												
Normal fat	162.5*	78.5	87	1,747*	1.189	1.344	11.7	12,969	1,282*	2,277*	15.64*	136
High normal fat	103.5*	73	132	1,894*	1.196	1.273*	9.8*	13,937	1,053*	2,215*	13.61*	121
Liver disorders												
Chronic	476	127	62*	2,970	0.988	1.815	21.4	11,872	2,114	2,764	27.80	155
Acute	475	95	58*	2,822	0.949	1.494	17.5	12,224	1,922	2,404*	18.88	155
Nephritis												
Low protein	352	59.5*	156	3,050	0.705*	1.092*	14.9	17,899	1,645*	1,802	13.37*	207
Nephrotic type	411.5	124.5	58*	2,666	1.017	1.834	21.7	12,722	2,102	2,954	27.03	212
Pregnancy												
Normal	316	103	107	2,639	1.763	2.006	16.5	13,826	2,031	3,429	16.96*	156
Low caloric	179.5*	90	67.5*	1,686*	1.788	1.805*	13.2*	11,883	1,619*	3,119	13.27*	203
Child												
Normal	275	80.5	85.5	2,192	1.592	1.704	13.2	13,138	1,736	3,177	12.32	146
Allergy	257	60	117.5	2,326	0.428*	1.060*	13.4	14,483	1,574	1,212*	14.65	181
Diabetes	248	80.5	82.5	2,057	1.610	1.723	14	13,597	1,836	3,242	12.97	210
Ketogenic diet	40*	34*	182	1,934*	0.668*	0.689*	6.2*	10,354	639*	1,036*	4.68*	186

* Below the normal.

Summary No. 3

"A Summary in Terms of the Menu for the Typical Normal Diet and the Variations for Abnormal Conditions"

This summary lists, in the form of menus, the foods in the several diets, demonstrating how very nearly they come to the foods in the normal or family diet. Thus a person, or persons on a therapeutic diet rarely need to have separately prepared meals and this lessens the anxiety and burden of the homemaker. For example, in the breakfast, there is hardly any deviation. For lunch, macaroni, as typical of a cereal product and of racial custom, can be used in all the diets. This is true of such other foods as milk. Reference can be made to the preceding diets for the amounts of foods needed in these menus.

	Normal Adult	**Constipation, Spastic**	**Colitis**	**Ulcer** Ambulatory No. 1	**Ulcer** Ambulatory No. 2	**Under-weight**	**Obesity**	**Diabetes** Normal Fat	n
Morning Meal	Orange	Orange juice, str.		Orange juice, str.	Orange juice, str.	Orange	Orange	Orange juice	O
	Rolled oats Milk Sugar	Rolled oats, str. Cream Sugar	Cream of wheat Milk Cream Sugar	Cream of wheat Milk Cream Sugar	Rolled oats, str. Milk Cream Sugar	Rolled oats Cream Sugar			
	Egg	Egg			Egg	Egg	Egg	Egg	E
	Toast Butter Jelly	Toast, white Butter Jelly	Toast, white Butter	Toast, white Butter	Toast, white Butter	Toast Butter Jelly	Toast Butter	Toast Butter	T
	Coffee Cream Sugar	Milk			Milk	Coffee Cream Sugar	Coffee Milk Without sugar	Coffee Cream Without sugar	C
Mid-morning			Milk Crackers Butter	Milk Cream Crackers Butter	Milk Cream Crackers	Milk Crackers, wh. wheat Butter			
Noon Meal	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	Macaroni and cheese	M
	Tomato salad Mayonnaise	Tomato juice			Tomato juice	Tomato salad Mayonnaise	Tomato salad Mineral oil dressing	Tomato salad Mineral oil dressing	T
							Cabbage		
	Bread Butter	Bread, white Butter	Bread, white Butter	Toast, white Butter	Bread, white Butter	Bread Butter	Bread Butter	Bread	B
	Baked apple Cream	Apple sauce	Custard	Custard	Apple sauce	Baked apple Cream	Baked apple Without sugar	Baked apple Without sugar Milk	B
	Milk	Milk		Milk	Milk	Milk	Milk	Milk	M
Mid-afternoon			Cornstarch pudding with Cream Crackers	Milk Cream Crackers Butter	Milk Cream Crackers	Milk Wh. wheat crackers			
Night Meal	Bouillon Crackers					Bouillon Crackers	Bouillon Without crackers	Bouillon Without crackers	B
	Roast beef	Baked haddock	Egg, poached	Eggs, soft cooked	Baked fish	Roast beef	Roast beef	Roast beef	R
	Baked potato Butter	Baked potato Butter	Baked potato Butter	Potato, mashed	Baked potato Butter	Baked potato Butter	Baked potato	Baked potato Butter	
	String beans, buttered	String beans, str., buttered			String beans, str., buttered	String beans, buttered	String beans,	String beans, buttered	S
	Carrots, buttered	Carrots, str., buttered			Carrots, str., buttered	Carrots, buttered	Carrots	Carrots, buttered	C
	Bread Butter	Bread, white Butter	Bread, white Butter	Toast, white Butter	Bread, white Butter	Bread Butter	Bread Butter	Bread Butter	
	Fruit gelatin Cream	Fruit gelatin Cream			Banana gelatin	Fruit gelatin Cream	Fruit gelatin Milk	Fruit gelatin Without sugar	F
	Cake, plain	Cake, plain	Cake, plain	Cake, plain	Cake, plain	Cake, frosted			
	Coffee, if desired		Milk			Coffee, if desired	Coffee, if desired	Coffee, if desired	C
Between night meal and bedtime			Milk Crackers	Milk	Milk Cream Cracker	Milk			

* Heavy meal for children at noon.
** See Tables 16, 17 and 18.

s t	**Liver Disorder** Chronic	**Liver Disorder** Acute	**Nephritis**	**Nephrosis**	**Pregnancy** Normal	**Pregnancy** Low Caloric	**Normal** Child*	**Diabetes** Child	**Ketogenic Diet** Child
	Orange	Orange	Orange juice Prunes	Orange Prunes	Orange	Orange	Orange	Orange	Orange
	Rolled oats Sugar Milk	Rolled oats Sugar	Rolled oats Cream, heavy Sugar	Rolled oats Milk Sugar	Rolled oats Milk Sugar	Rolled oats Milk, skim Without sugar	Rolled oats Milk Sugar	Rolled oats Milk	
	Egg		(Egg for noon meal)	Egg	Egg	Egg	Egg	Egg	Egg
	Toast Butter Jelly	Toast Butter Jelly	Toast Butter Jelly	Toast Butter	Toast Butter	Toast Butter	Toast Butter Jelly	Toast Butter	Butter
	Milk	Milk	Coffee Cream, heavy Sugar	Coffee Milk Sugar	Coffee Milk Sugar	Coffee Milk, skim Without sugar	Milk	Milk	Cream, heavy
ese	Meat Macaroni and tomato	Macaroni and tomato	Creamed macaroni	Meat Macaroni and tomatoes	Macaroni and cheese	American cheese	Roast beef Baked potato	Roast beef Baked potato Butter	Roast beef
	Cottage cheese salad	Lettuce and egg salad	Tomato salad Mayonnaise Egg	Cottage cheese salad Jelly	Tomato salad	Tomato, lettuce salad Mineral oil dressing	String beans, buttered	String beans, buttered	Lettuce French dressing or Mayonnaise
						Cabbage, buttered	Carrots, buttered	Carrots, buttered	String beans, buttered
	Bread Butter and jelly	Bread Jelly Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	
ple t	Baked apple	Baked apple	Baked apple Cream	Baked apple Jelly	Baked apple Sugar Milk	Baked apple Without sugar	Fruit gelatin Cake, plain	Fruit gelatin	
	Milk	Milk		Milk	Milk	Milk, skim	Milk		Cream
t ers	Bouillon Crackers	Bouillon Crackers			Bouillon	Bouillon			
f	Roast beef, lean	Roast beef, lean	Roast beef	Roast beef	Roast beef	Roast beef			
	Baked potato Butter	Baked potato Butter	Baked potato Butter	Baked potato	Baked potato Butter		Macaroni and cheese	Macaroni and cheese	Cheese Cabbage, buttered
ans, d	String beans, buttered	String beans, buttered	String beans, buttered	String beans,	String beans, buttered	String beans, buttered	Tomato salad Mayonnaise	Tomato salad Mayonnaise	Tomato salad French dressing
d	Carrots	Carrots	Carrots, buttered	Carrots	Carrots, buttered	Carrots, buttered			
	Bread Butter and jelly	Bread Butter and jelly	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	Bread Butter	
atin t	Fruit gelatin	Fruit gelatin	Banana Cream	Fruit gelatin	Fruit gelatin	Fruit gelatin Without sugar	Baked apple	Baked apple	
	Cake, plain	Cake, plain		Angel Cake	Cake, plain				
				Milk		Milk, skim	Milk	Milk	
					Milk	Milk, skim			

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