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Well-Planned Meals

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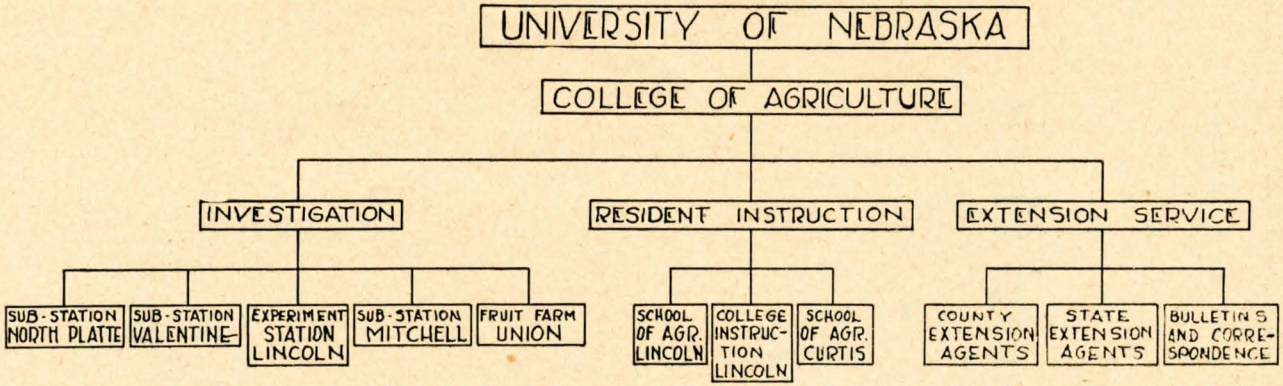

This chart shows in graphic form the organization of the Agricultural College. It is one of ten colleges in the University of Nebraska, but has its own campus and buildings at Lincoln, besides experimental substations in various parts of the State. In addition to the customary instructional work of a college, it is responsible for experimental investigation and agricultural extension work. The instructional work includes instruction of college grade at Lincoln, instruction of high school grade thru the School of Agriculture at Lincoln, and instruction of high school grade thru the Nebraska School of Agriculture at Curtis. Experimental work and farming investigations are carried on at the main farms at Lincoln, and substations at North Platte, Valentine and Mitchell, and at the fruit farm at Union. The Agricultural Extension Service represents the intimate contact between the college and the farmers of the State. This includes demonstrations by county and state extension agents, the distribution of bulletins, and practical service to the farmer, such as the answering of inquiries by mail.

Well-Planned Meals

By JULIA VANCE

The purpose of this bulletin is to consider the needs of the average family and so aid the housekeeper in selecting an adequate, economical, and attractive diet. It will discuss what the body should obtain from its food and what food materials are best to be chosen in the daily food supply.

THE FOODSTUFFS

1. The body needs building material for growth during adolescence, and for repair and upkeep thruout life.
2. The body needs material or fuel to yield energy for
   a. Internal work,—life processes, such as breathing, circulation, and digestion.
   b. External work,—muscular activity.
   c. Maintenance of body temperature.
3. The body needs material to regulate the body processes.

The foodstuffs, or "food principles," which supply these materials, are grouped under six headings,—proteins, fats, carbohydrates, water, ash constituents, and a miscellaneous group consisting of growth-producing substances, extractives, and organic acids. The following lists are chosen not because of a clear-cut dividing line between the groups, but rather because they are largely composed of the foodstuffs under which they are classified. The classes of foodstuffs, the elements comprising them, their functions, and their sources are as follows:

Proteins are composed of nitrogen, carbon, hydrogen, oxygen, and sulphur, and sometimes iron and phosphorus. The function is to build tissues. Proteins are the only source of the important element, nitrogen, and they yield energy in the most expensive form. Proteins are found chiefly in meats, milk, eggs, legumes, grains, and nuts. (See table 1.)

Fats are composed of carbon, hydrogen, and oxygen. Their function is to yield energy in the most concentrated form. Some fats are specially valuable because of the food-

stuffs of the miscellaneous group which they carry, the growth accessories, or " vitamines," which are substances essential to growth. The chief sources of fats are butter, cream, olive oil, nuts, cheese, meat fats, grains, and egg yolk. (See tables 2 and 11.)

Carbohydrates are composed of carbon, hydrogen, and oxygen. They are simple sugars, or they may be changed to simple sugars. They include starches, sugars, and cellulose, and are widely distributed in nature. The function of starches and sugars is to yield energy in the most economical form. Cereals and starchy vegetables are sources of starch. Milk, fresh fruits, honey, and vegetables are sources of sugar.

The function of cellulose is to give bulk to the food, to furnish mechanical stimulation to the muscular walls of the digestive tract, and to promote and increase peristalsis (the movement of the intestinal walls). Cellulose gives form to fruits and vegetables and to every part of the plant. Cellulose is not digestible in the human digestive tract. It is used commercially in paper-making. (See table 6.)

Water, composed of hydrogen and oxygen, has the function of reducing body temperature, diluting the digestive juices, and dissolving the food materials. Water regulates the concentration of the ash constituents. It is the distributing agent of all the foodstuffs to all the cells of the body, and finally eliminates the waste materials in solution thru the kidneys. One should drink water freely, eight to ten glasses a day, unless water is combined freely with other foods. (See table 6.)

The ash constituents are calcium, phosphorus, iron, potassium, iodine, magnesium, sodium, sulphur, and chlorine. Their function is to build bone, teeth, muscles, nerves, and tissue; to enter into the composition of the living cell in every part of the body; and to regulate body processes. Some of them neutralize acids. The sources of calcium are milk, skim milk, buttermilk, cheese, and fruits and vegetables. The sources of phosphorus are meats, whole cereals, milk, nuts, and legumes. The sources of iron are spinach, egg yolk, raisins, and red meats. (See tables 7 to 9). Other minerals, such as magnesium, potassium, sodium, chlorine, iodine, and sulphur, are supplied in adequate quantities if the diet is adequate in itself.

The miscellaneous group of foodstuffs may include acids, flavors (or extracts), and those foods called growth accessories, or " vitamines."

Organic acids are found chiefly in fruits and vegetables and are stimulating in their effect. They are to a slight de-

gree antiseptic and carry with them a large amount of ash constituents.

Flavors, or extracts (extractives), give the characteristic taste and odor to foods, such as meats, and are stimulating to the digestive flow, both psychologically and chemically.

The function of the growth accessories is to promote growth, to regulate body processes, to stimulate cellular tension, and enable the body to utilize its food protein more completely, and to prevent such deficiency diseases as scurvy, beriberi, pellagra, rickets, and (more commonly) lack of muscle tone.

One class found in fats, called dietary factor A, is found in solution in milk fat, egg yolk, and cod-liver oil, in the germ of grains, and in green vegetables. The second class, called dietary factor B, is found in fruits and vegetables, the outer layers of cereals, yeast, milk, eggs, and meats. (See table 11.) Dietary factor A is necessary for the growth of the young, but much smaller amounts are required for the maintenance of adults. Dietary factor B is required for the well-being of both young and adults. (See table 11.) Too much dried and cooked foods may cause deficiency diseases, while coarse cereals, milk, and uncooked vegetables, combined with these foods, will make an adequate diet.

HOW FOOD IS MEASURED

The unit of measure for foods taken into the body is the large Calorie and corresponds to a definite measure as does the pound measure. A large Calorie is the amount of heat required to raise the temperature of one kilogram of water one degree Centigrade or one pound of water four degrees Fahrenheit. By very careful estimate of loss in digestion, it has been determined that protein will yield four Calories per gram of weight, carbohydrates four Calories per gram, and fat nine Calories per gram. There is great loss in digestion of protein, and to a less degree a loss in digestion of carbohydrates and fats. For convenience, a 100-Calorie portion is taken as a standard unit, because it equals in measurement the usual individual serving of a great many foods, a much easier division for the housewife than the pound. Or, more graphically, it is the amount of heat or energy an average-sized man sitting still will spend in one hour. A limited number of 100-Calorie portion measures are found in this bulletin (tables 1 to 9). Mrs. Rose's "Feeding the Family," pp. 333-429, contains a very complete list. From these measures one can readily estimate the relative cost of different foods per standard portion. Cost has little relation to food value—milk at

10 cents per quart yields about 980 Calories, while oysters at 70 cents per quart yield 460 Calories. In paying for fresh vegetables, however, one pays a high price per Calorie yield, but the special value in the diet lies in the choice of minerals and growth accessories. Altho water, mineral content, and growth accessories cannot be estimated in Calories, their value should not be overlooked, as has already been shown. A shortage of any of these substances after a time may show serious disorders, such as anemia, stunting in growth, lack of resistance or muscle tone, or the so-called deficiency diseases.

CONDITIONS INFLUENCING THE INDIVIDUAL REQUIREMENTS

The amount of energy required in the body, and supplied by proteins, fats, and carbohydrates, depends upon age, size, temperament, activity, and sex of the individual, as well as upon climate. Age has direct relation to size and growth and muscle tone, and implies large differences. A normal baby doubles its weight in six months. All change, all activity, is dependent upon adequate food. All processes are more intense in a growing child. He needs more protein to supply material for growth and repair, while the adult no longer needs to provide for growth, but must keep up tone and well-being. A child under weight should be fed according to what his weight should be, not his actual weight; while a child over weight should be fed according to his weight, unless he seems excessively fat. Normal development can be determined by parallel physical and mental growth and may vary rather widely. Temperament, body tension, and activity may more than double energy requirement. The difference in energy requirement due to sex is often questioned. However, there seems to be a higher expenditure in boys because they are more restless, are more active, and have greater body tension. In general, women require 5 per cent less than men, and athletes 5 per cent more than average men, both variations being due to muscular differences.

A satisfactory table for children during growth follows:

Age	Calories per day for each pound of body weight
Under 1 year	45 or more
1 to 2 years	45 to 40
2 to 5 years	40 to 36
6 to 9 years	36 to 30
10 to 13 years	30 to 27
14 to 17 years	27 to 20
17 to 25 years	20

Men require more than women, because women are less active and less muscular. Requirements of both men and women are determined by work. The following tables have been prepared for men and women of average weights, engaged in different types of work:

Adult woman's requirement (average weight 130 pounds):

	Calories per day
A seamstress working by hand	2,000
A seamstress working at machine	2,100 to 2,300
A woman working at housework	2,500 to 3,200
A woman working at washing	2,900 to 3,700

Adult man's requirement (average weight 154 pounds):

	Calories per day
A clerk	2,000 to 2,800
Shoemaker	3,100
Painter	3,500 to 3,600
Farmer	3,700 to 4,000
Woodcutter	4,500 to 5,000

HOW TO CHOOSE THE FAMILY DIETARY

In general, for an average family of six, a man and woman and four children under 15 years, the requirements will run from 12,000 to 16,000 Calories, depending upon the amount of manual labor performed. Ten to fifteen per cent of this amount should be protein (2 Calories or less per pound of body weight for the adult and 2½ Calories per pound for growing children). This is about 75 grams for a man of average weight. The fat and carbohydrate should stand in about the proportion of one part of fat to four parts of carbohydrate.

Altho they have no caloric value, the ash constituents are of great importance and cannot be overlooked. The three which cannot be left to chance are calcium, phosphorus, and iron. The daily requirement of phosphorus is 2.75 grams per person, iron 0.015 gram per person, and calcium, 0.7 grams per person. All these minerals have most important functions in the body. Iron is of special importance to the young girl in adolescence and to the pregnant mother. Calcium should be specially provided for the pregnant and nursing mother to protect her teeth and bone supply at this time. (See tables 7 to 10.)

In the normal mixed diet there is a tendency on the part of some foods to produce an acid condition in the digestive tract that later yields an acid condition in the blood and tissues.

Other foods may produce a basic (or alkaline) condition in the body. For example, meat is acid and produces an acid condition in the body. Fruits are acid to taste, but the acids are not in the form of free acids, but of acid potassium salts. There is no evidence that harm results from a predominance of base-forming elements, but free sulphuric acid and other acids and an acid condition of the blood and tissues have a direct connection with metabolic disturbances and many diseases. Therefore, one would avoid a meal composed only of beefsteak, rice, and white bread, by adding green vegetables, fruits, and milk to neutralize the mineral acids produced in metabolism of the first three foods. Even the fruit acids yield an excess of bases, because they are chemically combined with base-forming ash constituents. With the liberal use of base-forming mineral constituents and growth accessories in the diet, the old-fashioned " spring-tonic " habit has disappeared. (See table 10.)

Starch is the best form of carbohydrate to choose in the mixed diet. It should be made soluble by cooking. The best sources of starch are vegetables and cereals of all kinds. At least one uncooked vegetable should be used every day. Two or three vegetables should be used in each meal, except breakfast, thereby furnishing ash constituents which regulate and contribute to growth, cellulose which gives bulk to food, and starch which yields energy. Sugar is used in flavoring foods, in fruits and vegetables, and in desserts of various kinds, and gives rapid return in energy. Sugar and properly cooked starchy foods digest very rapidly. The home-cooked whole-grain cereals are very valuable as a source of starch, minerals, and growth accessories. They are of much greater caloric value for breakfast than the high-priced prepared cereal breakfast foods, which are probably made of grains of inferior quality.

Protein varies greatly in its chemical composition, since it is made up of complex combinations of 17 to 20 amino acids. A person could live and grow with his protein supplied by milk or eggs, but gelatine lacks the amino acids necessary to life and growth; hence, it is not a good protein to choose, unless combined with foods in which such acids are present.

The protein in beans, peas, lentils, and oatmeal is valuable, but should not be used to the exclusion of animal protein,—that is, protein from milk, eggs, and meat,—because they do not contain the amino acids in the right proportions for growth as does the animal protein.

However, more than the necessary amount of protein in the diet is wasted because it is not stored in the body and is quickly eliminated; it also throws extra work upon the kidneys. One-half of the protein is used as nitrogen and the other half follows the course of fats and carbohydrates and supplies energy in a very expensive form. Even with the high prices, carbohydrates are less expensive than meats.

Meats contain certain substances, called purins, which yield uric acid. Under certain conditions, uric acid is deposited in the joints, causing gout and other diseased conditions. Where there is an acid condition in the body, people are harmed by the eating of meat. (See table 10.) The other protein-bearing foods do not contain these purins in great amounts, and carry enough ash constituents to neutralize the acids. Ash-bearing foods should be carefully added to a meat diet if it is to be made adequate. Normal children do not need meat until the fifth or sixth year. Adequate protein, with the valuable mineral salts combined, may be obtained from milk, eggs, cereals, vegetables, and fruits. The appetite is overstimulated by meats, because they contain more flavor, and children do not eat the more desirable foods of milder flavor when they can get meats. Meat protein is particularly subject to intestinal putrefaction and causes digestional complications much more readily than any other proteins. Therefore, it is well for the adult to draw at least not more than one-third of the protein requirement from meat. This should not be more than one-fourth pound per day. The remainder may be supplied from milk, eggs, cheese, beans, peas, and nuts. One should bear in mind that some protein is derived from bread, cereals, fruit, and green vegetables (in very small amounts).

The choice of fat and the amount of fat required is determined by the kind of work done, altho fat is necessary to protect body protein, to store energy, and to lubricate. Little children and persons of sedentary habits with short intervals between meals cannot digest fat as readily as the farmer working six hours between meals and in the open air. The digestibility of different fats varies very much with different individuals, and it is too great a burden to impose upon the digestive tract of a young child to feed him pastry, fried foods, and salads. Older persons would do well to omit largely the use of these first two groups of foods from their dietary. Cream, butter, and olive oil are usually the most easily digested fats. The energy value varies among fats very much less than the price. (See tables 2, 4, and 11.) For children

able to eat solid food, one glass of whole milk a day will furnish the dietary factor A. Then use oleomargarine for fat and skim milk for protein.

Oleomargarine is as good a source of energy as butter. Housekeepers have not begun to solve the problem of fat economy in the home. By carefully rendering and blending many different fats, they can be used in place of the more expensive fats. Cottonseed oil products, and any of the hydrogenated fats are legitimate substitutes for butter and lard.

TABLE 1.—*Foods rich in proteins*

	Measure of 100-Calorie portion	Calories per pound
Beef, lean	4 thin slices 4x5 inches	817
Beef, fresh, lean	2.5 ounces	709
Cheese, cottage	5.5 tablespoons	498
Codfish, salt	4.4 ounces	473
Codfish, fresh	7.6 ounces	329
Egg white	7 whites	231

TABLE 2—*Foods rich in fats*

	Measure of 100-Calorie portion	Calories per pound
Lard	1 tablespoon	4,082
Olive oil or cottonseed oil	1 tablespoon	4,082
Salt pork	1 tablespoon	3,555
Butter	1 tablespoon	3,488
Beef suet	1½ tablespoons	3,425
Oleomargarine	1 tablespoon	3,410
English walnuts	9 medium-sized meats	3,199
Cream, thick	1⅓ tablespoons	1,727
Cream, thin	¼ cup	900

TABLE 3—*Foods rich in carbohydrates*

	Measure of 100-Calorie portion uncooked	Calories per pound
Sugar	2 tablespoons	1,814
Cornstarch	4 tablespoons	1,632
Tapioca	2 tablespoons	1,608
Rice	¾ cup steamed	1,591
Dates	3 to 4 unstoned	1,575
Honey	1 tablespoon	1,480
Molasses	1½ tablespoons	1,301
Bananas	1 large	447
Potatoes, white	1 medium	378

TABLE 4—*Foods rich in proteins and fats*

	Measure of 100-Calorie portion	Calories per pound
Almonds	12 to 15 nuts	2,936
Peanut butter	2½ tablespoons	2,741
Peanuts	20 to 24 single meats	2,487
Cheese, American	1½ inch cube	1,094
Egg yolk	2 egg yolks	1,643
Eggs, whole	1⅓ eggs	672
Milk, whole	⅝ cup	314

TABLE 5—*Foods rich in proteins and carbohydrates*

	Measure of 100-Calorie portion	Calories per pound
Oatmeal	1 cup cooked	1,810
Farina	¾ cup cooked	1,641
Peas, dried	¾ cup cooked	1,612
Lentils	2½ tablespoons	1,581
Bread	2 slices	1,174
Oysters	⅔ cup solid	222

TABLE 6—*Foods rich in cellulose and water*

	Measure of 100-Calories of edible portion	Calories per pound
Cabbage	5 cups shredded	143
Watermelon	11.7 ounces	137
Spinach	14.76 ounces	108
Asparagus	2½ cups cooked	100
Lettuce	20 stalks or 15.9 ounces	87
Celery	2 heads or 18.5 ounces	84

TABLE 7—*Foods rich in iron*

	Measure of 100-Calorie portion	Grams of iron in 100-Calorie portion
Spinach	2½ cups cooked	.0133
Beans	2¼ cups	.0038
Beef	2¼ ounces uncooked	.0032
Egg yolk	2 yolks	.0023
Strawberries	1⅓ cups	.0023
Beans, dried	⅛ cup	.0020
Oatmeal	1 cup cooked	.0009
Prunes	4 to 5 prunes	.0009

The requirement for iron is 0.015 grams per person per day.

TABLE 8—*Foods rich in phosphorus*

	Measure of 100-Calorie portion	Grams of phosphorus in 100-Calorie portion
Buttermilk	1⅛ cups	.061
Celery	4 cups ¼ inch pieces	.54
Spinach	2½ cups cooked	.0133
Lettuce	2 large heads	.47
Beef, lean	2¼ ounces uncooked	.42
Cheese, cottage	5½ tablespoons	.42
Asparagus	20 stalks	.39
Beans	⅛ cup	.326
Milk	⅝ cup	.303
Beans, string	2¼ cups	.284
Egg yolk	2 yolks	.27
Oatmeal	1 cup (cooked)	.216
Graham bread	2 slices	.19
Potatoes	1 medium	.166

The requirement for phosporus is 2.75 grams per person per day.

TABLE 9—*Foods rich in calcium*

	Measure of 100-Calorie portion	Grams of calcium
Carrots	3 to 4 medium	.168
Blackberries	1½ cups	.13
Strawberries	1⅓ cups	.13
Onions	3 to 4 medium	.12
Whole milk	⅝ cup	.114
Figs	1½ large	.089
Tomatoes	1¾ cups cooked	.087
Lemon juice	1 cup	.083
Beans, dried	⅛ cup uncooked	.063
Eggs	1⅓ eggs	.06
Beets	2 to 4 medium	.06
Peas, fresh	1 cup	.032
Oatmeal	1 cup cooked	.03
Prunes	4 to 5	.02
Raisins	¼ cup	.02
Potatoes	1 medium	.019
Bread, whole wheat	2 slices	.016
Bread, white	2 slices	.011
Beef	2¼ ounces	.009
Crackers, soda	4	.006
Cornmeal	1 cup cooked	.004

The requirement for calcium oxide is 0.7 gram per person per day.

TABLE 10—*Acid-forming and base-forming foods*

(Ranked in the order of their acid and base-forming properties in equal weight of food materials.)

Acid-forming	Base-forming
Lean beef	Celery
Eggs	Cabbage
Oatmeal	Potatoes
White flour	Prunes
Wheat, entire grain	Turnips
Rice	Apples
Bacon	Milk
	Beans
	Peas

TABLE 11—*Foods rich in growth accessories*

Dietary Factor A	Dietary Factor B
Egg yolk	Vegetables and fruits
Milk fat	Yeast
Cod-liver oil	Outer layers of all cereals
Germs of all grains	Milk
Green vegetables	Eggs
	Meats

A FOOD PLAN

The menu itself means combinations and variety day in and day out. It is well to check over from time to time the amounts and the costs and to investigate carefully to see that the menu includes everything each individual should have, that the foods of the season are used to best advantage, and that a one-sided diet has been avoided. For example, for the average family of six with four children under ten (aged one, three, six, and nine), some of the important points to consider are:

Milk for all the children.
Orange juice for the one-year-old.
One kind of fruit for the others in the family.
Cooked cereals for all the family.
A mild green vegetable for the three- and six-year-old.
One green vegetable for all the others except the baby.
Eggs for the three younger children.
Meat or a meat substitute for the others.

MENU NO. 1

Food	Measure	Total Calories	Cost
BREAKFAST—			
Milk for baby	1 cup	170	$0.0225
Milk for three-year-old	1 cup	170	.045
Orange juice for baby	1 tablespoon	12	
Orange juice for three-year-old	3 tablespoons	33	.045
Oranges for four	2 large	200	.092
Oatmeal for five	3 cups	600	.02
Milk for cereal	2 cups	340	.045
Sugar	2 tablespoons	100	.005
Dry toast for five	10 slices	500	.05
Oleomargarine	3 tablespoons	300	.026
Cocoa for four	4 teaspoons	60	.008
Milk	2 cups	340	.045
Sugar	4 teaspoons	75	.0055
LUNCHES (10 A. M.)—			
Oatmeal jelly for baby	2 tablespoons	16	.001
Milk for baby	1 cup	170	.0225
For three- and six-year-olds			
Bread	2 slices	100	.01
Milk	2 cups	340	.045
LUNCHES (2 P. M.)—			
For baby—			
Milk	1 cup	170	.0225
Bread	½ slice	25	.005
Egg yolk	1 yolk	36	.015
For three-year-old—			
Milk	¾ cup	127	.0169
Egg	1 whole egg	70	.03
Toast	1 slice	50	.01
Butterine	1 teaspoon	33	.0035
Strained peas	1 tablespoon	10	.005
Baker potato	½	50	.015
Prunes	3	90	.015
LUNCHES (5:30 P. M.)—			
For baby—			
Milk	1 cup	170	.0225
Oatmeal jelly	2 tablespoons	16	.001
For three-year-old—			
Milk	1 cup	170	.0225
Rice	¼ cup steamed	33	.005
Bread	1 slice	50	.005
Butterine	1 teaspoon	33	.0035
Cooked custard	⅓ cup	100	.0124

Food	Measure	Total Calories	Cost
SUPPER—			
For six-year-old—			
Rice	½ cup cooked	70	.01
Milk	1 cup	170	.0225
Bread	2 slices	100	.01
Custard	½ cup	130	.0186
SUPPER OR LUNCHEON—			
Rice with cheese and tomatoes—			
Rice	1 cup	696	.05
Cheese	½ cup grated	125	.058
Tomato	2 cups	114	.115
Steamed brown bread—			
Graham flour	1 cup	386	.015
Cornmeal	½ cup	257	.011
Raisins	½ cup	380	.038
Molasses	¼ cup	200	.0156
Buttermilk	1 cup	87	.0075
Butterine	4 tablespoons	400	.042
Milk for children	1¼ cups	200	.028
Custard			
Milk	3 cups	510	.675
Eggs	3 eggs	210	.09
Sugar	6 tablespoons (scant)	300	.019
DINNER FOR FOUR—			
Salmon souffle			
Salmon	1 cup	400	.0872
Eggs	2 eggs	140	.06
Milk	¾ cup	127	.0169
Flour	1½ tablespoons	36	.0018
Butterine	1½ tablespoons	150	.0156
Creamed peas			
Peas	1½ cups	200	.09
Flour	2 tablespoons	50	.0024
Butterine	1 tablespoon	100	.0115
Milk	1 cup	170	.0225
Potatoes in the half-shell			
Potatoes	3	300	.048
Milk	¼ cup	42	.0056
Whole wheat bread	6 slices	300	.035
Butterine	2 tablespoons	200	.017
Stewed prunes	20	600	.09
Milk for children	2 cups	340	.045
Total for day		12,984	$1.9486
Requirement		12,000	

This day's dietary has been carefully estimated to give the young children their required quart of milk apiece, the remainder being used freely in cooking. An extra feeding at night of one cup of milk may be given the baby if he does not gain well or is wakeful. If it were necessary to economize in milk, fried cornmeal (or cornmeal muffins) may be served with a syrup to the older people. The two younger children should have whole milk, but the two older children might have one glass of whole milk a day, using skim milk the remainder of the time. Coffee might be substituted for cocoa in the breakfast, using a little hot milk with it if desired. Skim milk at 3 cents a quart with 358 Calories may be used in all cookery in place of whole milk at 10 cents a quart with 678 Calories. The difference lies in the lack of fat and not of protein and carbohydrate.

The mineral content of protein of the dietary meet the requirement for all. A much larger variety of vegetables may be drawn upon from day to day. Having one's own garden and storing one's own food would reduce the cost of this menu.

A much less expensive diet is given below, for six persons also, but planned with moderate cost to give adequate food to healthy adults without special attention to the children's needs in growth. Other suggestions follow.

MENU NO. 2

Food	Measure	Total Calories	Cost
BREAKFAST—			
Dates	36 dates	600	$0.15
Farina	18 tablespoons	600	.0396
Whole milk	1½ cups	255	.0319
Butterine	6 tablespoons	600	.072
Cornbread			
Corn meal	2 cups	1066	.036
Egg	1 egg	70	.036
Lard	3 teaspoons	300	.011
Milk	3 teaspoons	100	.0133
Honey	6 tablespoons	300	.0109
Coffee	6 tablespoons		.05

LUNCHEON—

Macaroni and cheese			
Macaroni	1½ cups	600	.0252
Cheese	½ cup grated	125	.058
Milk	2 cups	340	.045
Crackers	6 crackers	100	.0087
Carrots	6 medium	150	.024
Gingerbread	12 cakes	1,466	.0999
Butterine	9 tablespoons	900	.0945
Cocoa			
Milk	3 cups	150	.0675
Cocoa	2 tablespoons	60	.0156
Sugar	4 tablespoons	200	.015

DINNER—

Baked Eggs			
Eggs	6 eggs	420	.18
Crackers	6 crackers	100	.0087
Butterine	1 tablespoon	100	.0105
Milk	⅝ cup	100	.0133
Spinach			
Graham gems			
Graham flour	2 cups	1,000	.013
Egg	1 egg	70	.03
Lard	3 tablespoons	200	.011
Milk	⅝ cup	100	.0133
Butterine	6 tablespoons	600	.063
Cottage pudding			
Flour	2 cups	670	.0384
Egg	1 egg	70	.03
Butterine	3 tablespoons	300	.0315
Milk	⅝ cup	100	.0133
Brown sugar sauce			
Brown sugar	½ cup	312	.02
Cornstarch	½ tablespoon	18	.001
Water	1 cup		
Vinegar	1 teaspoon		
Total for day		12,862	$1.426
Requirement		12,000	

SUGGESTIVE MENUS OF MODERATE COST

Oleomargarine is used and whole milk is served on cereals. No regular beverage is included because it contains no food value in itself. More cream soups may be used if skim milk is available and children should have whole milk at least once a day.

No. 1

Breakfast—
- Cracked wheat with dates
- Toast
- Coffee

Luncheon or supper—
- Macaroni with cheese
- Potato biscuits
- Honey

Dinner—
- Meat pie
- Carrots
- Chocolate blanc mange

No. 2

Breakfast—
- Bananas
- Creamed egg on toast
- Coffee

Luncheon or supper—
- Tomatoes and cheese with rice
- Brown bread
- Rhubarb

Dinner—
- Boiled beef
- Creamed potatoes with peas
- Squash
- Apple tapioca

No. 3

Breakfast—
- Stewed figs
- Cornmeal mush
- Bran muffins

Luncheon or supper—
- Rice with cheese and tomato
- Baked apples
- Whole wheat bread

Dinner—
- Swiss steak
- Mashed potatoes
- Lettuce with French dressing

No. 4

Breakfast—
- Baked apple
- Graham mush
- Toast
- Coffee

Luncheon or supper—
- Cream of potato soup
- Whole wheat muffins
- Apple butter

Dinner—
- Liver with gravy
- Baked cornmeal
- Stewed turnips
- Frozen vanilla custard

No. 5

Breakfast—
- Orange
- Oatmeal
- Toasted brown bread

Luncheon or supper—
- Creamed cheese on toast
- Whole wheat bread and butter
- Rhubarb
- Oatmeal cookies

Dinner—
- Salmon loaf
- Baking powder biscuits
- Rice
- Stewed tomatoes
- Prune whip

No. 6

Breakfast—
- Stewed prunes
- Scrambled eggs on toast
- Coffee

Luncheon or supper—
- Creamed salmon on toast
- Graham bread
- Banana salad

Dinner—
- Veal birds
- Spaghetti
- Dandelion greens
- Whole wheat bread
- Brown Betty

No. 7

Breakfast—
- Stewed apricots
- Cornmeal muffins
- Cream of rye cereal

Luncheon or supper—
- Meat souffle
- Creamed carrots and peas
- Whole wheat bread
- Apple sauce

Dinner—
- Codfish balls
- Buttered beets
- Apple and banana salad
- Tapioca pudding with peaches

SOME LESS EXPENSIVE FOODS

Cornmeal
Cottonseed oil
Hominy or samp
Oatmeal
Molasses
Oleomargarine
Rice, broken or brown
Suet
Tapioca
Codfish
Fish
Dried beef
Macaroni
Peas, dried
Home-grown vegetables and fruits
Home-canned vegetables and fruits
Beans
Whole grain used in flour and cereals

PROTEIN RECIPES OF MODERATE COST

Meat stews
Meat loaves
Codfish balls
Corn chowder
Fish chowder
Meat croquettes
Meat souffles
Twice-cooked meats served with White sauce
Bean soups

EXPENSIVE FOODS IN PROPORTION TO CALORIC VALUE

Gelatine desserts and salads
Chicken
Beef with great waste
Special organs
Oysters
Cakes
Candies
Mushrooms
Pimentos
Sweetbreads
Scallops
Veal
Lamb
Commercially canned fruits and vegetables

SUMMARY

The well-planned meal should provide heat and energy to carry on the life processes and bodily activity. The required number of Calories in the mixed diet can best come from carbohydrate and fat, using a generous variety of fruits and vegetables. The fat supplements the carbohydrate and supplies good reserve, since energy is stored in the body in the form of fat. The protein supply should be looked upon chiefly as the source of nitrogen and not of energy, which is so well supplied by carbohydrates and fat. One-third of the protein in the day's dietary should be of animal source. Meat, milk, eggs, cereals, and legumes are the best sources of protein.

Water should be supplied abundantly.

Ash constituents should be provided adequately thru the foods containing them, and special attention should be given to supplying calcium, phosphorus, and iron.

The growth accessories should be supplied generously from their best sources, and growing children should be liberally provided with food containing them. Digestive disturbances,

stunting of growth, and improper development are danger signals. One need not avoid foods lacking in "vitamines" if combined with them are foods in which they are present.

Give children their meals regularly.

Teach children to like all foods. Most prejudices are formed while very young and can be overcome.

"Keep children kind toward milk." One quart of milk each day per child is the safest rule to follow.

Insist upon breakfast being eaten. Breakfast is stimulating to the digestive tract and avoids overeating later. Constipation is prevented by taking (at regular intervals) food that is of sufficient bulk and sufficiently stimulating in its effect.

Foods which stimulate the appetite should be eaten early in the meal, such as fresh fruits at breakfast, and soups or meat at dinner.

Sweet foods dull the appetite and should come at the end of the meal. Give candy to children only after meals.

Aim to dilute concentrated foods,—butter with bread, pork with apple sauce or gooseberries, etc. Study happy combinations of flavors.

Select food wisely and prepare simply; cook well and serve attractively. Make sure there is no waste in preparation, in serving, and in use as a left-over.

Serve left-overs as attractively as possible, and keep them over a day when advisable.

Adapt menus to the season. Use foods in season.

It is good economy to store one's own supply of fruits and vegetables by canning and drying.

In general, it is better dietetics to economize from day to day in meats by using less in quantity and by extending the flavor.

Wheatless meals may result in an excessive consumption in succeeding meals. The 25 per cent reduction in the consumption of wheat may be most easily and effectively accomplished by eliminating waste and by creating a taste for the white flour substitutes.

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