

**COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS**

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FAMILY NUTRITION

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“EAT TO LIVE”

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FAMILY NUTRITION

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No one denies that food is essential to life, yet there are still many people who do not fully appreciate the influence of food upon health, as related to growth, vigor, size, weight, and even to reproduction.

There are stages or degrees of health such as ill health, fairly good health, excellent health, and even radiant health. Radiant health! What a possession!

Food is an important factor in attaining a fine state of health, so do not regard the term "nutrition" a vague something that only a few trained persons may understand and use. Nutrition, when properly understood, is a reasonable and practical science. Nutrition is merely the process by which an animal or plant takes in and utilizes food substances.

As applied to mankind, it has to do with our daily food. It is true that there is much information on the subject of nutrition today, and much new information will be available from time to time through Food Research. It is also true that busy homemakers do not have, and will not have, the opportunity, time, or inclination to make an extensive study of the subject of nutrition; nevertheless, it is possible for every homemaker to have a working knowledge of the subject, which, if used, will give definite health results to her and her family.

"So much experimental work has been done with laboratory animals that many scientific investigators now use the growth of animals as an accurate index of the quality of the diet. Observations on the human race show that the same facts apply in a similar way to individuals and races."

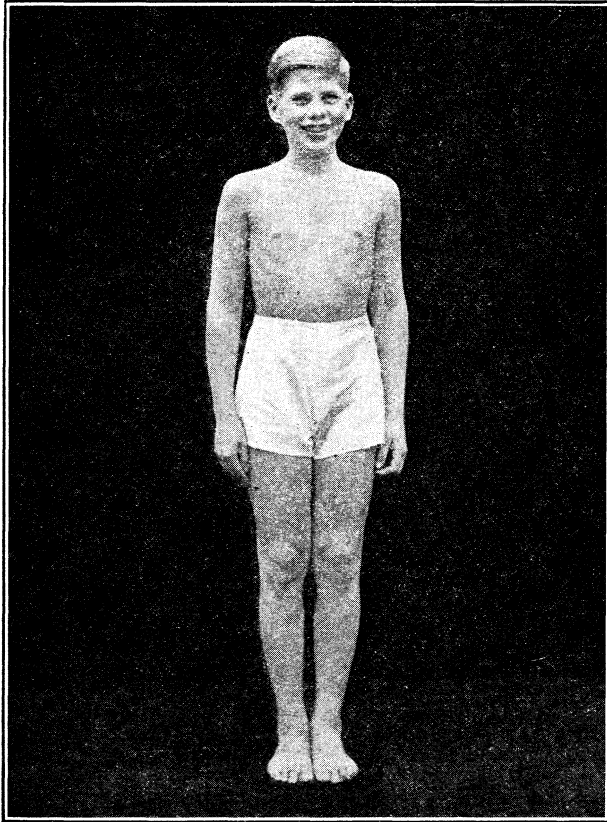
Furthermore, certain bodily defects and diseases may be the result of inadequate diet. Some of those most prevalent are rickets, poor teeth, poor posture, flat feet, colds, digestive and nervous disorders, loss of appetite, and irritability.

For the reasons stated above, it is important that essential food elements in proper amounts be included in the diet.

When preparing meals for the family, the average homemaker's first thought is to have meals that the family will enjoy. This means that foods that are liked by the family will be included in these meals. This is important and quite all right. However, in addition to this it is important that the foods served also furnish essential food elements necessary for body needs. When this is done, good nutrition is assured.

SIGNS OF GOOD NUTRITION AND HEALTH

Perhaps you are asking yourself, "How may I know when my family is well nourished?" The following list of outward signs of good nutrition and growth in children will help to answer this question:



An example of a well-developed body, showing excellent bone growth, a fine set of teeth, and good muscular development. Reproduced from "Signs of Health in Childhood." Chld Health Association, New York.

Steady growth—in children.
Facial expression—alert, happy.
Eyes—clear, bright, steady, free from
fatigue rings and puffiness.
Skin—smooth, clear. Neither too dry
nor too moist.
Color—good in cheeks, lips, eyelids, and
earlobes.
Hair—glossy.
Bones—straight and strong.
Back—straight.
Chest—broad and deep, good expansion.
Joints—(knee and ankle, etc.) normal
size.

Teeth—straight, sound, closing well,
firm gums.
Muscles—evenly developed, firm, strong
and elastic.
Shoulders—even, shoulder blades flat
against back.
Abdomen—flat.
Nervous control—good.
Posture—erect.
Weight suitable to height, age, and build.
Freedom from indigestion, constipation,
frequent colds, etc.

FUNCTIONS OF FOODS IN THE BODY

The various food elements are classified as:

Proteins, Carbohydrates (Starches, Cellulose, and Sugar), Fats, Minerals, Vitamins, and Water.

According to their function in the body they are classified as follows

1. Body building and growth promoting foods
 - A. Proteins
 - B. Minerals
 - C. Vitamins
 - D. Water
2. Energy-giving foods
 - A. Carbohydrates
 - B. Fats
 - C. Proteins
3. Body-regulating foods
 - A. Minerals
 - B. Vitamins
 - C. Water
 - D. Roughage (Cellulose)

Three very important essentials of a well-chosen diet are: Proteins, minerals, and vitamins. These are body building and body regulating elements, and are needed in proper amounts, and of proper kind. If care is taken to have these elements of proper kind and amounts it is believed that the average normal individual will not need to be too greatly concerned about the rest of the diet, which will be the energy-giving foods. The amount of energy foods needed is variable, depending upon activity, age, sex, and season. If the essential foods are used in proper amounts it is believed that the appetite will serve as a guide for the remainder of the food, provided it is not a perverted appetite. Even when the appetite may be relied upon as a guide for selecting energy foods (starches, sweets, and fats), it is well to keep in mind that sweets should be used somewhat sparingly and fatty foods should not be over-indulged in. Butter and cream, because of their Vitamin A and D, content, should be used frequently. Children should have some butter at each meal. Starchy foods should comprise the greater part of the energy-giving foods.

It is very important that enough of energy-giving foods be used to take care of energy needs, but many people, especially adults, who like food have a tendency to overeat of these heavier foods, and the result many times is overweight, indigestion, headaches, or general sluggishness and ill health

PROTEIN:

Protein foods are required for growth and the repair of body tissue. The growing child needs protein for the building of body tissue, as well as repair of tissue, while the adult needs protein only for tissue repair and general maintenance. Therefore, the child's need of protein is greater than that of the adult per unit of body weight. Animal proteins, (milk, eggs, and meat) more nearly resemble the proteins of the human body, so better meet the needs of the body than vegetable proteins. For this reason, the growing child and also the adult should have a goodly amount of protein from milk, eggs, and meat. However, there is advantage in supplementing animal proteins with the protein of vegetables, (dried beans and peas), cereals, and nuts, especially for the adult.

A quart of milk and one egg will meet the protein requirement of the young child (2-4). The addition of another egg or chopped meat will be necessary for the child past four years of age. A pint of milk, a serving of meat, and a third serving of another protein food, such as eggs, cheese, or

dried beans or peas, will meet the requirement of the adult. Seemingly there is not much difference in the amount of protein for the child as there is for the adult, but you must remember that there is quite a difference in body weight which means that the child is receiving proportionately more protein per pound of body weight.

MINERALS:

Minerals occupy a high place in a well chosen diet. Minerals are essential for the building of body tissues, and for regulating body processes and activities. Some of those needing special mention are calcium (lime), phosphorus, iron, and iodine.

1. Calcium and Phosphorus are found together in so many foods and they work so closely together in the formation of bones and teeth that it seems best to consider them together. Best results in producing good teeth and bones cannot be assured even with good amount of these elements, except when Vitamin D is present in a liberal amount.

Phosphorus is a part of every cell of the body, so is needed for the growth and repair of the soft tissues of the body as well as for bones and teeth. It also helps to neutralize the blood.

Calcium, in addition to being essential for good teeth and bones, helps the body to make best use of iron, thus improving the blood supply. It also aids in good muscle and nerve tone, and aids in regulating disturbances caused by incorrect proportion of other elements.

Milk is a good source of both calcium and phosphorus. It is our chief source of calcium, since other foods supplying calcium are not usually eaten in large enough amounts to give an adequate supply. It is possible for adults to get the daily supply without milk, but it is not a practical practice. A pint of milk a day, together with other foods, insures an adequate supply of calcium for the adult, likewise, a quart a day takes care of the child's calcium needs also, and supplies a good amount of phosphorus.

Other foods besides milk and milk products supplying calcium are dried beans, cauliflower, leafy vegetables, molasses, lean meat, egg yolk, whole grain cereals, and nuts.

2. Iron. Iron enables the blood to make red corpuscles. It is also a part of all active cells of the body, so is important in good nutrition and helps to prevent and cure anemia. Copper and possibly manganese help the body to make best use of iron. Fortunately, they are found in most foods containing iron.

Egg yolk, fruits, and vegetables, meat, whole grain cereals, and molasses are good sources of iron.

3. Iodine. Iodine is essential to the proper functioning of the thyroid gland, and is necessary for normal growth and health. A very small quantity is all that is required and will probably be assured if a wide variety of vegetables are used.

Authorities tell us that if these four mineral elements, calcium, phosphorus, iron, and iodine are included in the diet in good amounts, that we need not be concerned about the other minerals. They will be supplied by the same foods that furnish these four elements.

VITAMINS:

Vitamins are those substances in food which are known to promote growth and health, assist in regulating good body processes, prevent disease and are essential for reproduction. Vitamins are designated by letters, A, B, C, D, E, and G.

1. **Vitamin A.** Vitamin A is necessary for growth, vigor, resistance to disease, especially infections of nose, throat, ears, and lungs.
Foods supplying liberal amounts are cream, butter, whole milk, cheese, and certain vegetables (see chart). Cod liver oil is an excellent source of this vitamin.
2. **Vitamin B.** Vitamin B stimulates the appetite, promotes good digestion, and assimilation, and is essential to growth and nerve control. Vitamin B is quite widespread in food materials. Yeast, vegetables, fruits, nuts, whole grain cereals, lean meats, and milk all supply this vitamin.
3. **Vitamin C.** Vitamin C is essential to growth, aids in building strong teeth, in healing wounds, preventing skin disorders, and stimulates the appetite. A great shortage of this vitamin would result in scurvy. The best sources are fruits, especially citrus fruits, tomatoes and other vegetables, especially leafy vegetables, and milk.
These foods should be used raw as far as possible, because Vitamin C is easily destroyed by cooking, unless in an acid medium such as tomatoes.
4. **Vitamin D.** Vitamin D is important for good bone formation and the best utilization of calcium and phosphorus by the body. It prevents and cures rickets. It is a very important factor in the diet of children. The chief food sources are egg yolks, whole milk, cream, butter, and some of the green vegetables, and cod liver oil. The diet, during pregnancy and the first two years of the child's life, should be reinforced with cod liver oil or sunlight as a safety-first measure.
5. **Vitamin E.** Less is known about this vitamin than the others. It is a factor in reproduction and the production of mother's milk. It seems to be widely enough distributed that if foods containing the other vitamins are provided in sufficient amounts there is no need for concern regarding Vitamin E.
6. **Vitamin G.** Vitamin G is closely associated with Vitamin B. According to Sherman, "Vitamin G aids in maintaining a better-than-average condition of nutrition." It is also known as the Pellegra preventive vitamin. Foods supplying good amounts of Vitamin G are milk, eggs, lean meat, fish (salmon), tomatoes, green vegetables (especially leafy vegetables), whole wheat cereals, nuts, and yeast.

Water. No discussion of foods would be complete without mentioning water. Water is an important regulatory element, which aids greatly in good elimination. Good elimination is a primary factor in a good state of health. One of the frequent causes of constipation is a lack of the use of water. A glass of water before breakfast and two glasses between meals is a good practice. However, water may be used with meals, provided food is not washed down with it. Adults should have six to eight glasses of water each day, and children four glasses.

Roughage. Roughage is also a regulatory factor worth mentioning, since it influences good elimination of the digestive tract. Vegetables and fruits and whole grain cereals are the chief sources. It is better to depend upon vegetables and fruits for the greater amount of roughage, in the ordinary diet, since their fibre is less harsh than that of whole grain cereals. Judgment needs to be exercised in the use of foods containing much fibre (especially coarsely milled whole grain cereals). However, the tendency of most people is to use such foods in too small amounts.

SUMMARY

1. Use some food from all food classes each day.
2. Make sure of adequate amounts of protein, minerals, and vitamins each day.
3. Use enough of energy foods for body needs, but do not over-indulge in the use of sweets, fatty, and other heavy foods.
4. Drink plenty of water.
5. Reinforce the diet with sunshine or cod liver oil.
6. Hold fast to a simple and well-chosen diet.
7. Make the meal hour a happy and pleasant hour.
8. In conclusion:

“Choose a liberal, varied diet to be taken three times a day with a grain of sunshine, or in its absence, a dash of cod liver oil. Its results will be, (I hope) a good complexion, good teeth, thick hair, a straight and vigorous body equipped with vitality which makes us feel that life itself is worthwhile.”

—From Edith M. Barber’s book on
“What Shall I Eat?”

GOOD SOURCES OF PROTECTIVE FOODS

PROTEIN	MINERALS			VITAMINS					
	Calcium (Lime)	Phosphorus	Iron	A	B	C	D	E	G
Whole milk	Milk	Milk	Egg yolk	Butter	Milk	Grapefruit	Butter	Wheat	Yeast
Skim milk	Cheese	Lean meat	Dried beans	Cream	Egg yolk	Lemons	Cream	Green leaves	Milk
Eggs	Cottage cheese	Egg yolk	and peas	Whole milk	Heart	Oranges	Egg yolk	Cream	Eggs
Cheese	Almonds	Cheese	Molasses	Egg yolk	Kidney	Strawberries	Cod liver oil	Butter	Lean meat
Lean meat	English walnuts	Cottage cheese	Liver	Cod liver oil	Liver	Cabbage (raw)	Some in leafy vege- tables	Liver	Liver
Fish	Molasses	Dried beans and peas	Kidney	Cheese	Lean meat	Lettuce	Lean meat	Lean meat	Kidney
Dried beans and peas	Dried beans and peas	Whole grain products	Heart	Spinach	Whole grain cereals	Spinach	Cereals	Cereals	Heart
Nuts	Whole wheat products	Whole grain products	Wheat bran	Other leafy vegetables	Citrus fruits	Other leafy vegetables			Fish (Salmon)
Cereals	Cauliflower	Rolled oats	Whole wheat	Carrots	Pears	Tomatoes			Tomatoes
	Chard	Unpolished rice	products	Tomatoes	Pineapple	Tomatoes			Leafy vegetables
	Other leafy vegetables	Nuts	Spinach	Liver	Prunes	Green peas			Carrots
	Wheat bran		Mustard greens	Kidney	Tomatoes	(young)			Cauliflower
	Whole grain cereals		Prunes	Beef fat	Spinach	Rutabaga			Whole grain cereals
	Egg yolk		Raisins	String beans	Other leaves	Carrots			Most vegetables
	Citrus fruits		Asparagus	Peas	Carrots	(raw)			Fruits
			String beans (fresh)	Sweet potatoes	Dried beans and peas	Sweet potatoes			Nuts
			Cabbage	Pumpkin	Cauliflower	White potatoes			
			Chard	Prunes	Parsnips	String bean			
			Peas	Orange	Sweet potatoes	Pumpkin			
				Pineapple	Peas	Peaches			
				Banana	(green)	Raspberries			
					String bean	Apples			
					Radishes	(raw)			
					Rutabaga	Pineapple (fresh)			
					Nuts	Peanuts			

The foods mentioned at the top and near the top are the richest sources of the various elements.

ENERGY-GIVING FOODS

STARCHES	SWEETS	FATS
Bread	Sugar	Butter
Cereals	Syrups	Cream
Crackers	Honey	Cheese
Rice	Preserves (all kinds)	Lard
Tapioca	Jelly	Crisco
Corn Starch	Candy	Other vegetable compounds
Potatoes (Irish)	Dried Fruits	Bacon
Potatoes (Sweet)	Cake	Salt Pork
Dried Beans and Peas	Cookies	Salad oils
Corn	Other desserts	Chocolate
		Nuts
		Peanut butter

**TABLE OF FOODS INDICATING NEUTRAL-ASH, ACID-ASH
AND ALKALINE-ASH FOODS**

NOTE: 1 These tables have been prepared from Sherman and Gettler's work, and are a copy of those published by Dr. Sansum.

(2) In general we say that:

- (a) Meats, cereals, eggs, fish, peanuts and several fruits (cranberries, plums, and prunes), are acid forming foods.
- (b) All vegetables, nuts, fruits (except the above named) and milk are alkaline-ash foods.

Neutral-Ash Foods		Alkaline-Aash Foods	
Food	Degree of Activity per 100 Grams	Food	Degrees of Alkalinity per Gram
Butter		Almonds	12.38
Lard		Apples	3.76
Sugar		Asparagus	.81
		Bananas	5.56
		Beans, dried	23.87
		Beets	10.86
		Beans, lima (dried)	41.65
		Cabbage	4.34
		Cauliflower	5.33
		Carrots	10.83
		Celery	7.78
		Currants	5.97
		Lemons	5.45
		Lettuce	7.37
		Milk (cow's)	2.37
		Muskmelon**	7.47
		Oranges**	5.61
		Peaches	5.04
		Peas	7.07
		Potatoes**	7.19
		Raisins	23.68

*The ash of these foods is alkaline, but because of contained substances which form hippuric acid in the body, they increase the acidity of the urine.

**These foods have been found experimentally to be very efficient in reducing acidity in the urine.

