

There is not much danger that our meals will lack any of these requirements. But, if we would keep our bodies robust, we must have some mineral food and vitamins as well to help the other foods do their work and to safeguard against the so-called "deficiency" diseases. Some proteins and energy foods do contribute a share of the mineral and vitamin content of a meal. Especially is this true of milk and eggs. Milk is often called a protective food because its presence in the menu helps to protect the body against a possible lack of minerals and vitamins. But many fruits and vegetables, especially the green, leafy ones, are also worthy of the name 'protective foods'. While not adding appreciably to the protein and energy content of the meal, they supply in abundance the minerals and vitamins so indispensable for the building of a healthy body. Whole cereals, too, add their quota to the mineral and vitamin content of our meals. The term 'cereal' is applied to the edible seed of certain grains as wheat, oats, rice. It refers to the flour made from these seeds as well as to breakfast foods. If all the outer layers are discarded, as in white flour and polished rice, we have refined cereals. If most of the outer layers are retained we have what are known as whole cereals, as in brown bread and cracked wheat porridge. Eggs are also a good source of minerals and vitamins, but we must not depend on them to the exclusion of fruits and vegetables. We must be sure, then, that these foods—milk, eggs, fruits, vegetables and whole cereals are not crowded out of their rightful place by a too liberal use of what we may call the 'non-protective foods'—the proteins, fats and carbohydrates in the form of meats, breadstuffs, sugars and fats.

MAKE THE MOST OF MINERALS

Some of the minerals needed by the body are found in such abundance in a varied diet that we do not need to concern ourselves with them. Others, particularly calcium, iron and phosphorus, are found in quite large amounts in some foods and in very small amounts in others. We must study their food sources in order to supply them in adequate amounts in the daily meals.

Calcium has many uses in the body but we are most concerned with its function in building straight bones and strong teeth. Children, especially, require a good supply of calcium. The most practical and cheapest way to ensure an adequate calcium supply is to use milk freely. Dried beans and peas, nuts and green leafy vegetables are fairly good sources.

Phosphorus, too, is important in the building of strong bones and teeth and in the formation of other body tissues. Its main sources are milk, fish, meat, eggs and whole cereals. We are told on good authority that a daily allowance of four cups of milk for a child and two cups for an adult will supply not only the calcium needs of the body, but a good share of the phosphorus needs as well.

Iron is necessary for proper blood formation and its lack in the diet will cause the individual to become anaemic. Some of the best sources of iron are liver, muscle cuts of meat, egg yolk, green leafy vegetables, dried fruits and molasses. Probably the reason the iron of these foods is well utilized by the body is because of the slight traces of copper which they contain. Research workers have found that the iron in food is much better utilized when traces of copper are also present.

Iodine is another mineral which is necessary for the well-being of the body but which is found in a varying degree in foods. Even the same foods contain it in varying degrees according to the amount of iodine present in the soil in the region in which they are grown. In regions near the sea such foods as vegetables and milk have more iodine than those grown in many inland regions. It would seem well, then, to include some seafood occasionally in the diet.

CONSIDER THE VITAMINS

It has long been known that characteristic diseases develop as a result of lack of certain foods in the diet. Perhaps the example most familiar to Canadians from their school-day study of Canadian history is that of Jacques Cartier whose men developed scurvy because of the lack of fresh food in their meals. Later, it was discovered that lemon juice would cure scurvy and it was supplied to men on British sailing vessels. But it was not till the early part of the twentieth century that this antiscorbutic substance was reconized as a substance found in certain foods, especially in fresh fruits and vegetables as lemons, oranges, grapefruit, tomatoes, cabbage and onions and was named vitamin C. Later work has shown that it is not very stable—that heat affects it considerably unless acid is present as in tomatoes. Hence the rule developed that, in order to be sure we have enough vitamin C in our meals, we should use plenty of our fruits and vegetables raw or use an abundance of canned tomatoes, if raw food is not available. More recent research has shown that exposure to air is a great factor in the destruction of this vitamin; hence stored vegetables tend to lose their vitamin C content in time and the open-kettle method of canning fruits and tomatoes is thought to permit greater loss than the cold or hot-pack method. For this same reason, a large quantity of orange juice should not be extracted at one time and kept for future use. At the present time there is not much danger of anyone developing scurvy as a result of entire lack of vitamin C, but too little of this vitamin can cause much trouble. Skin eruptions, poorly developed teeth and so called 'growing pains' may be due, in part at least, to its presence in insufficient amounts in the diet.

Vitamin A is another vitamin which has been found necessary for the body's well-being. Its chief functions are to promote growth and to help the body resist infections, especially those of the respiratory tract. A good supply of vitamin A in the diet is a safeguard against colds. Because it is a fat-soluble vitamin it is found in certain fats and butter and cream are good sources of it. Some fish livers contain it and we find it in abundance in cod liver oil. Some yellow coloured foods, as carrots, sweet potatoes and yellow corn, contain it as do most of the green leafy vegetables and tomatoes.

The story of the discovery of vitamins B₁ and B₂ is as intriguing as that of vitamin C. These were originally thought to be only one vitamin and were known as vitamin B. More recent research showed this vitamin was complex and consisted of at least two distinct parts. These were named B₁ and B₂ by English workers and B and G by American investigators. Vitamin B₁ is sometimes called the appetite vitamin, for its lack results in a loss of appetite. Its lack results also in the loss of muscle tone which, in the case of the digestive tract, tends to cause constipation. It is present in unrefined cereals, vegetables, milk and eggs. Because it is soluble in water, much of it may be lost if the cooking water of vegetables is discarded. Vitamin B₂ is also necessary to keep the body in good condition. It is found in milk, eggs, liver and green