

Essential Nutrient Sources

Multi-Vitamins

All multivitamin pills providing 5000 International Units (1500 mg retinol equivalent) vitamin A, 400 IU (10 mg) of vitamin D, and 50 to 100 mg of vitamin C, must meet U.S. Government standards, so the least expensive usually are quite adequate. Storage in a refrigerator greatly lengthens the time before vitamin pills must be replaced with fresh ones. Because vitamin C is so essential, yet very inexpensive and long-lasting, it is prudent to store a large bottle.

Vitamin C

A deficiency of vitamin C (ascorbic acid) causes scurvy. This deadly scourge would be the first nutritional disease to afflict people having only grain and/or beans and lacking the know-how needed to sprout them and produce enough vitamin C. Within only 4 to 6 weeks of eating a ration containing no vitamin C, the first symptom of scurvy would appear: swollen and bleeding gums. This would be followed by weakness, then large bruises, hemorrhages, and wounds that would not heal. Finally, death from hemorrhages and heart failure would result. The simplest and least expensive way to make sure that you, your family and neighbors do not suffer or die post-attack from scurvy is to buy one kilogram (1,000,000 milligrams) of pure vitamin C, which is the crystalline "ascorbic acid" form. Unlike vitamin C tablets, pure vitamin C crystals do not deteriorate. An inexpensive mail-order source is Bronson Pharmaceutical, 4526 Rinetti Lane, La Canada, California 91011

An ample daily dose is 25 milligrams, about 0.0009 ounce. Ten grams (about one third ounce) is enough for a whole year for one person who is eating only unsprouted grain and/or other foods providing no vitamin C. One gram (1,000 mg) of crystalline ascorbic acid is 1/4 teaspoonful. If you do not have a 1/4 teaspoon, put one level teaspoonful of the crystals on a piece of paper, and divide the little pile into 4 equal parts; each will be approximately 1,000 mg. One of these 1,000 mg piles can easily be divided into 4 tiny piles, each 250 mg. A 250 mg pile provides 10 ample daily doses of 25 mg each. If your family has a 1,000,000 mg supply, taking a 50 mg daily dose of pure crystalline ascorbic acid may be preferred, either sprinkled on food or dissolved in water.

Sprouting Seeds

One good expedient way to prevent or cure scurvy is to eat sprouted seeds not just the sprouts. Sprouted beans prevented scurvy during a famine in India. Captain James Cook was able to keep his sailors from developing scurvy during a three-year voyage by having them drink an unfermented beer made from dried, sprouted barley. For centuries the Chinese have prevented scurvy during the long winters of northern China by consuming sprouted beans. Only 10 mg of vitamin C taken each day (1/5 of the smallest vitamin C tablet) is enough to prevent scurvy. If a little over an ounce (about 30 grams) of dry beans or dry wheat is sprouted until the sprouts are a little longer than the seeds, the sprouted seeds will supply 10 to 15 mg of vitamin C.

Such sprouting, if done at normal room temperature, requires about 48 hours. To prevent sickness and to make sprouted beans more digestible, the sprouted seeds should be boiled in water for not longer than 2 minutes. Longer cooking will destroy too much vitamin C.

Usual sprouting methods produce longer sprouts than are necessary when production of enough vitamin C is the objective. These methods involve rinsing the sprouting seeds several times a day in safe water. Since even survivors not confined to shelters are likely to be short of water, the method illustrated in Fig. 9.5 should be used. First the seeds to be sprouted are picked clean of trash and broken seeds. Then the seeds are covered with water and soaked for about 12 hours. Next, the water is drained off and the soaked, swollen seeds are placed on the inside of a plastic bag or ajar, in a layer no more than an inch deep. If a plastic bag is used, you should make two loose rolls of paper, crumple them a little, dampen them, and place them inside the bag, along its sides.

As shown in the figure below, these two dampened paper rolls keep the plastic from resting on the seeds and form an air passage down the center of the bag. Wet paper should be placed in the mouth of the bag or jar so as to leave an air opening of only about 1 square inch. If this paper is kept moist, the seeds will remain sufficiently damp while receiving enough circulating air to prevent molding. They will sprout sufficiently after about 48 hours at normal room temperature.

Sprouting with minimum water.



Sprouting seeds also increases their content of riboflavin, niacin, and folic acid. Sprouted beans are more digestible than raw, unsprouted beans, but not as easily digested or nourishing as are sprouted beans that have been boiled or sautéed for a couple of minutes. Sprouting is not a substitute for cooking. Contrary to the claims of some health food publications, sprouting does not increase the protein content of seeds, nor does it improve protein quality. Furthermore, sprouting reduces the caloric value of seeds. The warmth generated by germinating seeds reduces their energy value somewhat, as compared to unsprouted seeds.

Vitamin A

Well-nourished adults have enough vitamin A stored in their livers to prevent vitamin A deficiency problems for several months, even if their diet during that time contains none of this essential vitamin. Children would be affected by deficiencies sooner than adults. The first symptom is an inability to see well in dim light. Continuing deficiency causes changes in body tissues. In infants and children, lack of vitamin A can result in stunted growth and serious eye problems even blindness. Therefore, a survival diet should be balanced with respect to vitamin A as soon as possible, with children having priority. Milk, butter, and margarine are common vitamin A sources that would not be available to most survivors. If these were no longer available, yellow corn, carrots, and green, leafy vegetables (including dandelion greens) would be the best sources. If these foods were not obtainable, the next best source would be sprouted whole-kernel wheat or other grains if seeds could be sprouted for three days *in the light*, so that the sprouts are green. Although better than no source, sprouting is not a very satisfactory way to meet vitamin A requirements. The development of fibrous roots makes 3-day sprouted wheat kernels difficult to eat. And one must eat a large amount of seeds with green sprouts and roots to satisfy the recommended daily emergency requirements up to 5 1/2 cups of 5-day sprouted alfalfa seeds. Survivors of a nuclear attack would wish they had kept an emergency store of multivitamin pills.

Vitamin D

Without vitamin D, calcium is not adequately absorbed. As a result, infants and children would develop rickets (a disease of defective bone mineralization). A pandemic would cut off the vast majority of Americans from their main source of vitamin D, fortified milk. Vitamin D can be formed in the body if the skin is exposed to the ultraviolet rays of the sun. Infants should be exposed to sunlight very cautiously, initially for only a few minutes. In cold weather, maximum exposure of skin to sunlight is best done in a shallow pit shielded from the wind.

Niacin and Calcium

Niacin deficiency causes pellagra, a disease that results in weakness, a rash on skin exposed to the sun, severe diarrhea, and mental deterioration. If a typical modern American had a diet primarily of corn and lacked the foods that normally supply niacin, symptoms of pellagra would first appear in about 6 months. During the first part of this century, pellagra killed thousands of Americans in the South each year.

These people had corn for their principal staple and ate few animal protein foods or beans. Yet Mexicans, who eat even more corn than did those Southerners -- and have even fewer foods of animal origin -- do not suffer from pellagra. The Mexicans' freedom from pellagra is mainly due to their traditional method of soaking and boiling

their dried corn in a lime-water solution. Dry lime weighing about 1% as much as the dry corn is added to the soak water, producing an alkaline solution. Wood ashes also can be used instead of lime to make an alkali solution. The alkali treatment of corn makes the niacin available to the human body. However, the niacin in dried corn is not readily available to the body unless the corn has received an alkali treatment. Treating corn with lime has another nutritional advantage: the low calcium content of corn is significantly increased.

Fat

The emergency recommendation for fat is slightly over 1 ounce per day (30 g) of fat or cooking oil. This amount of fat provides only 10% of the calories in the emergency diet, which does not specify a greater amount because fats would be in very short supply after a pandemic. This amount is very low when compared to the average diet eaten in this country, in which fat provides about 40% of the calories. It would be difficult for many Americans to consume sufficient calories to maintain normal weight and morale without a higher fat intake; more fat should be made available as soon as possible. Increased fat intake is especially important for young children, to provide calories needed for normal growth and development. Oak Ridge National Laboratory field tests have shown that toddlers and old people, especially, prefer considerably more oil added to grain mush than the emergency recommendation of 10%. Vegetable oil stores as well in plastic bottles as in glass ones. The toughness and lightness of plastic bottles make them better than glass for carrying when evacuating or for using in a shelter. Since a pound of oil provides about 2-1/4 times as much energy as does a pound of sugar, dry grain, or milk powder, storing additional vegetable oil is an efficient way to improve a grain diet and make it more like the 40%-fat diet of typical Americans.

Vitamin B-12 and Animal Protein

Vitamin B-12 is the only essential nutrient that is available in nature solely from animal sources. Since a normal person has a 2 to 4-year supply of vitamin B-12 stored in his liver, a deficiency should not develop before enough food of animal origin would again be available. Many adults who are strict vegetarians keep in good health for years without any animal sources of food by using grains and beans together. It is more difficult to maintain normal growth and development in young children on vegetarian diets. When sufficient animal sources of food are available, enough should be provided to supply 7 grams of animal protein daily. This could be provided by about 1.4 ounces (38 g) of lean meat, 0.7 ounce (20 g) of nonfat dry milk, or one medium-sized egg. When supplies are limited, young children should be given priority. Again: a little of these high-grade supplementary protein foods should be eaten with every meal.

Iron

Most people live out their lives without benefit of an iron supplement. However, many pregnant and nursing women and some children need supplemental iron to prevent anemia. One tested expedient way to make more iron available is to use iron pots and pans, especially for cooking acid foods such as tomatoes. Another is to place plain iron nails (not galvanized nails) in vinegar until small amounts of iron begin to float to the surface.

This usually takes 2 to 4 weeks. Then a teaspoon of iron-vinegar solution will contain about 30 to 60 mg of iron, enough for a daily supplement. The emergency recommendation is 10 mg per day. A teaspoon of the iron-vinegar solution is best taken in a glass of water. The iron content of fruit, such as an apple, can be increased by placing iron nails in it for a few days.